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United States Senate
Committee on Commerce, Science, and Transportation
Washington, D.C. 20510-6125

MEMORANDUM

Date: May 4, 2010

To: The Honorable Julius Genachowski

Date of Hearing: April 14, 2010

Hearing: Reviewing the National Broadband Plan

Thank you for your recent testimony before the Senate Committee on Commerce, Science, and Transportation. The information you provided is greatly appreciated.

Attached are **post-hearing questions** pertaining to the above-mentioned hearing. As a courtesy, please submit a single document consolidating the posed questions followed by your answers for insertion in the printed hearing record. They should be mailed electronically to the Committee via the Internet to docs@commerce.senate.gov and David_Quinalty@commerce.senate.gov.

Should the Committee not receive your response within this time frame or if the Committee staffer assigned to the hearing is not notified of any delay, the Committee reserves the right to print the posed questions in the formal hearing record noting your response was not received at the time the record was published.

Committee staffer assigned to the hearing: David Quinalty

Phone: (202) 224-1251

Date material should be returned: May 19, 2010.

Thank you for your assistance and, again, thank you for your testimony.

KAY BAILEY HUTCHISON

Ranking Member

QUESTIONS FOR THE RECORD
SENATOR OLYMPIA SNOWE

I. Broadband Tax Incentives

The Broadband Plan makes several references to the private sector investment that has been made to broadband networks and services. The document even goes as far to state that “due in large part to private investment and market-driven innovation, broadband in America has improved considerably in the last decade.”

Back in the Fall, the Commission concluded that a total investment for universal broadband availability for the nation would range from \$20 billion to \$350 billion depending on the speed of broadband service.

In the Plan, the Commission concludes that in order to achieve the National Broadband Availability Target of broadband speeds of 4 Mbps download and 1 megabit-per-sec upload, the total cost would be approximately \$33 billion.

Question: The Plan sets a goal of 100 million U.S. homes should have affordable access to actual download speeds of at least 100 Mbps and actual upload speeds of at least 50 Mbps by 2020. Can you pinpoint or elaborate on what the Commission has estimated as the required investment to achieve that goal?

One of the main goals of the Plan to is to “maximize investment” but the document seems to be light on recommendations related to financial incentives such as tax credits to bolster capital investment in infrastructure.

Question: Given the significant capital expenditures required to meet the Commission’s National Broadband Availability Target and 100-100 goal, why weren’t there more recommendations related to tax credit-based incentives? The plan made these types of tax-based proposals to Congress for Research and Experimentation (R&E) and telework practices.

II. National Broadband Plan Impact

The Plan also establishes six long-term goals to serve as a compass over the next 10 years. The first goal is to provide at least 100 million U.S. homes with affordable Internet broadband access with actual download speeds of at least 100 megabits per second and actual upload speeds of at least 50 megabits per second. Providing consumers, developers, and small businesses such high-speed broadband speeds will truly revolutionize the Internet as well as exponentially increase the benefits it provides—users will be able to leverage new and emerging high-bandwidth applications and services that aren’t available today or accessible with lower speeds.

But at the same time, the Plan acknowledges that broadband carriers are aggressively upgrading their networks to offer higher speeds and greater capacities. The Plan cites several network upgrades and expansions that are already planned or in the process of being implemented over next 2 to 3 years that will provide approximately 100 million homes with

broadband speeds of 20 to 50 megabits-per-second and provide the building blocks to even faster broadband speeds in long-term.

Question: How will the Commission measure the effectiveness of this Plan as a catalyst for accelerating the investment that is currently underway or broadband deployment and adoption in general?

III. E-rate Reform

One of the E-rate recommendations in the Plan is that the FCC should reexamine specific E-rate rules that appear to limit the flexibility of applicants to craft the most cost-effective broadband solutions based on the types of broadband infrastructure, services and providers available in their geographic areas. While more flexibility could possibly reduce the overall cost of broadband and increase bandwidth, there are concerns about maintaining the integrity of the program. The E-rate program has been very successful, well run, and established procedures for minimizing waste, fraud, and abuse.

Question: Can you elaborate on the FCC's plan with respect to reforming and enhancing the E-rate program but maintaining the integrity and ensuring that increasing flexibility doesn't open it up to more waste, fraud, and abuse?

The Broadband Plan makes numerous proposals related to the Universal Service Fund, in general. As you know, the Universal Service Administrative Company (USAC) is the independent, not-for-profit corporation designated as the administrator of the federal Universal Service Fund by the FCC.

Question: Can you elaborate on how involved the Universal Service Administrative Company (USAC) was in assisting the FCC's development of these recommendations? Were USAC official active participants in discussions?

The E-rate program provides two "priorities" for discounting telecommunications services—Priority 1 for external telecommunications and Internet connections and Priority 2 for internal connections/wiring. The Plan recommends the Commission develop ways that Priority 2 funding can be made available to more E-rate applicants. Given the advancements in information technology and more dynamic content and applications that teachers and students are utilizing, numerous schools are expressing that traditional Priority 1 connections (typically T1/T3s) are not enough for the growing demand and usage—that higher bandwidth fiber optic connections are needed. Libraries have also conveyed the need for greater capacity due to increase patronage.

Question: How will the Commission balance the recommendation for increasing Priority 2 funding with accommodating for greater priority 1 funding to meet the growing bandwidth needs of schools and libraries?

IV. Comprehensive Spectrum Policy Reform

One of the main focal points of the Plan is radio spectrum and finding more of it for wireless. While I strongly agree that comprehensive spectrum policy reform is long overdue and

paramount to achieving the long-term telecommunications needs of this nation, I am concerned about what seems to be a heavy emphasis on reallocation instead of a more multi-faceted solution that includes fostering technological advancement and more robust spectrum management.

Case in point, there are extensive and detailed recommendations in the Plan to reallocate 120 megahertz of spectrum currently being used by broadcasters as well as the voluntary mobile auction fund, but only general recommendations to encourage technical innovation and spectrum sharing/reuse opportunities that would improve spectrum efficiency. For example, a technology known as femtocell, that can increase capacity by offloading wireless traffic onto broadband wireline networks, wasn't mentioned once in the Plan.

This plan is suppose to be forward thinking but seems to be somewhat stuck in the past by presenting a roadmap that excessively relies on reallocation, which is a zero sum game, instead of a greater emphasis on technological innovation and robust management to increase spectrum efficiency and wireless capacity.

Question: Do you agree that more robust spectrum management policy and technical innovation advancement are just as important, if not more so than reallocation? Can you explain in more detail how the Plan will implement a comprehensive solution to ensure that spectrum is available to meet the future needs of all users—not just wireless broadband?

V. 500 MHz of New Spectrum Goal

One of the recommendations within the National Broadband Plan is that the FCC should make 500 megahertz newly available for broadband use within the next 10 years, of which 300 megahertz between 225 MHz and 3.7 GHz should be made newly available for mobile use within five years.

While the Plan briefly notes general estimates between 40 to 150 megahertz of spectrum are required for each operator, it wasn't clear as to how the 500 MHz would ultimately be parceled out—spectrum license sizes for new competitors and additional spectrum bandwidth to increase capacity for incumbent spectrum licensees.

Question 1: Can you elaborate on how that 500 MHz will be distributed?

Question 2: How will the Commission balance providing more spectrum to incumbents in order to increase capacity and bandwidth with providing spectrum to new entrants to foster more competition so consumers can have more choices available to them?

VI. Consumer Broadband Test

The FCC recently launched a free broadband speed test for consumers to check the download and upload speeds of their Internet broadband connection. The premise is that the test will allow consumers to compare the FCC test results with the speeds promised by the broadband provider and allow the FCC to use data collected from the test to analyze broadband quality and availability across the United States.

However, some users have expressed concern about widely varying results. There is actually a disclaimer on the FCC test site stating that the test may not be an accurate representation of connection quality provided by one's broadband provider. An FCC official recently stated that "software-based tools can provide individuals with inconsistent performance

results, some of which are out of the control of the ISP.” Given the test transfers a small amount of generic data back and forth between a user’s computer and a testing server, the path that the data takes could contain numerous hops or links owned and operated by multiple carriers that the consumer is not aware of—even for local end points. In addition, the old adage “you’re only as fast as your slowest link” seems to apply. So one could easily see a possible misrepresentation the test would have and the consumer confusion that could result.

Question: Is the FCC concerned about consumer confusion that the Commission’s Consumer Broadband Test could create? With varying test results and lack of detailed information presented, it could lead to consumers wrongly accusing their broadband provider of not providing what they are advertising even though, as the FCC official noted, some performance characteristics are out of the ISP’s control, correct?

Transparency with broadband performance is a key issue within the Plan but there isn’t any real mention of the multitude of factors that affect broadband speeds—the multiple links that exist between consumer and the Internet content they’re accessing, equipment performance, the type of data being transmitted, existence of viruses/malware, etc.

Question: What are the FCC’s plans to properly address this?

VII. Broadband Competition – Current State

The Broadband Plan indicates that approximately 4 percent of housing units are in areas with three wireline providers (either DSL or fiber, the cable incumbent and a cable over-builder), and 78 percent are in areas with two wireline providers. Thirteen percent are in areas with a single wireline provider and 5 percent have no wireline provider.

However, this data seems to conflict with the FCC’s most recent semi-annual broadband report, which was released earlier this year in February. Table 13, which details the percentage of Census Tracts with Residential Fixed High-Speed Connections related to the number of providers, indicates that 26 percent of census tracts have three broadband providers and only 1.1 percent of census tracts have no broadband provider.

Table 13
Percentage of Census Tracts with Residential Fixed High-Speed Connections by Technology as of December 31, 2008
(Connections over 200 kbps in at least one direction)

Technology	Number of Providers							
	Zero	One	Two	Three	Four	Five	Six	Seven or More
aDSL	4.3	40.7	38.4	13.4	2.7	0.4	0.1	0.0
sDSL	96.0	3.8	0.2	0.0	0.0	0.0	0.0	0.0
Other Wireline	99.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	8.6	79.3	11.6	0.6	0.0	0.0	0.0	0.0
FTTP	86.7	13.0	0.2	0.0	0.0	0.0	0.0	0.0
Satellite	45.2	24.6	24.5	5.6	0.0	0.0	0.0	0.0
Fixed Wireless	87.3	10.2	2.0	0.4	0.1	0.0	0.0	0.0
Power Line	99.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0
aDSL and/or Cable Modem and/or FTTP	1.5	6.6	34.7	35.7	16.2	4.3	0.8	0.2
Any Technology	1.1	2.6	15.1	25.7	26.1	16.7	7.9	4.8

ote: Figures may not sum to totals due to rounding.
ources: FCC Form 477, Part VI and Census 2000.

Question: Can you clarify the differences in the data sets? Which is more accurate in detailing the number of broadband providers consumers have available to them?

Another table (Table 10) in the report shows that the number of broadband providers has increased from 1,270 in June 2005 to 1,554 in December 2008—a 22 percent increase over 3 and a half years.

Table 10
Nationwide Number of Providers of High-Speed Connections by Technology 2005 - 2008
 (Connections over 200 kbps in at least one direction, in thousands)

Technology	2005		2006		2007		2008	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec
aDSL	758	818	833	858	864	856	863	879
sDSL	270	269	256	257	242	233	238	262
Other Wireline	206	241	246	256	246	250	259	290
Cable Modem	227	242	254	279	282	292	296	341
FTTP	138	170	187	222	251	276	308	430
Satellite	10	4	5	5	5	5	4	5
Fixed Wireless	423	463	452	505	484	514	505	617
Mobile Wireless	13	15	19	24	19	22	24	46
Power Line and Other	18	7	6	6	6	7	6	5
Total	1,270	1,345	1,327	1,396	1,374	1,399	1,395	1,554

Note: Multiple Form 477 filers within a holding company structure count as one provider.
 Source: FCC Form 477, Part I.

Question: From the FCC’s point of view is the broadband industry becoming more competitive and do consumers have more options for broadband providers available to them?

VIII. Broadband Classification

Broadband Internet access services are currently classified as information service, which is defined as “the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing.”

Some have suggested reclassifying broadband as a telecommunications service, which is defined as “the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.”

Without question, there has been a significant evolution in the telecommunications industry and the networks—from the legacy tip & ring circuit-switched PSTN voice network to the high-bandwidth, dynamic routing, IP packet-based networks of today, where there is a convergence of various data types. Today’s broadband networks employ numerous protocols, various caching and queuing technologies, DNS/IP addressing, as well as encoding and decoding (codecs) technologies that allow consumers to utilize countless services and applications online. Very simply, there is an extensive amount of processing, storing, and converting activities on a broadband network than the legacy phone network with regards to the User Network Interface (UNI) connection.

Question 1: In your opinion and from a pure definitional standpoint, which definition is more appropriate for broadband access services? Do you believe a new definition or classification (such as “Internet Service” or “Broadband Service”) may be required to better reflect broadband Internet access services?

Question 2: Would reclassification of broadband Internet access service as a telecommunications service change the ability of service providers to deal with online

copyright theft? What should be done to maximize security for copyright holders from a technology standpoint?

Question 3: Additionally, would reclassification have any implications for the ability of service providers to deal with computer viruses or spam, or even to implement cyber security measures? As a member of the Intelligence Committee, I am very interested in enhancing—and not impeding—cyber security protections, so I look forward to your comments on this.

QUESTIONS FOR THE RECORD
SENATOR JOHN ENSIGN

1. Chairman Genachowski, last month the Washington Post wrote that “it is curious that the [FCC] faults the market for failing” when “the number of Americans who have broadband at home has grown from 8 million in 2000 to nearly 200 million last year.” The National Broadband Plan itself notes that broadband providers invested \$130 billion into their networks over the last two years, during a major recession. I have to agree with the Washington Post editorial board—I don’t see signs of gross market failure that might justify the sort of government spending and increased government intervention recommended by the Plan. How is it that you and your team came to such a different conclusion?
2. Chairman Genachowski, one of the National Broadband Plan’s goals is to have 100 million households served by 100 megabit broadband within 10 years. Achieving this goal will obviously require tens of billions of dollars to be invested into broadband networks. The Plan, however, recommends net neutrality restrictions; suggests broader unbundling mandates; and leaves the door open to using outdated monopoly telephone regulations for broadband. Most people I talk to say that heavy-handed regulations like these will deter the private-sector investment you need to reach your 100 to 100 target. If such policies would result in less investment, isn’t the FCC be undermining its own goals by pursuing these regulatory policies?
3. Chairman Genachowski, in your testimony before the House Commerce Committee, you left the door open to pursuing involuntary proposals to reallocate broadcaster spectrum. While you and I agree on the importance of finding more spectrum for wireless broadband, I believe we must exhaust every possible voluntary proposal before even talking about involuntary mechanisms. Do you agree? And if so, will you commit to us today that you will not consider any involuntary proposals until the FCC has completed its consideration and implementation of all possible voluntary mechanisms?

QUESTIONS FOR THE RECORD
SENATOR GEORGE LEMIEUX

1. Last year, Congress approved a stimulus bill directing more than \$7 billion in funding for broadband deployment. While some of the funds have now gone out, the funding did not go out quickly, and many of the largest broadband providers would not participate. Since this money was allocated before this plan was created, are you concerned that billions of dollars in funding are being misspent in a fashion that is devoid of a strategic plan? Has your staff been coordinating with the Department of Commerce and the Department of Agriculture to ensure that their funding plans complement the broadband plan we are considering today?
2. As you know, spectrum availability has been of concern as our nation's technologies develop. We must be working to find ways to free up spectrum for new technologies. In the National Broadband Plan, it is stated that to free up spectrum broadcasters will be asked to volunteer to give up some of their spectrum (of which they already gave some up for the digital transition). What is the plan should these broadcasters not volunteer more of their spectrum?
3. As you know, in recent years, internet piracy and intellectual property protection has been a mounting problem. The National Broadband Plan would be a perfect opportunity to address this issue. The current plan does not mention piracy and has little mention of intellectual property protections. Why was there no acknowledgement in your plan of the piracy problems that plague our entertainment and software companies online? With the rollout of this plan, almost every American will have access to broadband. With greater broadband speeds and availability, what is being done to protect the content from being stolen?
4. Do you believe public safety needs or will need more than 10 MHz of spectrum for voice, video, and data? If yes, by when? If they do, then why not just allocate the spectrum now? Why should we try to solve this problem later if we already have the solution in front of us now? Will it not cost more to solve the problem later and create problems with interoperability because systems will be on different spectrum bands?
5. The National Broadband Plan seems to place a heavy emphasis on public safety having priority access to commercial networks to augment the 10 MHz of dedicated public safety broadband spectrum. How can you be sure that commercial carriers will be willing to provide that access?

QUESTIONS FOR THE RECORD
SENATOR DAVID VITTER

1. The FCC's recently released National Broadband Plan makes numerous references to several internal reports prepared by the Omnibus Broadband Team as support for its recommendations.

- The Broadband Availability Gap Report, cited 22 times
- Broadband Performance Report
- Spectrum Reclamation: Options for Broadcast Spectrum Report
- The Public Safety Broadband Wireless Network Report

I understand that these reports still have not been made available. Is this true, when do you expect to release these reports so Congress and the public can begin the process of reviewing the analysis underlying the recommendations contained in the Plan?

2. I know the plan's goal is to reach 100 million households with 100 mbps service. Some analysts believe that we may be on path to reach this goal with current market conditions. Wouldn't it be preferable to let the market investment work instead changing the broadband regulatory structure in a way that many think could provide disincentives to investment?

QUESTIONS FOR THE RECORD
SENATOR SAM BROWNBACK

- 1) In response to a question I asked you during this committee's consideration of your nomination, you stated that you "agree that unthinking or heavy-handed regulation always carries the risk of burdening innovation, investment, and dynamism—and that the FCC must be vigilant in guarding against such an approach."

I have therefore been surprised about several initiatives you have taken, or are considering since becoming Chairman. You launched into a rulemaking proceeding on network neutrality before having gathered any facts regarding whether there is a problem that needs a regulatory solution. Now that the DC Circuit has rejected the FCC's assertion of authority to impose network management regulations on broadband providers, you are allegedly considering reclassifying broadband services as telecommunications services, saddling such services with common carrier regulations. And some of your recommendations in the National Broadband Plan, such as fiber unbundling, contemplate eradicating the extremely successful broadband policies that began under Chairman Kennard in the Clinton Administration.

I was glad during your confirmation process that you recognized that heavy-handed regulation runs "the risk of burdening innovation, investment, and dynamism." But you seem to be heading in that very direction, despite the impact that such regulation would have on your, and the Obama Administration's, broadband goals. How are you going to achieve ubiquitous broadband deployment when, by your own admission, you are risking investment by imposing burdensome regulations?

- 2) If broadband were to be reclassified as telecommunications service, do you think broadband service providers would increase investment in their networks? Please explain your answer.
- 3) Do you believe that a reclassification of broadband services would survive a court challenge? Are you willing to endure years of uncertainty waiting for an answer?
- 4) In the *Comcast* case, the D.C. Circuit held that the FCC had not demonstrated that its regulation of the network management activities of ISPs was reasonably ancillary to express authority provided to the FCC by Congress. But the D.C. Circuit reiterated its two-part test that the Commission is permitted to exercise ancillary authority when (1) Title I covers a particular entity or activity and (2) Commission action is "reasonably ancillary to the Commission's effective performance of its statutorily mandated responsibilities." Do you agree that the D.C. Circuit's decision does not preclude the Commission from exercising ancillary jurisdiction in the future as long as the agency ties such authority to its "statutorily mandated responsibilities"?

- 5) In *Comcast*, the D.C. Court concluded that “[b]y leaping from *Brand X*’s observation that the Commission’s ancillary authority may allow it to impose *some* kinds of obligations on cable Internet providers to a claim of plenary authority over such providers, the Commission runs afoul of *Southwestern Cable* and *Midwest Video I*.” Doesn’t this mean that the D.C. Circuit acknowledges that the FCC can exercise ancillary authority to impose certain rules, but that the FCC must demonstrate that the imposition of such rules is reasonably ancillary to the agency’s statutorily mandated responsibilities?

- 6) According to Commissioner McDowell’s March testimony at the House Energy and Commerce Committee, “[m]ore than half of all Americans have a choice of five wireless providers. Ninety-four percent have a choice of four. Similarly, we lead the world in 3G build-out and adoption.” In addition, Commissioner McDowell asserts that “[n]ot only does the United States have one-third of the world’s market share of ‘mobile apps,’ but the American mobile app market has grown over 500 percent since 2007.” Given these facts, how did the report conclude that the United States lags in mobile innovation?