**Before the**

**DEPARTMENT OF COMMERCE**
**NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINSTRATION**
**Washington, D.C. 20230**

**DEPARTMENT OF AGRICULTURE**
**RURAL UTILITIES SERVICE**
**Washington, D.C. 20250**

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| In the Matter of | |
| American Recovery and Reinvestment Act of 2009 Broadband Initiatives | Docket No. 090309298-9299-1 |

# COMMENTS OF INTEL CORPORATION

April 13, 2009

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## EXECUTIVE SUMMARY

As a leading U.S. manufacturer and one of the Top 60 U.S. employers, Intel is committed to America's global competitiveness and the goals of the American Recovery and Reinvestment Act of 2009 (ARRA or the Act). Consistent with the ARRA's purposes to stimulate jobs and invest in the long-term economic health of our nation, Intel CEO Paul Otellini recently announced that Intel will spend *$7 billion over the next two years* to build advanced manufacturing facilities in the U.S. – an investment that will support approximately 7,000 high wage, high-skill jobs in America.

A significant part of Intel's strategy involves utilizing our manufacturing and technology leadership to bridge the digital divide in the U.S. and around the world. Our Intel World Ahead program has spent years working to accelerate PC ownership and enable an incremental one billion people to access the Internet by 2012. This experience in fostering universal broadband and PC ownership enables us to provide unique insight as the National Telecommunications and Information Administration (NTIA) and the Rural Utilities Service (RUS) undertake the broadband stimulus initiatives in the ARRA.

A key take away from our Intel World Ahead experience is that broadband deployment and adoption go hand-in-hand; one cannot serve its purpose without the other. In setting forth the purposes and specifications for Broadband Technology Opportunities Program (BTOP) funding, Congress aptly recognized that both broadband supply (deployment) and demand (adoption) are critical to bridging the digital divide in the U.S. Indeed, a perceived lack of need for broadband and a lack of computer ownership are top barriers to broadband adoption in unserved and underserved areas. Thus, we must solve the

broadband demand issue in these digitally-deprived areas in order to address the ultimate goal of universal broadband adoption in America.

Accordingly, NTIA and RUS should consider awarding ~ $1 billion in stimulus funding to projects that address broadband demand in unserved and underserved areas. Under BTOP, Congress allocates at least $250 million to sustainable broadband adoption programs; at least $200 million to public computing centers; and $350 million to funding the Broadband Data Improvement Act of 2008 (BDIA), which provides for grants for broadband mapping and adoption initiatives. Given that it cost the large State of California $400,000 to do its broadband map, and ten States have completed their maps, Intel conservatively estimates that it will cost $16 million to map the remaining 40 States and D.C. Thus, it should be possible to free at least another $300 million of BDIA funds for broadband adoption and related demand-side projects, such as establishing programs to improve computer ownership in areas with low broadband penetration. In sum, Intel believes that NTIA should consider allocating ~ $750 million ($250M + $200M + $300M) of its $4.7 billion BTOP funds to such programs. Similarly, RUS should consider awarding ~ $400 million of its $2.5 billion in ARRA broadband funding to demand-side programs.

When establishing selection criteria for grant and loan awards, NTIA and RUS use a two-step process. As a first step, the agencies should apply basic "gating" criteria to determine whether an application will be "accepted" for a more detailed review. If an application is accepted then, as a second step, NTIA and RUS should apply technology-neutral criteria to evaluate competing applications based on the optimal mix of broadband capabilities (*e.g.*, mobility and speed), cost (*e.g.*, benefits versus costs over time and per-customer cost),

and price advantages (*e.g.*, subscription and equipment pricing). The second step will be the heart of the review in determining which applications best meet the broadband needs of the greatest population of users in the areas to be served. The primary criterion for selecting award winners should be the cost-effectiveness or return on investment (ROI) of taxpayer dollars. ROI, as measured by increase in broadband usage and subscribership (*i.e.*, actual uptake of broadband service by users in unserved or underserved areas) will be the best indicator of the success of BTOP- and RUS-funded projects.

By adhering to the foregoing precepts, NTIA and RUS will ensure that we are investing precious taxpayer dollars in the most efficient, comprehensive, and meaningful manner for Americans in unserved and underserved communities. Intel fully supports the agencies in this broadband effort and appreciates the opportunity to provide our insight as the government undertakes this awesome responsibility.

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# COMMENTS OF INTEL CORPORATION

Intel Corporation (Intel) hereby submits comments to the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA) and the U. S. Department of Agriculture's Rural Utilities Service (RUS) in the above-captioned proceeding.[1] Intel, the world leader in silicon innovation, develops technologies, products and initiatives to continually advance how people work and live.[2] Intel has a long history of supporting public polices that promote ubiquitous, affordable, high-quality broadband in the United States (U.S.) and around the world. We respectfully submit our policy and technical expertise herein as NTIA and RUS develop rules and procedures

[1] Joint Request for Information and Notice of Public Meetings, 74 Fed. Reg. 10,716-21, Docket No. 090309298-9299-01 (March 12, 2009) (NTIA-RUS RFI).

[2] Additional information about Intel is available at www.intel.com/pressroom.

pursuant to the broadband initiatives in the American Recovery and Reinvestment Act of 2009 (ARRA or the Act).[3]

## I. INTEL'S COMMITMENT TO U.S. COMPETITIVENESS AND UNIVERSAL BROADBAND COINCIDE WITH THE GOALS OF THE OBAMA ADMINISTRATION, CONGRESS, AND THE ARRA

Intel is committed to America's global competitiveness and has years of experience working to advance universal broadband and PC ownership. Our goals and efforts in these areas are consistent with the objectives of the Obama Administration, Congress, and the ARRA. Accordingly, we fully support NTIA and RUS in their broadband initiatives and welcome the opportunity to share our insight as the government seeks to "spend taxpayers' money quickly, yet wisely."[4]

### a. Intel's New $7 Billion Investment in U.S. Manufacturing Facilities Exemplifies the ARRA's Stimulative Purposes

As a leading U.S. manufacturer and one of the Top 60 U.S. employers,[5] Intel is committed to America's global competitiveness and the ARRA's potential in this regard. We fully support the ARRA's stimulative purposes: "(1) To preserve and create jobs and promote economic recovery …; (3) To provide investments needed to increase economic efficiency by spurring technological advances…; and (4) To invest in … infrastructure that will provide long-term

[3] The American Recovery and Reinvestment Act of 2009, P.L. 111-5, H.R. 1—4-5, H.R. 1—14, 398-402 (ARRA).

[4] Opening Statement of Rep. Henry Waxman, Chairman of the Cmte. on Energy and Commerce, Before the Subcmte. on Communications, Technology, and the Internet, at 1 (April 2, 2009) (Waxman Statement).

[5] Fortune 1000, *Fortune*, Annual Ranking of America's Largest Corporations (May 5, 2008), available online at http://money.cnn.com/magazines/fortune/fortune500/2008/full_list/.

economic benefits."[6] In fact, consistent with the ARRA's stated purposes, Intel CEO Paul Otellini announced on February 10 that Intel will spend *$7 billion over the next two years* to build advanced manufacturing facilities in the U.S.[7]

This huge investment will support approximately 7,000 high wage, high-skill jobs as part of a total Intel workforce of more than 45,000 in the U.S.[8] Otellini said: "We're investing in America to keep Intel and our nation at the forefront of innovation…. These manufacturing facilities will produce the most advanced computing technology in the world … and the chips they produce will become the basic building blocks of the digital world, generating economic returns far beyond our industry."[9] Intel, like the Obama Administration and Congress, seeks to preserve and create jobs and promote economic recovery, provide investments needed to increase economic efficiency by spurring technological advances, and invest in infrastructure that will provide long-term economic benefits – and we have committed $7 billion over the next two years to do our part to help America achieve these economic stimulus goals.[10]

### b. Intel's Experience in Fostering Universal Broadband and PC Ownership Provides Unique Insight as NTIA and RUS Undertake the Broadband Initiatives in the ARRA

A significant part of Intel's strategy involves harnessing our manufacturing and technology leadership to bridge the digital divide in the U.S. and around the world by accelerating PC ownership and enabling an incremental

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[6] ARRA, H.R. 1—1-2 (Statement of Purposes).

[7] *See Intel to Invest $7 Billion in U.S. Manufacturing Facilities* (Feb. 10, 2009), available online at http://www.intel.com/pressroom/archive/releases/20090210corp.htm?iid=pr1_releasepri_20090210r.

[8] *Id.*

[9] *Id.*

[10] Intel also makes about 75% of its R&D spending and capital investments in the U.S.

one billion people to access the Internet by 2012. The Intel World Ahead program focuses on connecting the next billion people to uncompromised technology around the world. We make PCs more accessible and affordable through innovative PC purchase programs, and we've worked with governments and other organizations in remote and underserved communities to develop more than 200 programs in 60 countries. To date, Intel has supplied 59,000 PCs in 39 countries for education. We believe that Internet connectivity is critical to success in a digital society and that wireless broadband PC access is essential for meaningful participation in the global economy. We work with governments, development organizations, community groups, other technology leaders, and telcos from South America to Africa to China – and everywhere in between – to connect more people to the Internet using cost-effective, robust WiMAX solutions.

Intel's years of experience with our World Ahead program – enabling Internet access and accelerating PC ownership for remote and underserved communities around the world – have shaped our optimistic view of the U.S. broadband stimulus initiatives. Like the Obama Administration and Congress, Intel wholeheartedly believes that ensuring sustainable deployment and adoption of cutting-edge broadband technologies by all Americans are essential to bridging the digital divide in our country and enabling the U.S. to be globally competitive in the long-term. Accordingly, Intel supports the important role that NTIA's Broadband Technology Opportunities Program (BTOP) and RUS will play in helping America meet these goals, and we appreciate the opportunity to provide our unique perspective as the government undertakes this awesome responsibility.

## II. THE DUAL PURPOSES OF BROADBAND STIMULUS FUNDING ARE TO ACCELERATE BROADBAND DEPLOYMENT AND ADOPTION

Focusing broadband stimulus funding on the dual purposes of broadband deployment and adoption will ensure that NTIA and RUS make investments in unserved and underserved communities in a comprehensive and meaningful manner.[11] Based on years of experience with Intel's World Ahead program, we have learned that broadband adoption – of which computer ownership is a key component – is a critical barrier to solving the digital divide. For this reason, Intel believes that, depending on the applications submitted, NTIA and RUS should consider awarding approximately $1 billion in grants and loans to projects that will address broadband demand in unserved and underserved areas.

### a. Broadband Deployment and Adoption are the Dual Objectives of the BTOP and RUS Programs

As Mark Seifert testified at the recent oversight hearing on ARRA broadband initiatives, the Act "allocates 4.7 billion dollars to NTIA for the general purpose of accelerating the deployment and adoption of broadband services."[12] Mr. Seifert further explained that, while there may be a focus on supply side stimulus, "demand side stimulus is a critical goal" of the ARRA.[13] In this regard, the Act allocates *at least* $250 million of this amount to innovative programs to encourage sustainable adoption of broadband service and *at least* $200 million to expanding public computer center capacity.[14] The ARRA also allocates $350

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[11] *See* NTIA-RUS RFI at NTIA Question 1.a. (Should a certain percentage of grant funds be apportioned to each category?); NTIA Question 1.b. (Should applicants be encouraged to address more than one purpose?).

[12] Testimony of Mark G. Seifert, Sr. Advisor to the Ass't Sec'y, NTIA, U.S. Dep't of Commerce, Before the Subcmte. on Communications, Technology, and the Internet, at 4 (April 2, 2009) (Seifert Testimony). *See also* ARRA, H.R. 1—14.

[13] Seifert Testimony at 4.

[14] ARRA, H.R. 1—14.

million for implementation of the Broadband Data Improvement Act of 2008 (BDIA),[15] which provides for grants for broadband mapping and adoption initiatives.[16]

The ARRA states that BTOP funding should be awarded for projects that serve the purposes of providing broadband access to consumers residing in unserved and underserved areas; providing broadband education, awareness, training, access, equipment, and support to schools, libraries, healthcare providers, colleges, and other community organizations, agencies, and job-creating facilities; improve broadband access and use by public safety; and stimulating the demand for broadband.[17] The ARRA further specifies – in this order – that grants may be used to "acquire equipment, … hardware, software, … and infrastructure for broadband services; … construct and deploy broadband related infrastructure; … ensure access to broadband service by community institutions; … facilitate access to broadband service by … vulnerable populations …; … improve public safety broadband communications services; and … undertake such other projects … consistent with the purpose of the program to be established."[18] Notably, Congress listed broadband equipment, hardware, and software (*e.g.*, laptops/PCs) at the top of the list – *prior to*, *and distinct from,* broadband deployment infrastructure.

Thus, in setting forth these purposes and specifications for BTOP funding, Congress aptly recognized that both broadband supply (deployment) and

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[15] *Id*.

[16] The Broadband Data Improvement Act of 2008, Public Law 110-385, 122 STAT. 4096 (2008) (BDIA).

[17] ARRA, H.R. 1—398-99.

[18] ARRA, H.R. 1—400, Sec. 6001(g).

demand (adoption) are critical to bridging the digital divide in America[19] – a point echoed by a broad cross section of Commenters in the FCC's recent rural broadband strategy proceeding. TIA states: "While the Commission will be well-served in identifying methods for improving … broadband deployment, demand-side stimulus – including subsidies for laptops and funding for computer training – is equally important."[20] Verizon and Verizon Wireless similarly assert that, in rural areas, "as in non-rural areas, the Commission should work with other policymakers and stakeholders to address demand-side factors that inhibit consumer subscription to broadband services, including computer literacy, computer ownership, or other factors that prevent people from recognizing the relevance of broadband to their lives.[21] NCTA concurs: "Demand-side stimulus investment programs that promote the use of broadband among these underserved populations also … serve an important purpose. Such programs could … stimulate demand by … making computers or laptops available at a discount to qualifying households, discounting monthly service, or other tailored means designed to stimulate adoption by targeted groups."[22] The Consumer Federation of America and the Consumers Union assert: "[T]he sustainable adoption and … and demand stimulation aspects of the stimulus bill should

[19] "As specified in the [ARRA], government can play a role in stimulating both [broadband] supply and demand." Testimony of Dr. Nicol Turner-Lee, Sr. Vice Pres. of One Economy Corp., Before the Subcmte. on Communications, Technology, and the Internet, at 4 (April 2, 2009) (Turner-Lee Testimony).

[20] Comments of the Telecommunications Industry Association, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 3 (March 25, 2009). *See also id.* at ii, 2, and 3.

[21] Comments of Verizon and Verizon Wireless, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 3 (March 25, 2009).

[22] Comments of the National Cable & Telecommunications Association, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 15 (March 25, 2009).

receive a full measure of support."[23] Finally, as USTelecom states: "Our broadband strategy must address both supply and demand issues…. Both enhancing broadband availability and service and demand stimulation are widely recognized as components of a comprehensive strategy for ensuring that broadband technology has the greatest positive impact on our nation."[24]

Congress made similar pronouncements regarding the dual objectives of increasing broadband deployment and adoption just six months ago when enacting the BDIA. Congress' findings in that statute provide: "The deployment and adoption of broadband technology has resulted in enhanced economic development and public safety for communities across the Nation, improved health care, and educational opportunities, and a better quality of life for all Americans…. Continued progress in the deployment and adoption of broadband technology is vital to ensuring that our Nation remains competitive and continues to create business and job growth."[25]

**b. Broadband Adoption – and Increased Computer Ownership – are Critical to Solving the Digital Divide in America**

Broadband deployment and adoption go hand-in-hand; one cannot serve its purpose without the other. Consider these potential scenarios: If NTIA and RUS allocate broadband stimulus funds to projects that only build "roads" (broadband networks), then we will have invested in digital "roads" to nowhere – as consumers will still lack the "cars" (laptops and PCs) needed to use the "roads." As Chairman Waxman stated in the recent oversight hearing, "Nobody

[23] Comments of the Consumer Federation of America and Consumers Union, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 9 (March 25, 2009) (CFA-CU Comments).

[24] Comments of the United States Telecom Association, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 3 (March 25, 2009).

[25] BDIA, 122 STAT. 4096.

wants taxpayer money funding a digital bridge to nowhere."[26] Conversely, if NTIA and RUS allocate broadband stimulus funds to projects that help consumers purchase "cars" (laptops and PCs), but we do not invest in building out our digital "roads" (broadband networks) – then the "cars" will be of limited use. In short, Americans in unserved and underserved areas need access to broadband networks, as well as the laptops/PCs to connect to them, in order to participate in the digital world.

Various studies demonstrate that the perceived lack of need for broadband and a lack computer ownership are the top barriers to broadband adoption. For example, Connected Nation reports:

> [O]ne might expect lack of broadband availability — in other words, the supply side of the problem — to be the top barrier to broadband adoption. Yet, only 19% of rural residents who do not subscribe to broadband service say it is because broadband is not available at their home…. [Rather,] perceived lack of need is the overwhelming barrier to adoption among rural dwellers. Forty-two percent of rural residents without broadband at home say they don't subscribe because they don't need it, and *34% of these residents report lack of a computer as the reason they don't subscribe to broadband*.[27]

Connected Nation further reports that, in a survey of over 3,000 residents in Ohio, Tennessee, and Kentucky (States with sizable unserved and underserved communities), approximately 26 percent of households do not have a computer.[28] Indeed:

> Through its operations in several states, Connected Nation has learned that demand stimulation and consumer education

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[26] Waxman Statement at 1.

[27] "Consumer Insights to America's Broadband Challenge," Connected Nation Inc., at 11 (Oct. 13, 2008) (emphasis added), available online at http://www.connectednation.com/_documents/ConsumerInsightsBroadbandChallenge_20081013.pdf.

[28] *Id.* at 5.

> programs are absolutely essential to facilitating broadband deployment and adoption. Stated simply, the business case for broadband deployment is difficult in many rural areas where computer ownership and computer use skills are low.[29]

These points underscore the fact that, "[a]ccess to computers and the difficulty of using the technology are … barriers to widespread broadband use."[30] In fact, "[t]he Conferees note the success of [broadband adoption] programs in several States, and hope that … grantees will be involved in … demand[-side projects …], thereby stimulating economic growth and job creation" in ARRA-funded areas.[31] Thus, in order to improve broadband adoption in the U.S., we must increase laptop/PC ownership and improve broadband knowledge among consumers in unserved and underserved areas.

Not only does computer ownership provide individuals with the ability to connect to the Internet, but also it drives broadband subscribership – which is essential to sustaining stimulus-funded broadband networks in the long-term. As Chairman Waxman remarked at the recent oversight hearing, NTIA and RUS must "focus on sustainability so that we do not see a subsequent run on other federal subsidy programs."[32] For the NTIA and RUS stimulus funding to have its desired effect, a broadband provider must be able to sustain its network beyond the two-year ARRA investment period – which means that consumers must

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[29] Comments of Connected Nation Inc., *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 3 (March 25, 2009) (Connected Nation Comments).

[30] *See* Cecelia Kang, *Broadband's Cost Gives Non-Subscribers Pause, Poll Finds*, Wash. Post, at D3 (Jan. 22, 2009).

[31] Conference Report on H.R. 1, American Recovery and Reinvestment Act of 2009, H1307, at H1514 (Feb. 12, 2009) (Conference Report).

[32] Waxman Statement at 2.

actually *adopt* broadband service.[33] Simply put, consumers in unserved and underserved areas who do not own laptops/PCs are not going to subscribe to broadband service. As One Economy explains, "The creation of the value proposition for the[se] first time and fully detached users is critical …. [They] … are less likely to have the money for … adequate hardware to connect to the Internet."[34] In short, we must solve the broadband demand issue in unserved and underserved communities in order to fully address the ultimate goal—increasing broadband *adoption* in these digitally-deprived areas.[35]

### c. NTIA and RUS Should Consider Awarding Approximately $1 Billion in Grants and Loans to Projects that Address Broadband Demand in Unserved and Underserved Areas

The ARRA allocates $4.7 billion to NTIA for the general purpose of accelerating the deployment and adoption of broadband services. Of this $4.7 billion, the Act allocates:[36]

- *at least* $250 million to innovative programs to encourage sustainable adoption of broadband service;
- *at least* $200 million to expanding public computer center capacity; and
- $350 million for implementation of the Broadband Data Improvement Act of 2008 (BDIA), which provides for grants for broadband mapping as well as broadband adoption initiatives.

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[33] Kang at D3 ("[T]o solve the problems if the nation's digital divide … require[s] getting people to use broadband once they have access.").

[34] Turner-Lee Testimony at 2.

[35] *See* NTIA-RUS RFI at NTIA Question 7.a. (What selection criteria should be applied to the BTOP Grants for Innovative Programs to Encourage Sustainable Adoption of Broadband Service?).

[36] ARRA, H.R. 1—14.

As to the BDIA, Congress clearly intended to support broadband demand-side projects. For example, the BDIA provides that one of the purposes of a grant is "to achieve improved technology literacy, increased computer ownership, and broadband use among such citizens and businesses."[37] The BDIA further specifies that funds may be used "to establish programs to improve computer ownership and Internet access for unserved areas and areas in which broadband penetration is significantly below the national average."[38]

Broadband mapping experience to date provides a basis for estimating total mapping costs for the U.S. According to Connected Nation CEO, Brian Mefford, ten States have completed their broadband maps so far,[39] and another six States have begun the mapping process.[40] California PUC Commissioner Rachelle Chong has said that "it cost about $400,000 to complete California's map."[41] Assuming that it takes $400,000 per State to do a map for each of the remaining 40 States plus the District of Columbia, the total nationwide broadband mapping expense would be approximately $16 million.[42] (Notably, this estimate is conservative given that the per-State cost is based on one of the largest States in the country; more than 10% of the country's population lives in California.) Even if $16 million is too conservative of an estimate for mapping the rest of the U.S., the point is that it should be possible to free at least $300

[37] BDIA, 122 STAT. at 4099, Sec. 106(a)(2).

[38] BDIA, 122 STAT. at 4101, Sec. 106(e)(7).

[39] Anne Veigle, *GOP Urges Unserved Areas as Priority for Broadband Grants*, Communications Daily, at 5 (April 3, 2009).

[40] Connected Nation Comments at 8.

[41] Veigle at 5.

[42] $400,000 x 41 States = $16.4M

million[43] of the BDIA funds for broadband adoption and related demand-side stimulus projects. Given the important role that such projects will play in increasing broadband penetration and usage in unserved and underserved areas, it would be appropriate for NTIA to support allocating this additional $300 million to other BTOP demand-side efforts such as establishing programs to improve computer ownership in areas with low broadband penetration.[44]

Aggregating all of the demand-side BTOP funding — namely, *at least* $250M for sustainable adoption + *at least* $200M for public computer center capacity + $300M in BDIA grants — totals $750 million.[45] While the ultimate allocation will depend on the applications that NTIA receives, Intel believes that the agency should consider allocating approximately three-quarters of a billion dollars in BTOP grants for broadband adoption and demand-side stimulus programs under the ARRA. As a recent NCTA white paper astutely observes:

> Two key obstacles – lack of interest and lack of resources – greatly affect whether Americans subscribe to broadband. It should be no surprise that Congress has therefore directed that a significant amount of resources be directed to promoting broadband awareness and adoption by these underserved populations. Indeed, this is the *principal* area in which Congress has *expressly* mandated that funds be spent, underscoring its priority. *The plain legislative intent is that the mandated amount is the bare minimum that should be directed to demand-side stimulus*, with no indication that Congress intended to impose any upper limit on such expenditures.[46]

Intel believes that RUS also should consider awarding a significant percentage of its $2.5 billion in grants, loans, and loan guarantees to demand-

[43] $350M minus $16.4M = $333.6M

[44] BDIA, 122 STAT. at 4101, Sec. 106(e)(7).

[45] $250M sustainable adoption + $200M public computer center + $333.6M BDIA = $783.6M

[46] National Cable & Telecommunications Association, White Paper, *Moving the Needle on Broadband: Stimulus Strategies to Spur Adoption and Extend Access Across America*, at 9 (March 17, 2009) (emphasis added).

side stimulus programs under the ARRA. (Note: $750 million is slightly more than 15% of the total $4.7B BTOP grant funding.[47]) In fact, in the FCC's recent rural broadband strategy proceeding, the Center for Rural Strategies asserts that a demand-side component should be a *requirement* for any RUS-funded broadband project under the ARRA: "We recommend that an adoption component be *required* of all broadband projects funded."[48] Indeed, "the challenge of bringing broadband to rural America is not simply an infrastructure cost challenge — it is also a demand challenge…. [B]roadband policy … needs to address the barriers that are still preventing too many Americans from embracing broadband-enabled technologies, whether they have available broadband or not…. [P]rivate sector infrastructure investment will follow demand, and … in rural America, computer ownership and education levels are lower than in urban and suburban areas."[49] While the ultimate allocation will depend on the applications that the agency receives, Intel believes that RUS should consider allocating approximately $400 million (or approximately 15% of the total $2.5 billion RUS funding)[50] to demand-side stimulus programs under the ARRA.

In total, Intel believes that NTIA and RUS should consider awarding approximately $1 billion (~ $750M BTOP + $400M RUS) to demand-side broadband stimulus programs in unserved and underserved areas pursuant to the ARRA. Based on our years of experience with Intel's World Ahead program,

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[47] $783.6M is 16.67% of the total $4.7B BTOP grant funding.

[48] Comments of the Center for Rural Strategies *et al.*, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 12 (March 25, 2009) (emphasis added).

[49] Connected Nation Comments at 9.

[50] $416.75M is 16.67% of the total $2.5B RUS funding.

we have learned what it takes to achieve consequential broadband adoption in an unserved or underserved area. Of the total $7.2 billion in broadband stimulus funds, we believe that, in order to make a real difference in target communities, it will likely be appropriate for the government to allocate approximately $1 billion to help consumers in unserved or underserved areas purchase computers and learn about broadband – so that they have the tools and desire to connect to the Internet. In this regard, NTIA and RUS also should look for projects that simultaneously will address both broadband supply and demand in target communities. As FCC Acting Chairman Michael Copps states, "[S]timulating demand for broadband is an important component of promoting deployment and utilization of broadband."[51] By providing sufficient funding to stimulate broadband demand, the government will ensure that it is investing in unserved and underserved areas in the most comprehensive and meaningful manner for Americans in these communities.

## III. NTIA AND RUS SHOULD ESTABLISH SELECTION CRITERIA FOR BROADBAND STIMULUS FUNDING BASED ON THE OPTIMAL MIX OF CAPABILITIES, COST, AND PRICE ADVANTAGES

When establishing selection criteria for grant and loan awards, Intel recommends that NTIA and RUS use a two-step process.[52] As a first step, the agencies should apply certain basic "gating" criteria when reviewing an application to determine whether it will be "accepted" for a more detailed review. If an application is accepted for more detailed review then, as a second step,

[51] Letter from Michael J. Copps, Acting Chairman, Federal Communications Commission, to The Honorable Joe Barton and The Honorable Cliff Stearns, at 3 (March 31, 2009).

[52] *See* NTIA-RUS RFI at NTIA Question 4 (What factors should NTIA consider in establishing selection criteria for grant awards?); RUS Question 4 (… RUS must consider the priorities listed below…. What additional priorities should be considered by RUS?).

NTIA and RUS should apply technology-neutral criteria to evaluate competing applications based on the optimal mix of broadband capabilities, cost, and price advantages. The second step will be the heart of the review in determining which applications best meet the broadband needs of the areas to be served.

### a. NTIA and RUS Should Establish Basic "Gating" Criteria as the First Step in Reviewing Applications

NTIA has said that it expects to receive upwards of 2,000 applications for stimulus funding, and RUS is likely to receive a similarly high amount. In order to review this very large number of applications in the most efficient manner, NTIA and RUS should apply certain basic "gating" criteria when reviewing applications. These gating criteria will be based on provisions in the ARRA and will determine whether an application will be "accepted" for second-stage/ detailed review. Among these gating criteria, the applicant must: (1) be proposing a project in a qualifying area; (2) show that it is competent to carry out the project; and (3) provide assurances that the project would not otherwise have been implemented during the grant period.

First, the applicant must be proposing a broadband project that would serve one or more qualifying unserved or underserved areas. Intel agrees with Chairman Boucher that NTIA and RUS should adopt expansive definitions of "unserved" and "underserved." [53] As Chairman Boucher states, it is "appropriate to provide [ARRA] support where there is currently only one broadband provider,

[53] *See* NTIA-RUS RFI at NTIA Question 13 a. (How should NTIA … define the terms 'unserved area' and 'underserved' area?); RUS Question 2.a. (RUS is charged with ensuring that 75 percent of the area is rural and without sufficient access needed for economic development. How should this definition be reconciled with the NTIA definitions of 'unserved' and 'underserved?').

so a community gets the benefit of competition."[54] Thus, NTIA and RUS should define underserved to include areas with only one broadband provider; indeed, promoting competition in these areas will benefit consumers by empowering them with new capabilities (such as mobility), lowering prices, improving speed offerings, and increasing penetration rates. As Chairman Boucher further suggests, "[u]nderserved can also refer to communities with inadequate broadband speeds. A community should not be disqualified from the program because there are multiple providers offering broadband with a download speed of just 256 or 512 kbps."[55] Moreover, as Chairman Boucher states, "communities where broadband is only available at unreasonably high prices should … be considered underserved."[56] Finally, underserved should be defined to include lower-income urban and semi-urban areas that lack high-quality, affordable broadband.

Second, the applicant must demonstrate "that it is capable of carrying out the project or function to which the application relates in a competent manner."[57] In order to demonstrate competence, the applicant must show that it will be able to meet build out, financial, and timing commitments. To do so, the applicant must "provide a detailed explanation of how any amount received under the program will be used to carry out [the project]" including the roles of any partners in the project;[58] explain how it will meet the 20 percent non-

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[54] Statement of Congressman Rick Boucher, Chairman of the Subcmte. on Communications, Technology, and the Internet, Before the Subcmte. on Communications, Technology, and the Internet, at 2 (April 2, 2009) (Boucher Statement).

[55] *Id*.

[56] *Id*.

[57] ARRA, H.R. 1—400, Sec. 6001(e)(4).

[58] ARRA, H.R. 1—400, Sec. 6001(e)(3).

Federal share funding requirement (assuming no petition for financial need);[59] and provide assurances that the project will be carried out "in an efficient and expeditious manner."[60] As Mr. Seifert states, the goal is to "get[] Recovery Act dollars out to the public as quickly as possible."[61] Therefore, as the ARRA provides, the applicant must show that it will "substantially complete [the] project[] … in accordance with project timelines, not to exceed 2 years following an award"[62] and be able to commence the project promptly upon approval.

Third, the applicant must be proposing a broadband project that "would not have been implemented during the grant period without Federal assistance."[63] As the Conference Report states, the Conferees intend that NTIA seek to ensure that grant funds are used to assist investments that would not otherwise be made by the entity applying, or, secondarily, that might not be made as quickly.[64] Intel urges NTIA (and RUS) to be vigilant in this regard.

### b. NTIA and RUS Should Establish Technology-Neutral Criteria for Evaluating Competing Applications Based on the Optimal Mix of Broadband Capabilities, Cost, and Price Advantages

If an application meets the basic gating criteria – and is "accepted" for review – then NTIA and RUS should evaluate competing applications in a technology-neutral manner. As the Conference Report states, "as many entities as possible [should] be eligible to apply for a competitive grant, including wireless carriers, wireline carriers, backhaul providers, satellite carriers, public-

[59] ARRA, H.R. 1—400, Sec. 6001(e)(5), (f).

[60] ARRA, H.R. 1—400, Sec. 6001(e)(3).

[61] Seifert Testimony at 8.

[62] ARRA, H.R. 1—399, Sec. 6001(d)(3).

[63] ARRA, H.R. 1—400, Sec. 6001(e)(3).

[64] Conference Report at H.1514.

private partnerships, and tower companies."[65] Conferees intend for NTIA to select grant recipients that "will best achieve the broad objectives of the [BTOP] program" and that will best meet the broadband needs of the area to be served, "whether by a wireless provider, a wireline provider, or any provider offering to construct last-mile, middle-mile, or long-haul facilities …."[66]

Thus, Congress intends that NTIA not fixate on one type of provider or any one factor, but rather determine which provider(s) and factors will best meet the broadband needs of the area to be served. As Chairman Boucher states, "the [BTOP and RUS] programs should honor the principle of technological neutrality, which will ensure that we build out broadband more efficiently. The agencies should truly consider all technologies, including wireline, wireless, satellite, point-to-point microwave, as appropriate for the terrain, size of the population to be served and other location specific factors."[67] In this regard, Intel urges NTIA and RUS to award stimulus funding to projects that present the *optimal mix of broadband capabilities, cost, and price advantages for the area to be served*. This mix of criteria acknowledges that the evaluation of competing applications will be complex and that multiple (and possibly different) factors may be important to each target area. It is a procurement approach that allows policymakers at NTIA and RUS the necessary flexibility to make wise decisions.

In considering the optimal mix of capabilities, cost, and price advantages, the primary criterion for the agencies should be cost-effectiveness or return on investment (ROI) of taxpayer dollars. As Mr. Seifert stated at the first NTIA-

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[65] *Id*.

[66] *Id*.

[67] Boucher Statement at 3.

RUS-FCC public meeting, the government should be looking for "the best bang for the buck" in unserved and underserved areas.[68] Consumer Federation of America and Consumers Union echo this sentiment: "We need to get the biggest bang for the buck with the stimulus money to serve the un- and under-served."[69] Intel concurs.

Intel believes that NTIA and RUS should award stimulus funding to those projects that will maximize consumer welfare by increasing actual broadband usage among unserved and underserved Americans. Intel believes that ROI, as measured by increase in *subscribership* and usage (*i.e.*, actual uptake of broadband service by population of users in target area), will provide the best objective indicator of the success of BTOP- and RUS-funded broadband projects.[70] To this point, the ARRA explicitly provides that, in awarding grants, NTIA should consider whether an application will "increase the affordability of, and *subscribership to*, service to the greatest population of users in the area."[71] Notably, the Act lists subscribership and affordability, *then* broadband speed among the factors for NTIA to consider in awarding grants.[72]

**BROADBAND CAPABILITIES.** As NTIA and RUS evaluate a proposed project's likely impact on Americans in an unserved or underserved area, the

[68] Howard Buskirk and Adam Bender, *Agencies Seek Suggestions on Carrying Out Broadband Stimulus*, Communications Daily, at 2 (March 11, 2009).

[69] CFA-CU Comments at 2.

[70] *See* NTIA-RUS RFI at NTIA Question 14. (Measuring the Success of the BTOP); RUS Question 5. (What benchmarks should RUS use to determine the success of its Recovery Act broadband activities?).

[71] ARRA, H.R. 1—400-01, Sec. 6001(h)(2)(A) (emphasis added).

[72] ARRA, H.R. 1—400-01, Sec. 6001(h)(2)(A), (B).

agencies should consider various broadband capabilities including mobility and speed:

Mobility. Mobility enhances productivity and creates 21st century jobs. In an April 1 letter to the leaders of the G20 nations, twenty of the world's largest mobile phone companies stated: "As mobile broadband repeats the productivity revolution of mobile phones, the global GDP impact could be a boost of 3-4%."[73] The letter further estimates that the deployment of wireless mobile broadband could create 25 million jobs.[74] Ralph de la Vega, CEO of AT&T Mobility agrees: "Wireless, and in particular mobile broadband, is going to change the way the world lives and the world works…. Businesses will be more efficient, and people will be more effective." [75]

Similarly, in his book titled *The Power of Mobility*, Ross McGuire, vice president of corporate strategy for Sprint, explains that "the value of any object, application or idea increases relative to its mobility."[76] Mobility empowers and un-tethers individuals: "Mobility brings with it a level of convenience unmatched by fixed-line communications, bringing broadband to the person and allowing people to reach out and be reached wherever they may be located at any given

[73] Richard Wray, *Mobile Phone Bosses Promise to Go Global with Broadband*, The Guardian (London) (April 2, 2009), available online at http://www.guardian.co.uk/technology/2009/apr/02/global-broadband-mobile-phones.

[74] *Id.*

[75] Kevin Fitchard, *Wireless 2025: A Look at Wireless in the Year 2025*, Telephony (April 1, 2009), available online at http://telephonyonline.com/wireless/news/wireless-future-year-2025-0409/.

[76] *Id.*

moment."[77] This convenience to access the digital world from any location can be is especially important to Americans in rural and underserved areas. In short, "mobile wireless broadband brings unique benefits to consumers, and its ability to do so will only increase over time."[78] And these unique benefits increase broadband demand among a wider population of potential users.

In the context of the broadband stimulus, Mr. Seifert wisely states, "The government … favors technology that won't quickly become obsolete…. If we're going to spend public dollars, it should be on something that's an investment for the future."[79] Mobility is an investment for the future:

> The great leap forward to mobility – the uprooting of services and technology that were once confined to a specific place – already has become a given. The expectation is that every new application, every new service will now have — or will soon have — some kind of mobile component. Wireline voice connections are giving way to wireless, fewer and fewer computers are connected to networks via cords, and the Apple iPhone's Safari browser already has begun to handle a noticeable percentage of the world's Web browsing activity. Mobility's already out of the bag.[80]

Consumer Federation of America and Consumers Union similarly observe:

> Mobile computing is certain to be an important part of the 21st century communication ecology. The only question is, *should it be the first thing we do to provision broadband in un- and under-served areas. We think the answer is an emphatic yes* for the following reason. When we seek to serve the un- and under-served in rural America and in urban public housing and adjacent neighborhoods with mobile computing, we get a "two-fer." We not only deliver mobile computing, but … we also dramatically improve the quality of Internet connectivity available to the community.[81]

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[77] Comments of CTIA – The Wireless Association®, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 4 (March 25, 2009) (CTIA Comments).

[78] *Id.* at 6.

[79] Buskirk and Bender at 2.

[80] Fitchard.

[81] CFA-CU Comments at 4 (emphasis added).

Intel agrees that the best, forward-looking use of NTIA's and RUS's limited broadband stimulus funding in unserved and underserved areas is the "two-fer" of mobile computing.[82] Indeed, mobile broadband is the wave of the future.

While the agencies should be technology-neutral in their evaluation of competing applications, it is important to note that low-cost, high-quality wireless broadband technologies such as WiMAX are available today. For example, mobile WiMAX is a standards-based wireless broadband technology that operates multiple times faster than today's 3G wireless networks.[83] In the U.S., Clearwire Corporation (Clearwire) has launched 4G mobile WiMAX networks in Baltimore, Maryland in late 2008 and in Portland, Oregon in early 2009.[84] Clearwire's WiMAX networks are the first commercial deployment of a next-generation 4G mobile broadband network in the U.S. Notably, Clearwire has made a commitment to open network architecture across all of its current and future deployments.[85]

Broadband Speed. Intel urges NTIA and RUS to move beyond the FCC's 768 kbps definition of "broadband." Download speeds above 768 mbps are cost-effective, provide more consumer benefits, and spur demand. As the Consumer Federation of America and Consumers Union state: "[T]he vast majority of uses

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[82] *Id.* at 6.

[83] *Sprint and Clearwire to Combine WiMAX Businesses, Creating a New Mobile Broadband Company* (May 7, 2008) (Sprint-Clearwire Press Release), available online at http://www.intel.com/pressroom/archive/releases/20080507corp_a.htm?iid=pr1_releasepri_20080507ra.

[84] *See* XOHM, Intel and WiMAX Partners Celebrate New 4G Broadband Era in Baltimore (Oct. 8, 2008) available online at http://www.intel.com/pressroom/archive/releases/20081008comp.htm; Clearwire Introduces Clear™ 4G Mobile Internet Service to Portland (Jan. 6, 2009), available online at http://www.intel.com/pressroom/archive/releases/20090106corp.htm?iid=pr1_releasepri_20090106r.

[85] Sprint-Clearwire Press Release.

critical to economic and social participation in the cyberspace can be supported by [a 3 mbps download] system" including P2P file sharing, telehealth, fast music download, and video conferencing via TV.[86] Notably, California currently uses the speed benchmark of 3 mbps download in an effort to "balanc[e] a speed level that would allow one to telecommute given current Internet uses to download video and data."[87] However, this speed is not a minimum; applications with any speed are accepted for broadband funding by the State.[88]

That being said, Intel agrees with NRTC that NTIA and RUS should be flexible: "Agencies should avoid any hard-line data speed standards and any 'gold standard' level of service…. With millions of Americans lacking broadband, the goal should be to ensure access to best reasonable level of service, given all circumstances…."[89] Indeed, there should not be one universal "broadband" transmission speed for all technologies. As the Conference report states, "in defining 'broadband service,' the Conferees intend that the NTIA take into consideration the technical differences between wireless and wireline networks, and consider the actual speeds that broadband networks are able to deliver to consumers under a variety of circumstances."[90] The adoption of one universal "broadband" transmission speed would ill serve the needs of many unserved and underserved Americans and be contrary to Congressional intent.

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[86] CFA-CU Comments at 4-5.

[87] Testimony of Rachelle Chong, Commissioner of the California Public Utilities Commission, Before the Subcmte. on Communications, Technology, and the Internet, at 3 (April 2, 2009) (Chong Testimony).

[88] *Id*.

[89] Comments of the National Rural Telecommunications Cooperative, *Report on Rural Broadband Strategy*, GN Docket No. 09-29, at 9 (March 25, 2009) (NRTC Comments).

[90] Conference Report at H.1514.

Also, as a matter of consistency for purposes of comparing competing applications, NTIA and RUS should require applicants to provide the download and upload speeds that the broadband provider will deliver *to consumers* in the target area. Furthermore, if the delivered speeds will vary from one part of the target community to another, the provider must report the various speeds it proposes to deliver to each section of the population in the target area (and how many POPS will be covered at each speed). To this point, the Act instructs NTIA to consider whether an application will "provide the greatest broadband speed to *the greatest population of users* in the area."[91] Clearly, in its evaluation of speed, Congress intended for NTIA to judge applications based on the broadband speed that will actually be delivered to all (or at least, the majority of) persons in an area – and not based on the most favorable speed (*e.g.*, the maximum speed that the provider will deliver to the lone subscriber closest to the tower). In short, the term "broadband" should be defined expansively to ensure that ARRA funding reaches as many unserved and underserved Americans as possible, and NTIA and RUS should ensure consistency and transparency in the speeds submitted by applicants.

**COST.** The cost-effectiveness of stimulus projects – including both capital expenditures and operating costs – is critical. Given the limited amount of stimulus funding for broadband, Mr. Seifert states that the NTIA must "craft[] a program that uses the public's funds wisely, efficiently, and effectively."[92] Intel wholeheartedly agrees. NTIA and RUS should evaluate the funds that the applicant is requesting as follows:

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[91] ARRA, H.R. 1—400-01, Sec. 6001(h)(2)(B) (emphasis added).

[92] Seifert Testimony at 11.

Overall Cost-Effectiveness. In evaluating an application, the cost-effectiveness (*i.e.*, benefits versus costs over time) is critical. For example, the National Rural Telecommunications Cooperative (NRTC) states: "The experience of [Digital Bridge Communications, Inc.] in its current 15 markets is that [WiMAX] service can be implemented within six to nine months of groundbreaking at an average cost of about $50 per household passed. The efficiency of WiMAX is quickly realized when compared to landline deployments with costs that are typically twenty to fifty times that of WiMAX, and which can take years to deploy in sparsely populated areas." [93]

Per-Customer Cost. The primary criterion in California's scoring system for broadband projects is the "funds requested per potential customer."[94] Intel believes that the agencies should carefully consider how much the applicant is requesting per potential new broadband customer. This figure will take into account total POPS, total project cost, and the size of the service area. Such per-customer cost analysis will facilitate the agencies making an "apples-to-apples" cost comparison of competing applications.

**PRICE.** The ARRA instructs NTIA to consider whether an application will "increase the affordability of … service to the greatest population of users in the area."[95] Indeed, the affordability of broadband to consumers in unserved and underserved areas is fundamental to initial broadband adoption and continued use. Therefore, NTIA and RUS should take into account the price that the

[93] NRTC Comments at 5-6.

[94] Chong Testimony at 4.

[95] ARRA, H.R. 1—400-01, Sec. 6001(h)(2)(A).

consumer must pay for subscription and equipment[96] – and should consider "giv[ing] priority to projects that are willing to make commitments on target levels of consumer prices that are affordable."[97]

Subscription Price. The agencies should consider whether the applicant is committing to offer a low subscription price for an initial period, as "first time and fully detached users … are less likely to have the money for broadband subscriptions …."[98] The agencies also should take into account the guaranteed duration of any initial pricing period, as well as the subscription price(s) for the broadband service after the initial pricing period is over. In addition, the agencies should consider whether granting an application will improve competition – and thus consumer pricing – in that community, thereby improving long-term affordability. Also, with respect to competition, NTIA and RUS should consider whether an applicant is proposing to build an open network, as this attribute further enables competition, which could be particularly important to Americans in unserved and underserved areas.

Equipment Price. As discussed above, lack of computer ownership is a key barrier to broadband adoption; computer ownership will drive subscription to broadband service in the wake of deployment in unserved and underserved areas. Thus, NTIA and RUS should consider whether the applicant is committing to offer equipment at a reduced price via laptop/PC bundling programs or low-cost embedded technology. Reducing the upfront cost of broadband equipment

[96] *See* NTIA-RUS RFI at NTIA Question 13.e. (What role … should retail price play in these definitions?).

[97] CFA-CU Comments at 8.

[98] Turner-Lee Testimony at 2.

through innovative bundling or other discount programs will address a significant barrier to broadband penetration in unserved and underserved communities.

**SOCIETAL GOALS.** With respect to societal goals set forth in the ARRA, NTIA and RUS should take into account whether the applicant's project will "enhance service for healthcare delivery, education, or children to the greatest population of users in the area."[99] For example, modern wireless broadband networks and, by extension, interoperable personal telehealth and remote monitoring systems, will improve Americas healthcare and save lives. The agencies also should consider the value of the project to schools, libraries, hospitals, colleges, community organizations, vulnerable populations, job-creating facilities, and public safety.[100]

## IV. CONCLUSION

For the foregoing reasons, Intel respectfully requests that NTIA and RUS focus broadband stimulus funding on the dual purposes of deployment and adoption in order to ensure that investments are made in a comprehensive and meaningful manner in unserved and underserved areas. Intel further recommends that NTIA and RUS establish selection criteria for broadband stimulus funding based on the optimal mix of capabilities, cost, and price that will best meet the broadband needs of the area to be served.

[99] ARRA, H.R. 1—401, Sec. 6001(h)(2)(C).

[100] ARRA, H.R. 1—398-99, 400, Sec. 6001(b), (g).

Respectfully submitted,

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