From:	Rachelle Chong
To:	BOCrfc2015
Cc:	Susan Walters; Rachelle Chong (Gmail)
Subject:	Corrected Comments of the California Emerging Technology Fund re Broadband Opportunity Council Notice and Request for Comment
Date:	Wednesday, June 10, 2015 6:18:04 PM
Attachments:	CETF Comments to BOC June 10 2015 FINAL.docx CETF Comments to BOC June 10 2015 FINAL.pdf

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Dear NTIA and RUS:

Earlier today, the California Emerging Technology Fund (CETF) submitted its Comments in the above referenced docket. This submission contained a few minor errors, which are corrected herein. While minor, we do wish to correct them. Kindly use this set of Comments as our Final version. We are submitting them both in .pdf for public usage, and in Word (for the person compiling the comments). The Appendix (submitted in a separate email) is correct as initially submitted.

Thank you so much.
Rachelle Chong
Outside Counsel for CETF

Via email: BOCrfc2015@ntia.doc.gov

To: The Broadband Opportunity Council (BOC)

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Re: Comments on the President's Broadband Opportunity Council Notice

Date: June 10, 2015

A. Overarching Questions

1. **How can the federal government promote best practices in broadband deployment and adoption?**

Closing the Digital Divide is an Imperative

Imagine if you were not able to communicate instantaneously with others using your smart phone, tablet, or computer. That is the reality for more than 9 million Californians who live in remote rural communities, on tribal lands, in low-income neighborhoods, or who have a disability. Those of us who have the benefit of a personal computing device coupled with high-speed connections to the Internet (whether wired or wireless) have come to depend on this connectivity for our work, staying in touch with family and friends, and making our daily lives easier.

Broadband is essential 21st Century infrastructure for global competiveness. It is a key factor in attracting capital investment to generate jobs. Communities without broadband are being left behind in the Digital Age—remote rural areas, poor urban neighborhoods, and people with disabilities are even more disadvantaged without broadband availability and computing devices to access the Internet. Closing the Digital Divide with public policies and strategies to achieve ubiquitous broadband deployment and to accelerate broadband adoption is an imperative for economic prosperity, quality of life, and family self-sufficiency. Fortunately, it is a goal that can be achieved with inspired vision, focused leadership, alignment of existing resources, and enlightened investment of a modest amount of additional public funding to encourage partnerships—federal-state, public-private, and provider-community. There is ample research and empirical evidence about what it takes to get the job done.

The California Experience and Progress in Closing the Digital Divide

California has some of the most challenging terrain in the nation for broadband deployment and the largest populations of disadvantaged residents as priority communities for broadband adoption. When California began to focus on closing the Digital Divide, the number of "unconnected" residents was the equivalent of having 5 other states within our boundaries. Approximately 94% of all residents had broadband access—however the 6% of residents totally unserved represented 768,000 households (about 2 million residents), more than the population of the State of Nebraska spread out over more than 44,000 square miles of inhabited area, the size of the State of Kentucky. Almost 13 million residents (largely urban poor) were not connected, more population than the State of Illinois.

In addition, 1.9 million people with disabilities were off-line, the population of the State of New Mexico. And, 680,000 Native Americans were not connected, larger than the population of the State of Alaska. Moreover, California has the largest population of Native Americans than any other state with 111 federally-recognized tribes. Most of the tribal lands lack broadband connectivity and want broadband access according to recent consultations of Tribal Leaders convened by Judge Cynthia Gomez, the Governor's Liaison to Tribal Governments and the Executive Secretary of the California Native American Heritage Commission in collaboration with the California Emerging Technology Fund and the Corporation for Education Network Initiatives in California (CENIC).

The California Emerging Technology Fund (CETF) was established at the direction of the California Public Utilities Commission (CPUC) in the orders approving the 2005 mergers of SBC-AT&T and Verizon-MCI in California. The successor companies agreed to provide a public benefit by a voluntary contribution of $60 million into CETF, a new non-profit organization with the mission to close the Digital Divide in California. CETF became operational in 2007, working in partnership with the Governor and the State Administration, the State Legislature, the CPUC, local governments, policy groups, and a network of more than 80 community-based organizations (CBOs) to systematically implement a Strategic Action Plan to close the Digital Divide in California, tackling both broadband deployment and adoption challenges. CETF reports to the Legislature through the CPUC. It is a unique non-profit organization in the nation, with deep experience in Digital Divide issues gathered over the last eight years as a "first mover" in the nation on these issues.

In addition to establishing CETF, California policymakers have taken other key steps to close the Digital Divide, including:

- In 2007, the Governor with the support of the Legislature convened the California Broadband Task Force which performed the first broadband mapping in the State, and produced a January 2008 base report to focus attention on the issues, and make recommendations for action to the Governor.[1]

- In 2008, the CPUC established through an order, and then the Legislature placed into statute, the California Advanced Services Fund (CASF) to subsidize broadband deployment to unserved and underserved areas by converting a high-cost universal service fund for telephone service to support broadband infrastructure, while also significantly reducing the annual surcharge amount collected from ratepayers. Through subsequent legislation, the total amount authorized to be collected for CASF has been increased to $315 million, and Rural

[1] See the "The State of Connectivity: Building Innovation Through Broadband", Final Report of the California Broadband Task Force January 2008, http://www.cio.ca.gov/broadband/pdf/CBTF_FINAL_Report.pdf

Regional Consortia were formed to lead local broadband planning and assessments in their unserved and underserved areas for proposed CASF projects.

- In 2009, the Governor issued an Executive Order to advance digital literacy that sets forth official State policy and requires each state agency to develop and implement an action plan.

- In 2010, the Legislature and Governor established the California Broadband Council in statute to sustain State attention and leadership to closing the Digital Divide.

- In 2013, the Legislature and Governor authorized certain CASF funds to be used for broadband connectivity in publicly-subsidized multi-unit affordable housing.

The sum total of this collective, focused state effort is significant progress on the Digital Divide in the last six years. In 2008, the statewide adoption rate for Internet use was 70% with 55% having broadband at home—the same as the national average. The sum total of this collective effort is significant progress in the last six years. Today, 85% of Californians use the Internet and 79% access the Internet at home with a high speed connection (including 8% that access the Internet only by a mobile "smart phone"). Also, there have been significant increases in broadband adoption by priority consumer populations of those most underserved:

- Low-income households up 32 percentage points (from 33% in 2008 to 65% in 2015 with 16 percentage points by smart phone only);
- Latino households up 36 percentage points (from 34% in 2008 to 70% in 2015 with 14 percentage points by smart phone only); and
- People with disabilities up 23 percentage points (from 36% in 2008 to 59% in 2015 with 8 percentage points by smart phone only).

The Role of the California Emerging Technology Fund

The California Emerging Technology Fund has been a pivotal partner in driving progress on closing the Digital Divide, serving as a catalyst for focus, action and results by: (a) setting the goals for broadband deployment and adoption; (b) delineating the strategic framework to achieve the goals with regular reports on progress to foster accountability; and (c) making targeted and leveraged investments in public policy initiatives and grants to CBOs. CETF is performance-driven and outcomes-focused.

The CETF Strategic Action Plan is based on research and fact finding about "what works" and sets forth the overall approach and strategies to close the Digital Divide, including the metrics for accountability that provide the disciplined focus on results. CETF set the following goals for achieving success by 2017—10 years after CETF began operations—which have been embraced widely by policymakers and stakeholders, not only in California but elsewhere in the nation.

Broadband Supply – 98% Deployment

- Access for at Least 98% of All Households
- Robust Rural-Urban California Telehealth Network (CTN)[2]

[2] The California Telehealth Network was established with a $22.1 million grant from the Federal Communications Commission (FCC) as part of the Rural Health Care Pilot Project (RHCPP), with $3.1 million in matching funding provided by CETF. Additional funding has been provided by the California HealthCare Foundation, the California Teleconnect Fund, Kaiser Permanente, National Coalition for Health Integration, United HealthCare, and the University of California. CTN is California's authorized FCC broadband consortia for healthcare with priority access to the FCC's Healthcare Connect fund for California healthcare providers. CETF began enrolling providers

- All Tribal Lands Connected and Part of CTN

Broadband Demand – 80% Adoption

- Overall Statewide Adoption at Least 80% by 2015 and 90% by 2020
- All Regions and Socioeconomic Groups within 10 Percentage Points of Overall Adoption (At Least 70%)
- Increased Overall Accessibility and Universal Design

Broadband Global Leadership – Within Top 3 Rankings

- Appropriate and Sufficient Speeds for Consumer Applications that Drive Adoption
- Increased Economic Productivity
- Reduced Environmental Impacts

There is not a "silver bullet" to closing the Digital Divide. CETF has found that no one strategy or action will get this complex job done. However, there is "silver buckshot"—a "critical mass" of inter-related and mutually-reinforcing strategies and actions that do succeed. To achieve the optimal impact and a higher return on investment of the original seed capital, CETF employs five overarching strategies to drive progress on the broadband deployment and adoption goals:

1. Civic Leader Engagement
2. Venture Philanthropy Grantmaking
3. Public Policy Initiatives
4. Public Awareness and Education
5. Strategic Partnerships

Successful implementation of these strategies requires engaging and partnering with "trusted messengers" and "honest brokers" who know their local communities and target neighborhoods, including local government officials, regional civic organizations, and successful CBOs. CETF has focused on three priorities for grantmaking: (1) rural and remote areas; (2) urban disadvantaged neighborhoods; and (3) people with disabilities. CETF has awarded more than $31 million in grants to community-based organizations (CBOs) and public agencies as "partners" in achieving the broadband deployment and adoption goals.

Support from the California Congressional Delegation

California's progress in closing the Digital Divide has been significantly advanced by the leadership of the California Congressional Delegation and strategic investments by the federal government. Notably, the Federal Communications Commission (FCC) awarded $22.1 million from the Rural Health Care Pilot Program (matched by $3.6 million from CETF) to connect a network of more than 800 facilities in rural and urban medically-underserved communities that comprise the California Telehealth Network (CTN). Telehealth is a major public policy initiative in California to drive telehealth initiatives, broadband deployment and adoption, and promote electronic health records, particularly in rural areas but relying on partnerships with urban hospitals and specialty care providers. Thus, the FCC's successor program to the RHCPP, the Healthcare Connect Fund, is a vital resource for the future. Requiring federal attention are policy changes that would promote and encourage telehealth by federal health agencies in the areas of reimbursement and medical licensing, as examples.

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in the program as of April, 2013. CTN will connect over 800 California healthcare providers in underserved areas to a state- and nation-wide broadband network dedicated to healthcare. Utilizing the Health Resources and Services Administration (HRSA) $1.3 million grant, CTN works with the California Telehealth Resource Center (CTRC) to expand telehealth training and support for rural and medically underserved clinics and hospitals in California.

In addition, California has benefited greatly from grants and sincere partnerships with the U.S. Department of Commerce National Telecommunications and Information Agency (NTIA) under the American Recovery and Reinvestment Act (ARRA) Broadband Technology Opportunities Program (BTOP). NTIA awarded 13 ARRA BTOP grants for broadband infrastructure deployment exceeding $428 million and 17 grants for broadband adoption totaling almost $122 million, including support for CTN operations and development of services. NTIA provided two grants to CETF for a total of $14,359,476 (matched by CETF $2,551,796) to support 19 CBOs (sub-awardees) resulting in more than 200,000 broadband adoptions and more than 2,700 jobs. These results met and exceeded the contractual performance objectives. These grants were concluded as of June 2013 and are summarized below.

Broadband Awareness and Adoption

The Broadband Awareness and Adoption (BAA) project mobilized the expertise and resources of eight partners (sub-awardees) to reach communities most impacted by the Digital Divide: low-income families, limited English-speaking Latinos, rural residents and people with disabilities. BAA partners worked with schools, churches, health clinics, job training programs, and social service providers to develop model "service ecosystems" which included technical support, low-price computers, and affordable broadband connections. Key accomplishments of the BAA project include:

- Increased awareness about the benefits of broadband among 13,296,068 low-income residents (266% goal).
- Provided 719,255 low-income individuals with basic Digital Literacy skills to use broadband technology (106% goal).
- Achieved 198,714 new broadband subscriptions by low-income households (149% goal) and distributed 6,866 computers to low-income households (172% goal).

Access to Careers in Technology

The Access to Careers in Technology (ACT) project engaged 11 partners (sub-awardees) to establish scalable workforce development programs while expanding access to broadband and 21st Century jobs in low-income communities throughout the state. Individuals with multiple barriers to employment--ranging from the homeless to former drug addicts—completed Information and Communications Technology (ICT) training to obtain jobs in a spectrum of major industries from engineering to entertainment with pathways to living-wage careers in high demand. Key accomplishments include:

- Trained 24,675 low-income youth and adults and 12,044 small business owners and employees with Digital Literacy skills (101% goal).
- Secured 2,745 ICT career-path jobs for low-income residents (107% goal).
- Achieved 9,331 new broadband subscriptions by low-income households and distributed 5,547 computers to low-income households (101% goal).

Lessons Learned

The successful implementation of the NTIA grants by CETF and our 19 partners was led by CETF Senior Vice President Susan Walters, who prepared a report *Lessons Learned from the Field*.

The four major lessons about sustainable adoption:

(1) Leverage everyday activities into broadband training and curricula: How to engage participants with relevant training topics that will help drive new, sustainable home broadband adoptions;
(2) Secure job placements in the growing ICT field: Strategies that have successfully helped program participants find jobs in Information and Communications Technology (ICT);
(3) Drive broadband adoption by offering affordable full services: Service and resource combinations that are effective at driving and securing adoptions along with affordable broadband, computing devices and improving digital literacy skills; and
(4) Pursue sustainable programs: How to integrate broadband adoption into other activities, such as health, education, financial literacy and community development.[3]

CETF Lessons Learned from Managing the ARRA NTIA BTOP Grants

- Grantee executive leadership and staff management capacity are essential.
- Coaching and the "learning community" were key to reaching goals.
- Thoughtful work plans in advance led to faster recognition of problems.
- Anchor institutions and community organizations need to work to ensure that clients actually obtain broadband (information and encouragement alone are not sufficient).
- Integrating digital literacy training and broadband adoption into existing programs is the best way to ensure sustainability and continually narrow the Digital Divide.

The experience of all NTIA grantees has been incorporated into the NTIA Took Kit which is a useful compilation of data and recommendations for accelerating broadband adoption. NTIA Administrator Larry Strickling and his team have a wealth of knowledge about "what works" and established working relationships with state agencies and non-profit organizations throughout the nation that are valuable assets that should be supported and leveraged for sustained progress in closing the Digital Divide.[4]

Some key questions the federal government should focus on as to its contribution to a solution:

(1) How can the BOC encourage one consistent definition of "broadband" – set by the FCC, the expert agency, to ensure consistency for all residents. Inconsistent broadband definitions may inadvertently create a "slow lane" for rural and remote communities because at present, the Department of Agriculture Rural Utility Service's definition of broadband is significantly slower in speed that the FCC benchmark definition for urban areas. Also, the BOC may weigh in on how often the broadband definition should be updated (e.g. yearly, every two years or every three years) to keep pace with global developments, and recommend what agency should have leadership on this critical question.
(2) The BOC can also recommend the scope of the federal broadband efforts for broadband access and adoption projects.
(3) The BOC is in the best position to prioritize broadband access and adoption as to federal agencies, and explain why a robust and redundant network is important for the country's socio-economic welfare.
(4) The BOC can play a critical role in selecting guiding principles, goals and metrics.

[3] CETF Lessons Learned from the Field, January 2013 at 5; see http://www.getconnectedtoday.com/files/j11560_cetf_web_0.pdf
[4] Much of this information was presented by Sunne Wright McPeak on October 29, 2013 to the U.S. Senate Subcommittee on Communications, Technology and the Internet. See Appendix G for a copy of the testimony.

(5) The BOC can recommend a federal "broadband champion" that will ensure federal agencies incorporate broadband goals and metrics in their programs on an ongoing basis and understand the benefits that can follow.

1. **(a.) What resources are most useful to communities?**

National and State leadership coupled with local broadband champions are best for developing strategies and a coherent integrated broadband plan for a community. "Broadband Coaches" from expert agencies like the FCC, NTIA or RUS can help a community organize itself to lead a broadband transformation appropriate to that community's needs. California has modeled this approach with our California Broadband Task Force, the CPUC's California Advanced Services Fund broadband infrastructure fund, the California Broadband Council, the formation of Rural Regional Broadband Consortia with budgets for local broadband planning activities, and a Local Resource Guide, broadband resolutions by municipal governments, and regional leadership meetings.[5]

Sustainable broadband adoption requires a comprehensive approach that targets and aligns resources in low-income communities with an integrated, comprehensive "neighborhood transformation" strategy that incorporates broadband adoption into other services, such as education, workforce preparation and healthcare. In the eight years, CETF has demonstrated these approaches in California with our California Telehealth Network,[6] our School2Home program,[7] our Get Connected initiative[8] program, and our affordable housing unit broadband project.

1. (b.) What actions would be most helpful to communities seeking to improve broadband availability and use?

Right of Ways and Access to Federal Poles/Towers. Broadband providers need easier access to rights-of-way and towers/poles, including on U.S. highway, U.S. Forest Service lands and national parks in order to facilitate broadband projects to rural, remote and tribal areas.

Establish Accelerated Permitting for Broadband Projects. Accelerated local, state and federal permitting for broadband facilities, both wired and wireless.

Additional Federal Funding for Broadband Grants. Additional federal funds communities can use for broadband adoption grants to connect low-income, persons with disabilities, non-English speaking immigrants, and seniors. Affordable broadband rates are required to increase adoption by low-income households.

Tapping CBOs for Outreach for Target Communities. Broadband adoption will succeed by working in partnership with community-based organizations ("CBOs") who are "trusted messengers" and "honest brokers" for the unserved and disadvantaged populations. These CBOs should receive compensation for actual sign-ups of first time Internet users by a Broadband Lifeline program.

Promote Wi-Fi Access in Federal Public Facilities. Promote community Wi-Fi hotspots in appropriate federal facilities such as post offices, national park visitor centers, federal courthouses, and other appropriate federal facilities. Wi-Fi hotspots should be placed in public

[5] http://www.cetfund.org/resources/cainiative
[6] http://www.caltelehealth.org/
[7] http://www.school2home.org/
[8] See both http://www.cetfund.org/investments/overview/Get_Connected and http://www.getconnectedtoday.com/

libraries, schools, community colleges, community centers, civic centers, unemployment offices, highway rest stops, and affordable housing complexes.

2. **How can the federal government best promote the coordination and use of federally-funded broadband assets?**

Broadband Champion and Designating Expert Federal Agencies. Using the expertise gained through the American Recovery and Reinvestment Act (ARRA) broadband grants, the FCC, National Telecommunications Information Administration (Department of Commerce), the Rural Utility Service (RUS) of the Department of Agriculture are the best federal government agencies to work in a coordinated fashion to gather assets from every federal agency to promote broadband access and adoption in federal programs in a coordinated manner. The Executive Branch may consider a "Broadband Champion" named to promote broadband integration and strategies in major federal departments where broadband is transformational, examples include: Education, Healthcare, Housing, and Transportation.

Set Goals and Metrics. Set performance goals and metrics for the nation for broadband deployment including wireline speeds, and broadband adoption. Promote and encourage commitments from Internet service providers to deploy and upgrade high-speed Internet infrastructure available to 98% of the U.S. population, particularly in rural areas, and transportation corridors (highways, rail, state routes), and anchor institutions (emergency responders, schools, community colleges, high education, libraries, community centers, fairgrounds).

Establish A National Advisory Committee to Ensure Each Agency Develops A Broadband Plan. Establish a National Advisory Committee on broadband from each Executive agency to develop a broadband plan for each agency. Expert coaches for the agencies could come from the FCC or NTIA. The critical areas for action are education, health, housing, workforce development, transportation/infrastructure, and emergency communications.

Fund Broadband Mapping. Continued funding for broadband mapping should continue under the leadership of the FCC with continued coordination with the state commissions with jurisdiction over broadband. Such maps should be used to determine the priority order of projects that will bring broadband access to unserved and underserved populations.

Collaborate with States to Set Plans with Goals and Metrics. The federal government should collaborate with the State agency with jurisdiction over broadband to ensure the state has a strategic plan to close the Digital Divide. These broadband strategic plans should have goals to achieve 98% broadband access to the population, and at least 80% broadband adoption in all low-income neighborhoods in each major market by 2020. When implemented, the plans should have metrics to accurately measure progress towards the goals and be monitored by the state agency and a national advisory oversight committee.

3. What federal regulations and/or statutes could be modernized or adapted to promote broadband deployment and adoption?

On Broadband Deployment

Fund Fair Shares. Each state and territory should receive its fair share of federally-funded broadband assets. Early adopter states should not be penalized for early broadband initiatives.

Prioritize Broadband Facilities on Federal Facilities. Adopt federal policies allowing and encouraging broadband facilities in federal lands, right-of-ways, towers, poles, roofs and conduits. Place a priority on such projects, comply with FCC shot clock deadlines?, and reduce permitting delays and other administrative barriers on such projects. Improve rights-of-way management for cost and time savings on federal facilities. Develop a federal database of towers/poles that are available for broadband facilities.

Develop a Model Permitting Standard. Develop a model permitting standard for federal facilities, and establish a best practices guide for rights-of-way policies and fee practices that are consistent and encourage broadband deployment.

Set Fair and Affordable Rates for Access to Federal Facilities. Establish fair and affordable rates for access to federal poles, and simplify processes for access. This will promote infrastructure upgrades and facilitate entry by competitors.

Establish Federal "Dig Once" Policy. Establish efficient new broadband infrastructure construction including "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas.

Increase Broadband Spectrum Available for Wireless Broadband. Increase spectrum available for wireless broadband by 2020 which is consistent with the National Broadband Plan, (500 megahertz by 2020 and 300 megahertz by 2015).

On Broadband Adoption

Champion Digital Literacy: The Federal Government needs to push further as it uses ICT to reinvent how it serves citizens more efficiently and train employees on the ICT skills as part of the work. As a first step, the BOC could adopt the use of "Information, Communications, and Technology" (ICT), which is the commonly used term in most countries. ICT includes all of what IT includes and adds to it the communications technologies that are required for the Internet Age.

California established the Digital Literacy Council as an interagency working group as the result of Executive Order S-06-09 California Digital Literacy: http://gov.ca.gov/news.php?id=12393. The Executive Order contains very concrete steps that should be taken for ICT skill training for digital literacy. The Governor issued a "Call to Action" to all state agencies in their work with K-12 schools, higher education institutions, employers, workforce training agencies, local governments, community organizations and civic leaders to advance the State as a global leader in ICT Digital Literacy by:

1. Incorporating ICT Digital Literacy into workforce training programs and curricula.
2. Supporting and promoting ICT Digital Literacy by encouraging all public agencies to optimize e-government and the availability of public services online.
3. Requiring employers and employer organizations to identify requisite ICT Digital Literacy skills for 21st Century jobs and to articulate appropriate training and assessment standards to local, regional and state agencies responsible for workforce training.
4. Encouraging public and private sectors to join forces and form public-private partnerships to promote ICT Digital Literacy.

CETF suggests that this framework could be adapted to federal agencies to promote similar goals. In California, some of the above was achieved, including the action plan. Copies of the

Executive Order, an excerpt of the basic digital literacy definition adopted in California along, with the Policy Framework are in Appendix A. The latter two documents provide detail on the definition of ICT Digital Literacy, and include a Policy Framework that is adaptable to the federal regime.

Modernize Lifeline for an Affordable Broadband Rate. Support the development of and promote an FCC Broadband Lifeline discount for low-income persons in addition to the Lifeline telephone discount program. This should be done in a technologically neutral fashion.

Fund CBOs for Adoption Outreach/Education to Disadvantaged Communities. Promote and support states that fund experienced Community-Based Organizations (CBOs), libraries, and schools to assist in achieving subscription sign-ups for the 80% broadband adoption goal. Any grant must include payment to the CBO only for actual, verified broadband subscriptions to first time users. Funds should be managed by a small independent advisory oversight fund manager that monitors performance and is publicly accountable. The fund manager should be selected in an open request for proposal.

Require Stand-Alone Broadband Service. Require all Internet service providers offer a stand-alone, Internet access product that is affordable (under $14.95) and at speeds adequate for modern applications.

4. As the federal government transitions to delivering more services online, what should government do to provide information and training to those who have not adopted broadband?

Achieve Sustainable Adoption. Broadband is essential 21st Century infrastructure for global competitiveness. It is a key factor in attracting capital investment to generate jobs. Communities without broadband are being left behind in the Digital Age – remote rural areas, poor urban neighborhoods, and people with disabilities are even more disadvantaged without broadband availability and computing devices to access the Internet. Closing the Digital Divide with public policies and strategies to achieve ubiquitous broadband deployment and to accelerate broadband adoption is an imperative for economic prosperity, quality of life and family self-sufficiency.

It is a goal that can be achieved with inspired vision, focused leadership alignment of existing resources and enlightened investment of a modest amount of additional public funding to encourage partnerships: federal-state, public-private and provider-community.

The federal government cannot expect the residents of the U. S. to receive online services if it does not provide its residents the skills and tools to access them. Federal leadership is required to implement broadband strategies and training in federal programs where online access skills to access the service or information are required.

Key areas of focus to increase digital literacy training, including ICT certified skills, are K-12, community colleges, and higher education strategies. Train and certify teachers in information communications technology and require them to teach using 21st Century strategies. Train administrators in addition to teachers to use information communications technology.

Support policy that results in “Bring Your Own Device” (BYOD) and each student that needs a device can borrow one at no charge. All education campus’ need to have free Wi-Fi connectivity on campus that allows them to connect to the Internet, access digital books, and other learning resources that enable students to become digitally literate. Please refer to the attached documents in Appendix B relating to ICT Digital Literacy: CETF ICT Digital Literacy

Initiative; California ICT Digital Literacy Assessments and Curriculum Framework; The Stride Center, EmpowerNet and CETF World Class E-Skill Workforce Presentation, on Digital Literacy and ICT; Sample Workforce Development Board Resolution re Digital Literacy; See also "Digital Literacy Pathways in California" ICT Leadership Council Action Plan Report, July 2010.[9]

4. (a) What should the federal government do to make reasonable accommodations to those without access to broadband?

Making government information available online to 75% but then to leave out the 25% of Americans without broadband access deepens the Digital Divide. CETF has seen that the disadvantages of not having broadband at home are very serious, comparable to lacking telephone connectivity, water or electricity. The federal government needs to audit the implementation of the 508 standards it adopted for web accessibility for all the agencies within the executive branch so it sets the pace.

Those without broadband are those who live in rural or remote areas, low-income persons including the homeless, urban disadvantaged, people with disabilities, and seniors. These vulnerable populations require access and outreach to understand why they need to become digitally literate. In general the federal government should seek make online access equitable for populations that face additional barriers. For example someone who is deaf should not have to pay more for broadband because they need higher resolution to communicate in sign language. A provider has subsidies from the Connect America Fund for the deployment of high-speed broadband in a way that rural residents should not have to pay more for this essential service.

Broadband access should be focused on unserved communities and then underserved communities, meaning those with broadband below speeds adequate for today's applications. Community anchor institutions should offer no cost computing centers and access. These anchor institutions should include schools, libraries, civic centers, public parks, community centers, courts, community colleges, and higher education facilities. Affordable Internet service plans must be available to low-income persons. Fourth, digital literacy must be taught in all educational settings, including for adults and seniors.

5. How can the federal government best collaborate with stakeholders (state, local, and tribal governments, philanthropic entities, industry, trade associations, consumer organizations, etc.) to promote broadband adoption and deployment?

Establish Federal Broadband Champion. The support of President Obama on the issue of broadband, Net Neutrality, and the Digital Divide has brought these important issues into the spotlight. Global competitiveness is dependent on world-class broadband infrastructure. The establishment of the BOC is a very positive step. A federal "broadband champion" would be a huge asset to promote the appropriate integration of broadband access and adoption in all federal programs.

Further, within each federal agency, there should be a senior level broadband advocate who can help identify in a programmatic way how broadband may enhance and promote that agency's programs. Further the agency needs to ensure vulnerable populations are not left out by the lack of broadband access or adoption. The federal government should sponsor regularly scheduled "best practices" conferences and webinars to educate and share ideas to federal agency leaders

[9] http://www.ictliteracy.info/rf.pdf/Digital%20LiteracyMaster_July_2010.pdf.

on the importance of broadband to their programs, best practices, and how online access and smart phone applications may help promote their agency's program goals.

Broadband innovation and research particularly for government uses should be engaged in and rewarded.

B. Addressing Regulatory Barriers to Broadband Deployment, Competition, and Adoption

6. What regulatory barriers exist within the agencies of the Executive Branch to the deployment of broadband infrastructure?

The key regulatory barriers are (1) a lack of cohesive leadership and policies on this issue within the Executive Branch; (2) lack of awareness of how best to use broadband strategies to promote federal programs, and assisting states in promoting their programs similarly; (3) silos in which the federal agencies operate; and (4) lack of funding for broadband initiatives. Broadband policies have primarily been driven by federal policies at both the U.S. Congress and the FCC. To date, the federal government has pursued a competitive, very lightly regulated broadband policy. Until recently, state agencies have limited jurisdiction over broadband providers because broadband services were classified as interstate information services. This policy has been largely successful in driving more private sector investment in broadband infrastructure but it has not fully addressed deployment in rural high cost areas, or broadband adoption issues among low-income households. With the recent FCC decision asserting Title II jurisdiction over broadband, the FCC (and state commissioners) will have more tools in its toolkit to promote broadband access and adoption.

In recent years, the FCC has initiated broadband infrastructure programs to advance broadband in high cost areas through programs like its Connect America Fund. However, the program goals for broadband infrastructure deployment could be greatly advanced with the cooperation of the federal transportation authorities for conduit and siting along federal highway right-of-ways; model permitting standards; ISP access to poles, towers and other federal assets; and speedier permitting on federal lands.

Broadband expertise resides at the FCC, NTIA and RUS but they operate in silos from the other Executive Branch agencies.

7. What federal programs should allow the use of funding for the deployment of broadband infrastructure or promotion of broadband adoption but do not do so now?

Reform Medicare Reimbursement Policies for Telehealth. One key area of change that could be driven by better regulations is reimbursement for telehealth costs. Currently there is no single widely accepted standard. Medicare only reimburses for telehealth services when the originating site (where the patient is located) is in a Health Professional Shortage Area (HPSA) or in a county that is outside of any Metropolitan Statistical Area (MSA), defined by HRSA and the Census Bureau, respectively. The policy should be changed to allow the originating site to include a patient's home, not just a medical facility, such as a practitioner's office, hospital and rural health clinic. Also, a current policy should be changed that only allows Medicare to pay for "face-to-face", interactive video consultation services wherein the patient is present (in other words telemedicine services that mimic normal face-to-face interactions between patients and health care providers. All store-and-forward applications, such as tele-radiology, remote EKG applications and tele-dermatology, should also be covered. By doing this, private payers and

states may be encouraged to adopt this federal policy as a standard. Currently private payers and states wisely vary as to reimbursement policies for telehealth applications.[10]

Deploy Broadband in New Affordable Housing Units. As to federal housing agencies, adopt policies to deploy next generation broadband infrastructure in all new residential affordable housing, and allow retrofit for existing residential affordable housing units.

8. What inconsistencies exist in federal interpretation and application of procedures, requirements, and policies by Executive Branch agencies related to broadband deployment and/or adoption, and how could these be reconciled? One example is the variance in broadband speed definitions.[11]

See answer to Question 7 relating to telehealth reimbursement policies of Medicare which vary among private payers and states.

Make Broadband Speed Consistent Among Agencies. CETF agrees that the broadband speed example given in the BOC question does need clarification. Recently, the FCC set a broadband benchmark of 25 Mbps for download speeds and 3 Mbps for upload speeds, yet the USDA is still using the 2014 Farm Bill's definition of broadband for rural service areas as 4 Mbps down/1 Mbps up. This implies that there are fast lanes for urban residents and slow lanes for rural residents. The definition should be set to be for broadband speeds that allow for the use of modern applications and consistent in both rural and urban.

9. Are there specific regulations within the agencies of the Executive Branch that impede or restrict competition for broadband service, where residents have either no option or just one option? If so, what modifications could agencies make to promote competition in the broadband marketplace?

Ensure Incentives Exist. Incentives can spur competition in broadband services in all technologies, particularly for markets with no broadband providers or just one provider. Competition promotes adequate facilities, lower rates to consumers, and better quality of service. Municipalities should be allowed to offer broadband if there are no providers willing to provide broadband service at speeds below the FCC broadband benchmark at an affordable rate.

Increase Federal Broadband Infrastructure Grants. The federal ARRA broadband infrastructure grants brought broadband to rural areas with no service or one provider at below the definition of broadband set by the FCC. This type of program should be continued in addition to the FCC's Connect America program.

Broaden The Contribution Base to All Internet Service Providers. The FCC's Universal Service Fund (USF) for broadband needs to assess all providers (therefore consumers) equitably to ensure a competitive high-speed network and access for all in the U. S. now and overtime, along with a speedy implementation of broadband grants to bring broadband access to 98% of all Americans. All Internet service providers should be required to contribute to USF, to ensure a fund large enough for the capital intensive costs of bringing broadband to 98% of the population. It is important that the USF be efficiently run and have the appropriate oversight.

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[10] More on this telehealth reimbursement issue may be found here: http://ctel.org/expertise/reimbursement/reimbursement-overview/ and http://www.hrsa.gov/healthit/toolbox/RuralHealthITtoolbox/Telehealth/whatarethereimbursement.html

[11] The definition of what constitutes broadband has evolved over time. The FCC currently defines broadband as 25 Mbps for download speeds and 3 Mbps for upload speeds. . . USDA uses the 2014 Farm Bill's definition of broadband for rural service areas as 4 Mbps for download speeds and 1 Mbps for upload speeds.

Drive Innovation By Modernizing Device Regulations. In the health care arena improving the device approval, licensing and credentialing to promote telehealth applications will be a tremendous incentive to developers.

Coordinate, Inventory Opportunities to Improve Accessibility and Integrate 508 Standards in New Applications. Most agencies have programs that offer opportunities to align around accessibility standards for information and documents and demonstrate the power of Section 508. The BOC can also inventory the opportunities to amend Section 508 to stay current with technology.

Ask Questions to Breakdown "Bureaucratic Silos". For example, how can these agencies (Housing, Education, Labor, ILMS) work together to increase ICT training and broadband adoption within public housing developments in a way that more people with ICT skills are available for jobs in the local community? What can the Department of Labor and Department of Education do to support improved career pathways in stem fields at the state and local levels?

Coordinate with Community-Based Organizations (CBOs) for Solutions. When a federal employee is working with a consumer who does not have Internet access, prepare an education sheet of what the employee can do to encourage broadband adoption that is friendly, informative and helpful on the spot to assist the person subscribe to Internet at home. CBOs experienced in broadband adoption can assist in outreach and training as a trusted messenger to a community.

Negotiate with Computer Leasing Companies to Contribute Federal Equipment to Refurbishers. A portion of the federal government computing devices could be distributed to non-profit refurbishers that serve low-income clients.

10. Are there federal policies or regulations within the Executive Branch that create barriers for communities or entities to share federally-funded broadband assets or networks with other non-federally funded networks?

Leverage Federal Broadband Projects. American Recovery and Reinvestment Act (ARRA) broadband projects funded by NTIA and RUS helped build two major middle mile and last mile projects to rural areas in California. One critical flaw to these ARRA programs are that adequate planning costs, operating costs, personnel salaries, some types of equipment, and personnel training costs were not provided. These policies have hindered the ability of these projects to build out in a timely and efficient manner, staff up adequately with trained IT personnel, obtain necessary equipment (e.g. computers for classrooms/libraries), and achieve operational sustainability. CETF recommends that funds be provided for costs such as adequate planning, operating, personnel salaries, all necessary equipment and IT personnel training.

Further the ARRA projects had strict 3-year timeframes for build-out. This federal timeline did not take into consideration the difficulty getting timely permits, easements and other permissions from the U.S. Forest Service, the Bureau of Land Management, the National Park Service, and other federal agencies. Large broadband infrastructure projects should receive on a priority basis, permits from all federal agencies to ensure adequate infrastructure. Tribes should be encouraged to cooperate with broadband projects because broadband enables telehealth and tele-education that will benefit remote and rural communities.

Further, some federal agencies were very slow or difficult in obtaining permits by grantee of the ARRA projects. Thus, the BOC can assist greatly by encouraging each federal agency to allowing broadband providers to share sites, rights-of-ways, and easements with it. Further

providers should be encouraged to add antennas to existing federally-owned poles and right-of-ways controlled by the agencies. The BOC should ensure that data on federal potential poles or tower to share are made available for broadband grantees.

11. Should the federal government promote the implementation of federally-funded broadband projects to coincide with other federally-funded infrastructure projects? For example, coordinating a broadband construction project funded by USDA with a road excavation funded by DOT?

Develop a Robust Federal "Dig Once" Policy. CETF recommends establishing policies to promote efficient new broadband infrastructure construction, including sensible "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas. Internet Service Providers should be notified well in advance so that middle mile or last mile conduit could be laid while the roadbeds or other federal right-of-way paths are open. The laying of fiber in this manner can greatly reduce the costs of rural broadband projects and bring high speed broadband to rural and remote areas.

C. Promoting Public and Private Investment in Broadband

12. How can communities/regions incentivize service providers to offer broadband services, either wired or wireless, in rural and remote areas? What can the federal government do to help encourage providers to serve rural areas?

Continue Federal Broadband Grant Programs. The first step to getting advanced communications infrastructure to all communities is to acknowledge that competition will not get broadband to rural, remote and tribal communities and thus, subsidies may be necessary to be granted to willing broadband providers on a competitively and technology neutral basis that are willing to build broadband infrastructure to such communities. This is the equivalent of two programs that have been undertaken in the past: (1) Universal Service programs to bring telephones to all Americans via a small surcharge paid by all users; and (2) the rural electrification program to bring electricity to rural America. The FCC is in the process of developing subsidy programs for rural broadband infrastructure projects, both for middle mile projects and last mile projects. Lessons should be learned from the ARRA broadband projects, with more flexible funding, less restrictions, and operational/staffing/training costs covered until sustainability can be achieved.

Encourage State Broadband Infrastructure Programs. Full funding of these projects is critical to the nation's development of 21st Century broadband infrastructure. California has developed a state level broadband infrastructure programs, called the California Advanced Services Fund. It provides funding for broadband infrastructure projects in unserved and underserved areas, and requires the applicant to provide matching funds, among other requirements. Prior to the ARRA funding, the California Legislature found it necessary to stimulate competition by giving incumbent providers first right of refusal and to no longer require that applicants be existing, CPUC-licensed wireless or wireline providers, such as incumbent telephone carrier or cable companies.
See http://www.cpuc.ca.gov/PUC/Telco/Information+for+providing+service/CASF/

Subject matter expertise lies at the FCC, NTIA, RUS and in some state agencies that have jurisdiction over broadband. The National Broadband Plan requires funding to implement more of its recommendations with a specific timeline, goals and objectives.

Use Telehealth and Tele-education to Leverage Rural Broadband. A key way to engage rural communities initially is to promote telehealth and tele-education programs. In California, the development of a statewide telehealth network, called the California Telehealth Network (CTN), has promoted telehealth applications in rural health clinics, and government-owned hospitals and clinics. Using a $22.1 million grant plus matching funds, the CTN has enjoyed success with 270 sites connected by broadband, and assisting them in understanding various telehealth applications, facilitating the exchange of electronic health records, and obtaining specialty care from urban partners (example, dermatology and psychiatry are in high demand). In the tele-education area, CETF has pioneered its School2Home program to bring electronic devices into classrooms, and to ensure in depth training of the teachers, administrators, parents as well as the students as to digital literacy and effective e-learning. http://www.school2home.org/ Other major drivers for rural broadband may be the FirstNet project for emergency responder communications.

13. What changes in Executive Branch agency regulations or program requirements could incentivize last mile investments in rural areas and sparsely populated, remote parts of the country?

Develop a Robust Federal "Dig Once" Policy. CETF recommends establishing policies to promote efficient new broadband infrastructure construction, including sensible "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas. Internet Service Providers should be notified well in advance so that middle mile or last mile conduit could be laid while the roadbeds or other federal right-of-way paths are open. The laying of fiber in this manner can greatly reduce the costs of rural broadband projects and bring high speed broadband to rural and remote areas.

Support Free Wi-Fi in Public Federal Facilities. Federal facilities that are typically community gathering places should provide free Wi-Fi to the public. As examples, these should include U.S. Post Offices, federal courthouses, visitor centers of national parks, and publicly available community centers of military installations.

14. What changes in Executive Branch agency regulations or program requirements would improve coordination of federal programs that help communities leverage the economic benefits offered by broadband?

Champion Digital Literacy. The Federal Government needs to push further as it uses ICT to reinvent how it serves citizens more efficiently and train employees on the ICT skills as part of the work. As a first step, the BOC could adopt the use of "Information, Communications, and Technology" (ICT), which is the commonly used term in most countries. ICT includes all of what IT includes and adds to it the communications technologies that are required for the Internet Age.

California established the Digital Literacy Council as an interagency working group as the result of Executive Order S-06-09 California Digital Literacy: http://gov.ca.gov/news.php?id=12393. The Executive Order contains very concrete steps that should be taken for ICT skill training for digital literacy. The Governor issued a "Call to Action" to all state agencies in their work with K-12 schools, higher education institutions, employers, workforce training agencies, local governments, community organizations and civic leaders to advance the State as a global leader in ICT Digital Literacy by:

(1) Incorporating ICT Digital Literacy into workforce training programs and curricula.

(2) Supporting and promoting ICT Digital Literacy by encouraging all public agencies to optimize e-government and the availability of public services online.
(3) Requiring employers and employer organizations to identify requisite ICT Digital Literacy skills for 21st Century jobs and to articulate appropriate training and assessment standards to local, regional and state agencies responsible for workforce training.
(4) Encouraging public and private sectors to join forces and form public-private partnerships to promote ICT Digital Literacy.

CETF suggests that this framework could be adapted to federal agencies to promote similar goals. In California, some of the above was achieved, including the action plan. Copies of the Executive Order, an excerpt of the basic digital literacy definition adopted in California along, with the Policy Framework are attached as Appendix A. The latter two documents provide detail on the definition of ICT Digital Literacy, and includes a Policy Framework that is adaptable to the federal regime.

Take Bold Action, Set Broadband Adoption Goals for 100% of the Nation. CETF suggests that the Federal Government needs to be bolder about its broadband adoption goals. While CETF has supported an 80% broadband adoption goal by 2015 and 90% by 2020, the Tinder Foundation and Go ON UK in the United Kingdom recommend reaching **100%** broadband adoption of their population by 2020. This forward-looking report calculates the cost of bringing the 22% of unconnected UK residents up to the level of having Basic Online Skills, and then calculates the cost savings represented to national agencies of doing business online with residents instead of through face-to-face visits. It also looks at economic benefits this will bring the UK. After calculating the cost as being 875 million British pounds, it suggests a public private partnership between the UK Government, the private sector and the voluntary and community sector. The investment would be 292 million British pounds for each sector. See "A Leading Digital Nation by 2020: Calculating the Cost of Delivering Online Skills for All", Executive Summary at pp. 4-6, at this link:
https://www.tinderfoundation.org/sites/default/files/research-publications/a_leading_digital_nation_by_2020_0.pdf (Appendix D hereto).

Offer Low-Cost Federal Loans for Broadband Projects. Another idea is beginning a program for low-cost federal loans for broadband projects for unserved or underserved communities. In California, the California Advanced Services Fund (CASF) includes a Revolving Loan program. CASF grants and loans are designed to assist in the building and/or upgrading of broadband infrastructure in areas that are not served or are underserved by existing broadband providers. Under rules adopted in 2012 by the California PUC Decision No. 12-02-015, California provides grants of up to 70% of construction costs for projects in unserved areas and up to 60% of construction costs for projects in underserved areas. The Revolving Loan Program provides supplemental financing for projects also applying for CASF grant funding. Using the same project and applicant eligibility requirements as the Infrastructure Grant Program, CASF applicants may obtain loans of up to 20% of projects costs, with a maximum of $500,000.

15. How can Executive Branch agencies incentivize new entrants into the market by lowering regulatory or policy barriers?

Facilitate Federal Permitting. Facilitate speedy permitting of broadband equipment on federal facilities as discussed elsewhere in the Comments.

Support Pro-Competition Policies. Support FCC preemption of any state or local statutes, regulations or ordinances that limit competition for broadband providers.

D. Promoting Broadband Adoption

16. What federal programs within the Executive Branch should allow the use of funding for broadband adoption, but do not do so now?

"Think broadly, every sector benefits from ICT use." The Institute of the Future published a brief with that statement entitled, "A Policymaker's Guide to Spurring ICT Adoption Report recently (see link in Appendix C). Policymakers around the world often wonder how to create "the next Silicon Valley." This is understandable, but the truth is that since the turn of the millennium, using ICT has created much more growth than producing it. That's because ICT products and services are essential tools of production for all industries in today's economy, not just tech. ITIF further opines that, "From basic digital literacy to software engineering, ICT skills exist on a spectrum from simple to advanced. Nations should ensure that schools teach digital literacy, high schools and technical institutes provide training for more advanced ICT skills, and colleges support computer science programs" we can put with the education related comments.

Establish a WIB Strategy on ICT Workforce Development. One broadband adoption strategy that CETF has employed has been to educate Workforce Investment Boards (WIBs) on the importance of ICT Digital Literacy. WIBs are regional entities created to implement the Workforce Investment Act of 1998 in the U.S., and U.S. Territories. Every U.S. community is associated with a Local WIB (LWIB). For each LWIB, a chief elected official (typically, a county commissioner or mayor of a major city in the geographic area) appoints members to sit on the WIB in unpaid positions. Half of the WIB's membership is to come from private business entities, and other WIB seats typically go to representatives of organizations like labor unions, educational institutions (e.g. community colleges), etc. who have interests in workforce development issues. The WIB's main role is to direct federal, state and local funding to workforce development programs. For example, it might conduct and publish research on workforce development programs in their area, and the needs of their region's economy to attract businesses and skilled workers. They may also run career centers, where employment information is available for job seekers.

CETF has performed outreach to WIBs to educate them on why ICT digital literacy skills are vital to the region's ability to compete successfully in a global information and knowledge economy. In presentations and webinars, WIBs are educated in how many companies, how much of the total region's revenues, number of workers, private sector wages and job growth is coming from ICT industries in the region. The case is made that ICT industries are a major driver and strategically important in the local economy, representing a significant percentage of its businesses, revenues, employment and job growth. After employer surveys, statistics are presented showing that ICT is important to the productivity of the region's businesses, that ICT skills sets are growing in importance to their employees, that applicants with ICT digital literacy certificate and skills would have a competitive advantage during the hiring process, and that firms surveyed expected to add workers with ICT skills to their payroll in the next two years. Even basic ICT competencies are expected by most employers for many jobs.

In California, high level state leadership by Governor Arnold Schwarzenegger's issuance of Executive Order 12393 in June 2009,[12] which supported an ICT Digital Literacy policy framework. It declared that, "ICT Digital Literacy skills are vital to California's ability to compete successfully in a global information and knowledge economy." Among the things the Executive Order directed was for the California WIB to: (1) develop a technology literacy component for its five year Strategic State Plan to raise the level of digital literacy skills by

[12] Link to Executive Order 12393, S-06-09, dated June 2009, http://gov.ca.gov/news.php?id=12393

supporting technology training and integrating digital literacy skills into workforce development activities; (2) expand Career Technical Education (CTE) opportunities and Digital Literacy programs in community colleges; (3) build consensus at the state and local levels by identifying digital literacy ecosystems to drive models of excellence, benchmarking and reliable metrics for ensuring success; (4) provide workforce examples of skills training and job placement community value projects for e-government, e-health, or other applications; (5) engage the ICT industry and large employers to promote applications; (6) highlight collaborative models in underserved communities and culturally diverse populations; (7) build and resource a strong coalition empowered to achieve near term action and results oriented outcomes; and (8) reward success to reinforce best practices, individual champions, economic results and public awareness and support.

In particular, ICT Digital Literacy training is an idea for entry level or transitioning workers because it obtains for the worker an industry-recognized credential which increases the chance of employment. An ICT job also provides a living wage (entry level pay ranges from $15 to $24 per hour, up to 56% wage gains in the first three years, with excellent future pay potential), with a proven career path in a cross-sector job market. Finally the overall ICT industry has a promising labor market outlook.

In California, a major success story for our workplace efforts has been The Stride Center and EmpowerNet. The Stride Center is a non-profit social venture working to empower economic self-sufficiency for individuals and communities in the San Francisco Bay Area. It harnesses the power of technology and the digital economy to help men, women and families on the road to self-sufficiency and independence. The Stride Center has developed a curriculum and teaching staff that responds to the unique circumstances of men and women who face barriers to employment[13] and access to careers in the burgeoning technology economy. The Stride Center's professional environment for learning and proven, comprehensive learning model is helping deserving, capable people gain jobs, self-respect and financial independence.

The Stride Center's comprehensive career development program includes:

- Technical skills, life skills, professional and career skills training.[14]
- Industry recognized credentials (technical certifications).
- Work experience through its social venture enterprise, ReliaTech.[15]
- Job placement assistance.

In addition to the training programs, The Stride Center operates its own social enterprise. ReliaTech is a full-service technology consulting, installation and maintenance business, providing low-cost tech support to the community, and paid and volunteer technical internship positions to students, and jobs for graduates. ReliaTech also contributes 100% of its net income towards The Stride Center's operating expenses. The Stride Center has enjoyed success, with student retention is over 80%, with 80% receiving industry recognized technical ICT certificates, with job placement of students at over 80%. More information about The Stride Center is here: http://www.stridecenter.org/

EmpowerNet California is a project of the Stride and Goodwill Industries that helps non-profit training providers across the state to start best practice ICT training programs. The organization

[13] Typical Stride Center students have come from inner cities, with backgrounds of poverty/low income, drug abuse, criminal backgrounds, homelessness, welfare, with barriers to employment.
[14] The students are trained in IC3 Computer Basics Certified, Internet, Microsoft Office and Basic Troubleshooting.
[15] ReliaTech is a social enterprise of The Stride Center who provides low cost tech support services in underserved communities and resells refurbished computers worked on by ReliaTech interns from The Stride Center.

provides hands-on consulting to new programs to ensure successful start-up and strong results. It further has built a learning community for continuous improvement. It has provided program start-up funding for qualified new programs, and until May 2012, its services were virtually free to new program providers. EmpowerNet has this framework for action: (1) adopts local initiatives to promote digital literacy in all approved training programs; (2) adds primary and secondary ICT jobs and careers to local training initiatives and approved career tracks; (3) encourages ICT job development; and (4) helps prepare local providers to delivery best practice ICT training.

In recent years, CETF has reached out to regional WIBs throughout California to encourage them to pass an ICT Digital Literacy Resolution resolving to support steps to enable people to harvest the benefits of an information and knowledge society and to promote (1) access to ICT by our people regardless of income or advantage; (2) opportunities for our people to acquire ICT digital literacy skills to benefit academically, economically and socially; and (3) initiatives encouraging local training providers to incorporate ICT digital literacy training in all approved training programs. Information relating to ICT Digital Literacy are in Appendix A.

Revise Medicare Reimbursement Policies to Allow Telehealth. Medicare reimbursement policies must be changed to allow telehealth reimbursement. See response to question 7.

Secure Funding for Sustainable Broadband Adoption Grants for the Next Five Years. The successful implementation of the NTIA grants by CETF and our 19 partners was led by CETF Senior Vice President Susan Walters, who prepared a report *Lessons Learned from the Field*.

The four major lessons about sustainable adoption:

(1) Leverage everyday activities into broadband training and curricula: How to engage participants with relevant training topics that will help drive new, sustainable home broadband adoptions;
(2) Secure job placements in the growing ICT field: Strategies that have successfully helped program participants find jobs in Information and Communications Technology (ICT);
(3) Drive broadband adoption by offering affordable full services: Service and resource combinations that are effective at driving and securing adoptions along with affordable broadband and computing devices and improving digital literacy skills; and
(4) Pursue sustainable programs: How to integrate broadband adoption into other activities, such as health, education, financial literacy and community development.[16]

CETF Lessons Learned from Managing the ARRA NTIA BTOP Grants

- Grantee executive leadership and staff management capacity are essential.
- Coaching and the "learning community" were key to reaching goals.
- Thoughtful work plans in advance led to faster recognition of problems.
- Anchor institutions and community organizations need to work to ensure that clients actually obtain broadband (information and encouragement alone are not sufficient).
- Integrating digital literacy training and broadband adoption into existing programs is the best way to ensure sustainability and continually narrow the Digital Divide.

[16] CETF Lessons Learned from the Field, January 2013 at 5; see http://www.getconnectedtoday.com/files/j11560_cetf_web_0.pdf

The experience of all NTIA grantees has been incorporated into the NTIA Took Kit which is a useful compilation of data and recommendations for accelerating broadband adoption. NTIA Administrator Larry Strickling and his team have a wealth of knowledge about "what works" and established working relationships with state agencies and non-profit organizations throughout the nation that are valuable assets that should be supported and leveraged for sustained progress in closing the Digital Divide.

17. Typical barriers to broadband adoption include cost, relevance, and training. How can these be addressed by regulatory changes by Executive Branch agencies?

Require Affordable Broadband Rate and Support Training. Cost can be best addressed by the FCC by requiring an affordable broadband rate to be offered by Internet Service Providers to low-income persons. This program can be developed similar to the Lifeline telephone program.

Offer Trainers and New Adopters Basic Digital Literacy Skills. Provide digital literacy training in programs that offer education, workforce preparation, and health enrollment, prevention and management, including to the staff of these programs.

Promote the Relevance of Digital Literacy. Public service announcements should be promoted by federal agencies and by ISPs on the importance of broadband applications to Americans to encourage them to learn digital literacy skills so they may participate in the 21st Century information economy.

E. Issues Related to State, Local, and Tribal Governments

18. What barriers exist at the state, local, and/or tribal level to broadband deployment and adoption? How can the federal government work with and incentivize state, local, and tribal governments to remove these barriers?

Develop Model Permitting Standards And Encourage Collaboration. Work with states to develop model permitting standards and encourage collaboration among broadband providers. Among the work product could be: (1) a voluntary municipal application process; (2) E-permits; (3) a permitting timeline for standard types of permits; (4) metrics to measure efficiency of the permitting process and compliance to issued permits; (5) guidelines for use of blanket permits for large, long-term infrastructure placements; (6) guidelines for moratoria on above-ground facility construction; and (7) conduit standards and commitments for placing standard spare conduit in the Rights-of-Way at times of construction.[17]

New Developments: One of the biggest costs to broadband deployment is cutting or trenching roadways. Developers can ensure that capacity is available in the future as to new developments by placing standard spare conduit and innerduct in the rights-of-way at the time of construction. By proactively placing this infrastructure in the ground, when the subdivision or business development is built, users will have greater broadband availability in the future.

19. What federal barriers do state, local, and tribal governments confront as they seek to promote broadband communities?

Expedite Siting of Broadband. Local, state, federal and tribal lands permitting continues to delay and increase costs of broadband infrastructure projects, whether wireline or wireless.

[17] CBTF Report, at 63.

Model permitting practices, facilitated permits, databases of facilities, collocation sites, facilitated environmental review and a true collaboration of government entities with ISPs would go a long way to improving broadband coverage in the unserved and underserved areas of the country. There are many models of how fast and well things can go if the local government has a strong leader and local support for a project. The Google Fiber projects (Kansas City, Provo, Austin), the Chattanooga, Tennessee fiber projects are a few examples.

20. What can the federal government do to make it easier for state, local, and tribal governments or organizations to access funding for broadband?

Bring New Broadband Grants. Undertake another round of federal broadband grants for funding of projects in unserved areas (first priority) and underserved areas, according to the FCC broadband maps.

21. How can the federal government support state, local, and tribal efforts to promote and/or invest in broadband networks and promote broadband adoption? For example, what type of capacity-building or technical assistance is needed?

Develop Low-Cost Collocation Facilities. Federal agencies could make available at low cost collocation facilities (buildings with sufficient power and cooling equipment to house networking equipment) to broadband providers, to help lower the cost or service provision in unserved areas and encourage network upgrades in underserved areas.

Leverage Federal Infrastructure. As noted previously the Federal government could engage in public-private partnerships relating to federal infrastructure (towers, poles and vaults) to support broadband infrastructure in unserved and underserved areas at low cost or no cost leases. Partnerships involving wireless communications can assist private broadband providers as to siting. Further, the deployment of FirstNet, the new national emergency communications system, gives opportunities to leverage its infrastructure in any unserved or underserved areas to last mile Internet Service Providers.

F. Issues Related to Vulnerable Communities and Communities With Limited or No Broadband

22. How can specific regulatory policies within the Executive Branch agencies be altered to remove or reduce barriers that prevent vulnerable populations from accessing and using broadband technologies? Vulnerable populations might include, but are not limited to, veterans, seniors, minorities, people with disabilities, at-risk youth, low-income individuals and families, and the unemployed.

Develop an Affordable Housing Initiative. As to low-income communities, CETF draws attention to unique work it undertook with the housing authority of the largest city in California. We suggest this as a model for others to emulate. CETF and the Housing Authority of the City of Los Angeles (HACLA) began their partnership in March 2013. CETF developed a Smart Housing Pilot Partnership (SHPP) in Los Angeles with HACLA to demonstrate the viability of smart housing and to document the costs of broadband deployment, training and adoption in publicly-subsidized housing with very low-income residents. The first task was to identify the housing projects to work in, then to select a wireless provider and finally to select vendors for refurbished computers and to conduct on-site training. Two HACLA multi-family properties were selected, Jordan Downs and Mar Vista Gardens, with more than 1,000 housing units combined.

The work of CETF and HACLA enabled both groups to present useful information about the experience working to connect these two publicly-subsidized housing projects to gain support from California Assembly and Senate Committee members. This pilot helped inform the state legislation that became Assembly Bill 1299 for housing stakeholders to replicate as they pursue Digital Inclusion programs. The program is the California Smart Housing Initiative and implemented by the California Public Utilities Commission. The California PUC began accepting applications on January 15, 2015 and is planning to process applications on a quarterly basis. CETF and CPUC staff conducted comprehensive webinars and in-person workshops that were attended by more than 275 representatives from housing and service provider organizations. As of April 30, 2015 more than $7 million has been requested to date for infrastructure and adoption projects in affordable housing units in California. This money comes from the Commission's California Advanced Services Fund program, funded by a small surcharge on California telephone providers (wireline and wireless).

As part of the effort, The National Housing Conference, Eden Housing, and CETF conducted a Roundtable among several national stakeholders in Washington, D.C. in June 2014. As a result, there was agreement to form a Connectivity Working Group to focus on expanding meaningful Internet access in publicly-subsidized housing developments.

CETF affirms a key issue is that far too many low-income households do not have even a basic broadband connection at home, as we describe in the accompanying research brief: "The Connectivity Gap: The Internet is Still Out of Reach for Many Low-Income Renters." See Appendix E. Making sure all households have an affordable connection plus the computing device and the digital literacy to best use it will create new economic opportunities for households moving toward self-sufficiency, kids achieving in school, businesses reaching new markets, and communities building a higher-skilled workforce.

To help achieve affordable broadband connectivity for all, the National Housing Conference (NHC) convened a Connectivity Working Group to recommend policy changes. The group draws from affordable housing developers, public agencies, policy experts, capital providers, national intermediaries, and more, all committed to the shared mission of closing the digital divide for low-income people. The recommendations presented here draw on the expertise of the Connectivity Working Group, the policy briefs from NHC's Center for Housing Policy, and advice from other stakeholders. We recognize that achieving broadband connectivity for all will require action by many, including Congress, the President, the Federal Communications Commission (FCC), the Department of Housing and Urban Development (HUD), internet service providers, state and local governments, and more. To ensure that the affordable housing community does its part, we recommend:

1. **Set a national goal for connectivity in HUD properties as part of a national connectivity goal**. With a strong federal commitment of new resources and partnerships with the private sector, we believe all HUD-assisted properties could have affordable, cost-effective, basic broadband connectivity for all residents by 2020. There are innovative solutions in public housing and privately-owned assisted housing that we could encourage others to adopt. If states commit to this goal as well, we could also reach all Low Income Housing Tax Credit properties. Aligning broadband connectivity with existing initiatives such as Choice Neighborhoods and Promise Zones may help pave the way, but achieving the national goal will ultimately require a concerted effort nationwide.

2. **Implement digital literacy and equipment support into broadband provision**. For access to broadband to transform lives, it must be more than just a plug in the wall or a wireless access point. Low-income residents need access to reliable equipment (particularly computers or tablets, not just smart phones, for a full range of education and work-related

activities) and training in how to make the most of it. Successful examples of these solutions combine small contributions from residents with grants and owner contributions so that all share a commitment to the success of the effort.

3. **Treat broadband as an eligible expenditure in affordable rental housing**. As pilot programs are demonstrating, basic broadband provided at the property level can serve residents effectively while containing costs. HUD should issue guidance allowing properties to use available funds to implement cost-effective connectivity for residents and should support pilot programs to test different implementation methods. Building on these initial steps, HUD should explore treating cost-effective basic broadband as a standard operating cost for affordable housing properties. This would affect all HUD properties, but would be most meaningful for those using a budget-based rent calculation, such as Section 202, some project-based Section 8, Section 811, and others. For it to meaningfully affect public housing, HUD would need to revise additional guidance possibly through an "add-on" expense under the asset management formula in sec. 990.190. Ultimately, to implement basic broadband widely, Congress would need to provide additional funds, per recommendation 5 below.

4. **Support Broadband in Affordable Housing Through FCC Actions**. The Federal Communications Commission (FCC) is uniquely positioned to reduce costs of broadband service for low-income households, encourage public-private partnerships to serve low-income communities, and make broadband part of coordinated neighborhood transformation strategies. For example, as the FCC considers the Comcast-Time Warner Cable merger, it should require both companies to:
   a. Work with HUD, state and local housing agencies, and affordable housing stakeholders to implement broadband access in publicly-subsidized housing developments including public housing, Section 8, Low Income Housing Tax Credit, and others.
   b. Contribute to independent funds to support broadband adoption at home and implement strategies to improve and expand Comcast's Internet Essential program to all low-income families and individuals.
   c. Upgrade infrastructure in underserved areas and extend into unserved communities to improve broadband deployment, with special attention to low-income neighborhoods and multifamily buildings serving households below median income.
   d. Ensure that provider-supported connectivity programs reach all people in need, especially seniors and people with disabilities who may not be captured by school-related criteria for eligibility.

The FCC should consider these aspects in future mergers and consolidations that require approval.

5. **Provide federal funds to support broadband connectivity in affordable housing**. Existing resources are not sufficient to accomplish all that is needed, including capital installation, ongoing operation, equipment, digital literacy training, and technical support. As part of annual appropriations, Congress should allocate additional funding for public and assisted housing to pay for broadband costs in property operations, as well as large-scale pilots to refine best practices for implementing broadband at a property level. Tax incentives are an alternative mechanism for defraying cost of broadband connectivity in affordable housing, if properly structured in a pay-for-performance model and not diverted from existing affordable housing programs.

6. **Use public resources to leverage private resources**. Private businesses can be part of the solution to the digital divide, through both corporate philanthropy and private investment for

business purposes at the large and small scale. In-home connectivity can make property management more efficient for multifamily housing, deliver health care services efficiently, and allow telecommuting for workers. It can also bring low-income people into the economic mainstream as workers, consumers, and entrepreneurs. Scarce public resources should therefore leverage private contributions, of which there are many models, including community development financial institutions, tax credit incentives, loan pools, and in-kind contributions. Examples include Google Fiber projects in Austin and Comcast's Internet Essentials program.

Modernize Lifeline for an Affordable Broadband Rate. As previously discussed in Section D, encourage low cost, affordable broadband rates for low-income persons at the FCC. Allow subscribers to broadband Lifeline programs to choose a wireline or wireless option that best fits their needs.

Champion ICT Digital Literacy. As previously discussed in Section D, promote a digital literacy policy and framework that supports a continuum of digital literacy skills, benchmarking and metrics that are consistent with globally accepted standards, and would ensure accountability for assessing progress and success.

Promote Workforce Development Policies: Promote workforce development policies that promote: (1) access to information and communications technology by our workers regardless of income or advantage; (2) opportunities for workers to achieve ICT digital literacy skills in order to benefit academically, economically and socially; and (3) initiatives encouraging local training providers to incorporate ICT digital literacy training in all approved training programs.

Initiate Federal Wi-Fi Initiatives. As previously discussed in Section A, provide for public access to Wi-Fi from federal facilities that are open to the public, such as Post Offices, federal court houses, military installations, etc.

Reform Medicare Reimbursement Policies for Telehealth in Rural Areas. As previously discussed in the answer to question 7, Medicare reimbursement policies should be amended to encourage telehealth applications and drive more consistent policies across the public and private payors in the health care insurance system. This is particularly acute for prison populations, rural and remote residents, seniors, the homeless, the unemployed, at-risk youth, and low-income persons.

23. How can the federal government make broadband technologies more available and relevant for vulnerable populations?

Modernize Lifeline for an Affordable Broadband Rate. As noted previously, the FCC is in the best position to bring affordable broadband offers through a Broadband Lifeline program to low-income communities and other community groups with low adoption numbers (for example, senior citizens, persons with disabilities, non-English speaking, and disabled veterans).

Provide Vulnerable Populations with Access to Broadband. Encourage policies that provide for places where vulnerable populations have access to broadband facilities so they may connect to social service and government programs, via voice, email box or voicemail box.

Excel at Accessibility and Universal Design for People with Disabilities. Promote accessibility and universal design to promote broadband access for people with disabilities, a greatly unserved population with low broadband adoption metrics. Partner with national disability associations to explore how best to connect people with disabilities most effectively,

including ensuring accessibility in equipment design, and focused broadband adoption outreach for this community.

G. Issues Specific to Rural Areas

24. What federal regulatory barriers can Executive Branch agencies alter to improve broadband access and adoption in rural areas?

Champion Agricultural Technology (AgTech) as a Major Benefit for Rural Areas. There are many benefits to bringing broadband to rural areas. Agriculture Technology (AgTech) enables the following applications on the production side thus benefitting for rural businesses, farmers and consumers: Agricultural Drones to provide multi spectral imagery of farmland status; variable rate irrigation (saves water); food safety is enhanced using test kits to detect foodborne pathogens; drip irrigation may be monitored with wireless technology using wireless soil sensors; precision input applications allow precise planting of crops for maximum output. Further, rural telehealth and telemedicine keeps rural residents healthier and with access to specialty care comparable to urban dwellers. Other benefits of rural broadband include rural agro tourism and recreation, more direct access to global markets by rural farmers and agricultural businesses. Finally, rural libraries greatly benefit from rural connectivity to have access to materials, enable education at any age, and serve as a key broadband access point for rural low income persons. Rural broadband also enables distance learning for learners of any age. See Attachment E, "Agricultural Technology and the Future of Farming: It's Not Your Grandfather's Farm, Anymore", Robert Tse, USDA Rural Development, CFEE Roundtable on Information and Communications Technology (March 5, 2015).

Promote Farm Bill Funding for Broadband for Rural Areas. According to Valley Vision, a Sacramento-based policy non-profit organization, the Executive Branch also should consider support in the Farm Bill for broadband projects in unserved and underserved rural areas. This deployment of broadband infrastructure would drive advancements in mobile technology and rural economic diversification and expansion. Additional spectrum for wireless broadband applications was deemed critical. See Attachment E, Capitol-to-Capitol 2013, Sacramento Metro Chamber Briefing Paper, entitled Agriculture & Food, Broadband Access Essential to Meet Growing Food Demands and Enhance Rural Economies (April 13-17, 2013).

Encourage Broadband In Tribal Lands. Encourage and educate tribes to bring broadband to tribal lands to encourage economic development and other social benefits.

Promote speedy permitting and siting of broadband facilities across federal lands.
One huge barrier to entry for the large broadband ARRA projects was delays in siting by federal agencies like US Forest Service and the National Park Service. CETF recommends that these agencies and other federal agencies be required to act more speedily on broadband siting requests and be encouraged to allow it where feasible.

Ensure Federal Assets Made Available for Broadband Facilities. Encourage federal poles, towers and rights-of-way be made available on a timely basis for broadband projects.

Promote Telehealth Networks for Rural, Remote and Tribal Communities. Encourage and ensure funding for rural-urban telehealth networks, including funds for operational costs, necessary equipment and robust Internet access, with funding from the FCC Healthcare Connect Fund and coordinated funding from federal health agencies. Reform health reimbursement

mechanisms and policies to encourage efficient and cost saving telehealth applications for high quality consults.

25. Would spurring competition to offer broadband service in rural areas expand availability and, if so, what specific actions could Executive Branch agencies take in furtherance of this goal?

CETF has prepared a list of actions that the BOC and specific federal agencies may take on broadband access and adoption in their scope of work.

President's Broadband Opportunity Council

- Set national goals and performance metrics for broadband deployment and adoption along with a timetable and assigned responsibilities for achieving them to encourage implementation of the National Broadband Plan and utilization of the NTIA Tool Kit. The Council can institute regular Congressional oversight proceedings to ensure performance and accountability.

- Integrate broadband and information technologies into all federal policies and programs through funding incentives to align efforts across agency departments. There is a need to "connect the dots" with a set of coherent strategies that transcend "bureaucratic silos" to optimize access to and use of the Internet with high-speed connections.

- Foster public-private partnerships with participation of the White House to accelerate broadband deployment and adoption. There is no substitute for the innovation and efficiency of the private sector when engaged as sincere partners motivated to achieve explicit goals as measured by metrics. Public-private partnerships can significantly leverage public resources for a higher return on investment to taxpayers and ratepayers.

- Encourage states to adopt broadband adoption strategies and plans by giving priority consideration for federal funding to projects that align with and complement state programs that have explicit adoption goals with accountability for performance.

- Establish broadband as a green strategy with the federal agencies dealing with climate change and clean green energy.

- Order creation of a federal database of federal towers, poles, facilities, and right-of-ways available for siting of broadband facilities; establish a uniform and fair rate for use of such facilities; and establish a priority for permitting for broadband facilities, particularly in rural, remote and Tribal lands.

U.S. Department of Health and Human Services (HHS)

- Build upon the ARRA Health Information Technology for Economic and Clinical Health Act (HITECH) framework to encourage stronger linkages and purposeful collaboration of health exchanges and "meaningful use" to the telehealth networks funded by the FCC Rural Health Care Pilot Projects and/or the new FCC Healthcare Connect Fund.

- HHS and the FCC should make a concerted joint effort to connect all state and local government public health services, federally-qualified health centers (FQHCs), critical care hospitals, tribal healthcare facilities (if desired by Tribal Leaders) to these telehealth-telemedicine networks. This kind of an effort will need to be coordinated with other departments and programs, such as the U.S. Department of Agriculture's Distance Learning,

Telemedicine and Broadband Program to ensure rural communities are sustainably connected.

U.S. Department of Education (DOE)

— Integrate broadband and computing technologies aggressively into the teaching and learning processes in all federal grants to improve education, particularly to turn around low-performing schools because of the ability of the technology to engage and involve low-income parents with an approach similar to School2Home.
— Assist educators and policymakers in the implementation of nationwide of Common Core Standards with the technology needs as it requires a major effort on a scale not yet contemplated.
— Encouraged Promise Neighborhoods grantees to promote "smart communities" by incorporating broadband adoption strategies into their programs.

U.S. Department of Labor (DOL)

— Encourage integration of digital literacy and ICT skills training into all existing workforce preparation programs through Workforce Investment Act allocations to states and all other grants.

U.S. Department of Housing and Urban Development (HUD)

— Promote "smart housing" in all publicly-subsidized multi-unit complexes by allowing the installation of an advanced communications system with broadband connectivity in each residence to be included in construction costs and the maintenance of such a system to be included in operating budgets.
— Encouraged Choice Neighborhoods grantees to incorporate broadband adoption strategies into their programs.

U.S. Department of Agriculture (DOA)

— Encourage larger-scale integrated proposals for existing grant funds that combine broadband deployment and adoption. This especially applies to the Rural Utility Service and all other rural economic development programs.
— Educate farmers and large agricultural businesses on the advantages and benefits of Agricultural Technology to save water, reduce fuel consumption, enable self-operating farm equipment, and real time detection in the field of food pathogens to prevent contamination of crops.
— Consider easements for broadband deployment in National Forests to support public safety, emergency response, and homeland security.

U.S. Department of Interior (DOI)

— Identify all resources to assist Tribal Leaders (who request such assistance) in providing broadband service to Tribal Lands.
— Consider easements for broadband deployment in National Parks to support public safety, emergency response, and homeland security.

U.S. Department of Homeland Security (DHS)

— Become a proactive partner in FirstNet to accelerate broadband deployment and adoption to support public safety, emergency response, and homeland security.

Federal Communications Commission (FCC)

- Request and support the FCC to accelerate reform of the Universal Services Fund (USF) and to incorporate best practices for sustainable broadband adoption.
- Give priority consideration for funding and/or subsidies to broadband providers that: (a) have a coherent, explicit program with quantified goals and metrics to increase broadband adoption; (b) partner with CBOs that have a proven track record as the "trusted messenger and honest broker" in broadband adoption; and (c) target low-income communities in collaboration with other stakeholders pursuing "digital inclusion" and "neighborhood transformation" strategies (such as digital literacy in schools, workforce training, or publicly-subsidized housing).
- Establish an affordable Broadband Lifeline Rate Program within the next year and make it available to residents in low-income census tracts in which there is a coherent "digital inclusion" component of a "neighborhood transformation" initiative with responsible local governments, key stakeholders, and respected CBOs.
- Prioritize in FCC E-Rate program low-performing schools and libraries in low-income neighborhoods that have established a coherent program with quantified goals and accountability to increase broadband adoption, especially as part of an overall "neighborhood transformation" initiative.
- Centralize the verification of annual E-Rate certification to encourage efficiency and reduce cost of administration and ineligible participants.
- Prioritize funding of the Connect America Fund and other programs to subsidize broadband infrastructure to deployment projects with plans and partners to promote broadband adoption.
- Request assistance from the National Association of Regulatory Utility Commissioners (NARUC) to engage states agencies responsible for broadband, and convene information forums on development of broadband adoption strategies and plans.
- Request the FCC and NTIA to engage broadband providers in helping design the "next generation" broadband adoption program to achieve explicit goals and measurable outcomes.
- Encourage providers to partner with EveryoneOn (formerly Connect-to-Compete) by setting adoption targets coupled with affordable broadband offers (e.g. $10/month) that can be made available without undermining profitability. There needs to be market competition for low-income consumers to become sustainable broadband customers.
- Structure USF reforms for a Broadband Lifeline Rate Program and E-Rate to encourage and reward providers who partner with non-profit intermediaries (such as EveryoneOn) and trusted Community Based Organizations (CBOs) with a proven track record and align with state plans. Reimbursement and subsidies from the USF should reward public-private partnerships that drive to and achieve explicit broadband adoption goals.

U.S. Department of Commerce (DOC)

- Seek additional funding for NTIA as a prudent investment in global competitiveness to establish the "next generation" broadband adoption program that builds upon the ARRA Broadband Technologies Opportunity Program experience, aligns with other existing efforts, and leverages federal resources through partnerships to achieve explicit adoption goals and outcomes by 2020.
- Facilitate collaboration among successful BTOP grantees to join forces with state governments to develop broadband adoption strategies and plans.
- Request the FCC and NTIA to engage broadband providers in helping design the "next generation" broadband adoption program to achieve explicit goals and outcomes.

Environmental Protection Agency (EPA)

— Educate on how telecommuting, Agricultural Technology applications and other broadband-enabled applications help keep the environment clean by reducing transportation emissions, less water consumption, less ground contamination from fertilizer, and reduced fuel usage.

Federal Energy Regulatory Commission (FERC)

— Educate on how smart grids and other broadband-enabled applications result in clean green energy and assist in achieving climate change goals of the nation.

Allow Municipal Entities to Provide Broadband Services. One key issue in provision of service to rural areas is the cost of deployment of upgraded broadband systems where there are not the typical economies of scale as in an urban deployment. Competition could be enhanced by allowing municipal entities such as community service districts to provide broadband services, and spurring competition with the rural telephone company, rural cable company or rural ISPs. (See CA Government Code 61000(af) as an example of how a California Community Service District may be allowed to offer broadband service if these is a lack of service by private providers. http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=61001-62000&file=61100-61107) The FCC recently took action to effectuate such a change and more federal work should be done to encourage municipal entities to undertake projects where appropriate.

26. Because the predominant areas with limited or no broadband service tend to be rural, what specific provisions should Executive Branch agencies consider to facilitate broadband deployment and adoption in such rural areas?

Establish Low and Uniform Rental Rates for Access to Federal Facilities. Establish low and uniform rental rates for access to federally owned poles, towers, collocation facilities or other sites to simplify and speed up access to federal facilities for broadband facilities, particularly in rural or remote areas.

Improve Federal ROW Practices. Improve federal rights-of-way management practices to make federal facilities available for broadband in a more time efficient and resource efficient manner for applicants.

Establish Federal Dig Once Policies. Establish efficient new broadband infrastructure construction including "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas.

H. Measuring Broadband Availability, Adoption, and Speeds

27. What information about existing broadband services should the Executive Branch collect to inform decisions about broadband investment, deployment, and adoption? How often should this information be updated?

Study Broadband Progress. The Executive Branch should periodically look at the U.S. competitiveness in broadband deployment and adoption and ensure adequate funding and priorities are being devoted to these issues. Data on broadband speeds, broadband adoption and broadband rates should be collected in every geographic area by census block group, and by

socio economic groups. A starting point should be the CETF-funded Field Study on Broadband[18] and the broadband studies by the Pew Research Center.[19]

28. Are there gaps in the level or reliability of broadband-related information gathered by other entities that need to be filled by Executive Branch data collection efforts?

Establish Federal Database of Federal Facilities. As previously discussed, a database of available federal towers, poles, available right-of-ways or other facilities for siting purposes would be a valuable asset to broadband companies.

Perform Study Wireline and Wireless Broadband Speeds and Adoption Data. Wireline and wireless broadband speeds should be collected at a granular level, in addition to adoption data, including by income, ethnicity, language spoken, and education, in order to better understand the challenges of broadband adoption.

29. What additional research should the government conduct to promote broadband deployment, adoption, and competition?

Conduct Federal Funding for Necessary Research. Very little research has been done on effective broadband deployment of facilities and adoption to the most vulnerable populations, such as tribal, people with disabilities (particularly those with mobility disabilities), and non-English speaking persons. Also research should be funded on how to get broadband access to very remote places in a cost effective manner.

Research Broadband as a Green Strategy. Little research has been done on the cost effectiveness of broadband as a green strategy. With the White House's leadership on climate change and green energy issues, this aspect has been overlooked. Funded by CETF, Valley Vision in Sacramento, California has performed two sets of research in a policy paper and laid out the benefits of broadband from a green perspective. The goal of the project is to identify best practices where applications using broadband helps achieve environmental and economic goals. This research project determined pollution and waste avoiding broadband benefits. It looks at ways that remote health care, teleworking, digital learning, smart utility grids and other applications offer green environmental benefits. Reducing the amount of vehicle miles driven, or minimizing land use and real estate space requirements due to digital infrastructure has the potential to reduce greenhouse gas emissions and lower costs. See http://valleyvision.org/projects/broadband-as-a-green-strategy

Promote a Broadband Lifeline Program. Research should be performed to chart a path from a telephone-only Lifeline program to a broadband Lifeline program, to ensure low-income, seniors or other vulnerable populations do not get left out in the transition. Research should be done on how the federal executive branch agencies can be more effective in their policy goals by using broadband strategies for outreach, cost efficiencies and services.

30. How might the federal government encourage innovation in broadband deployment, adoption, and competition?

Provide Incentives for Broadband Innovation. The federal government should promote innovation for prizes for important breakthroughs, such as very cost effective broadband service to very remote areas with challenging geography.

[18] http://www.field.com/fieldpollonline/subscribers/Rls2476.pdf
[19] http://www.pewinternet.org/

Appendices

Appendix A: Digital Literacy Materials:
Executive Order S-06-09 by California Governor Arnold Schwarzenegger at http://www.cetfund.org/node/538

CETF Basic Digital Literacy Standards http://www.cetfund.org/investments/initiative-digital-literacy/digital-literacy

CETF California ICT Digital Literacy Policy Framework at this link: http://www.cetfund.org/files/CETF%20ICT%20Digital%20Literacy%20Policy%20Framework.pdf

CETF California ICT Digital Literacy Assessments and Curriculum Framework at this link: http://www.cetfund.org/files/CETF%20ICT%20Digital%20Literacy%20Policy%20Framework.pdf

The Stride Center, EmpowerNet and CETF World Class E-Skill Workforce Presentation, on Digital Literacy and ICT

Sample Workforce Development Board Resolution re Digital Literacy

See also "Digital Literacy Pathways in California" ICT Leadership Council Action Plan Report, July 2010 at this link:
http://www.ictliteracy.info/rf.pdf/Digital%20LiteracyMaster_July_2010.pdf

Appendix B: Broadband Adoption

"The Connectivity Gap: The Internet is Still Out of Reach for Many Low-Income Renters."

Appendix C: **ITIF Broadband Adoption**
Information Technology and Information (ITIF) Report, entitled
"A Policymaker's Guide to Spurring Broadband Adoption". Also found at this link:
http://www2.itif.org/2015-policymaker-ict-adoption.pdf?mc_cid=c41c44fd84&mc_eid=20a04feda0

Appendix D: **Tinder Report**
"A Leading Digital Nation by 2020: Calculating the Cost of Delivering Online Skills for All", by the Tinder Foundation and Go ON UK, What is the investment needed to get everyone in the UK using the internet regularly with Basic Online Skills?" (February 2014)
https://www.tinderfoundation.org/sites/default/files/research-publications/a_leading_digital_nation_by_2020_0.pdf

Appendix E: Agricultural Technology
"Agricultural Technology and the Future of Farming: It's Not Your Grandfather's Farm, Anymore", by Robert Tse, USDA Rural Development, presented at California Foundation for the Environment and the Economy Roundtable on Information and Communications Technology (March 5, 2015).

Capitol-to-Capitol 2013, Sacramento Metro Chamber Briefing Paper, entitled Agriculture & Food, Broadband Access Essential to Meet Growing Food Demands and Enhance Rural Economies (April 13-17, 2013).

Appendix F: "Broadband and the Environment: Technology Strategies for a Greener California" Valley Vision (2014)
http://valleyvision.org/projects/broadband-as-a-green-strategy
http://valleyvision.org/resources/broadband-and-the-environment-technology-strategies-for-a-greener-california

See also CETF website page on Green Benefits at:
http://www.cetfund.org/resources/information/green-benefits

Appendix G: Actions by Federal Agencies
Comments Submitted for the President's Broadband Opportunity Council Organized by Federal Agency from the California Emerging Technology Fund

Testimony to the United States Senate, Senate Subcommittee on Communications, Technology and the Internet, "Broadband Adoption: The Next Mile," October 29, 2013, Sunne Wright McPeak, President and CEO, California Emerging Technology Fund

Via email: BOCrfc2015@ntia.doc.gov

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Re: Comments on the President's Broadband Opportunity Council Notice

Date: June 10, 2015

A. Overarching Questions

1. **How can the federal government promote best practices in broadband deployment and adoption?**

Closing the Digital Divide is an Imperative

Imagine if you were not able to communicate instantaneously with others using your smart phone, tablet, or computer. That is the reality for more than 9 million Californians who live in remote rural communities, on tribal lands, in low-income neighborhoods, or who have a disability. Those of us who have the benefit of a personal computing device coupled with high-speed connections to the Internet (whether wired or wireless) have come to depend on this connectivity for our work, staying in touch with family and friends, and making our daily lives easier.

Broadband is essential 21st Century infrastructure for global competiveness. It is a key factor in attracting capital investment to generate jobs. Communities without broadband are being left behind in the Digital Age—remote rural areas, poor urban neighborhoods, and people with disabilities are even more disadvantaged without broadband availability and computing devices to access the Internet. Closing the Digital Divide with public policies and strategies to achieve ubiquitous broadband deployment and to accelerate broadband adoption is an imperative for economic prosperity, quality of life, and family self-sufficiency. Fortunately, it is a goal that can be achieved with inspired vision, focused leadership, alignment of existing resources, and enlightened investment of a modest amount of additional public funding to encourage partnerships—federal-state, public-private, and provider-community. There is ample research and empirical evidence about what it takes to get the job done.

The California Experience and Progress in Closing the Digital Divide

California has some of the most challenging terrain in the nation for broadband deployment and the largest populations of disadvantaged residents as priority communities for broadband adoption. When California began to focus on closing the Digital Divide, the number of "unconnected" residents was the equivalent of having 5 other states within our boundaries. Approximately 94% of all residents had broadband access—however the 6% of residents totally unserved represented 768,000 households (about 2 million residents), more than the population of the State of Nebraska spread out over more than 44,000 square miles of inhabited area, the size of the State of Kentucky. Almost 13 million residents (largely urban poor) were not connected, more population than the State of Illinois.

In addition, 1.9 million people with disabilities were off-line, the population of the State of New Mexico. And, 680,000 Native Americans were not connected, larger than the population of the State of Alaska. Moreover, California has the largest population of Native Americans than any other state with 111 federally-recognized tribes. Most of the tribal lands lack broadband connectivity and want broadband access according to recent consultations of Tribal Leaders convened by Judge Cynthia Gomez, the Governor's Liaison to Tribal Governments and the Executive Secretary of the California Native American Heritage Commission in collaboration with the California Emerging Technology Fund and the Corporation for Education Network Initiatives in California (CENIC).

The California Emerging Technology Fund (CETF) was established at the direction of the California Public Utilities Commission (CPUC) in the orders approving the 2005 mergers of SBC-AT&T and Verizon-MCI in California. The successor companies agreed to provide a public benefit by a voluntary contribution of $60 million into CETF, a new non-profit organization with the mission to close the Digital Divide in California. CETF became operational in 2007, working in partnership with the Governor and the State Administration, the State Legislature, the CPUC, local governments, policy groups, and a network of more than 80 community-based organizations (CBOs) to systematically implement a Strategic Action Plan to close the Digital Divide in California, tackling both broadband deployment and adoption challenges. CETF reports to the Legislature through the CPUC. It is a unique non-profit organization in the nation, with deep experience in Digital Divide issues gathered over the last eight years as a "first mover" in the nation on these issues.

In addition to establishing CETF, California policymakers have taken other key steps to close the Digital Divide, including:

- In 2007, the Governor with the support of the Legislature convened the California Broadband Task Force which performed the first broadband mapping in the State, and produced a January 2008 base report to focus attention on the issues, and make recommendations for action to the Governor.[1]

- In 2008, the CPUC established through an order, and then the Legislature placed into statute, the California Advanced Services Fund (CASF) to subsidize broadband deployment to unserved and underserved areas by converting a high-cost universal service fund for telephone service to support broadband infrastructure, while also significantly reducing the annual surcharge amount collected from ratepayers. Through subsequent legislation, the total amount authorized to be collected for CASF has been increased to $315 million, and Rural

[1] See the "The State of Connectivity: Building Innovation Through Broadband", Final Report of the California Broadband Task Force January 2008, http://www.cio.ca.gov/broadband/pdf/CBTF_FINAL_Report.pdf

Regional Consortia were formed to lead local broadband planning and assessments in their unserved and underserved areas for proposed CASF projects.

- In 2009, the Governor issued an Executive Order to advance digital literacy that sets forth official State policy and requires each state agency to develop and implement an action plan.

- In 2010, the Legislature and Governor established the California Broadband Council in statute to sustain State attention and leadership to closing the Digital Divide.

- In 2013, the Legislature and Governor authorized certain CASF funds to be used for broadband connectivity in publicly-subsidized multi-unit affordable housing.

The sum total of this collective, focused state effort is significant progress on the Digital Divide in the last six years. In 2008, the statewide adoption rate for Internet use was 70% with 55% having broadband at home—the same as the national average. The sum total of this collective effort is significant progress in the last six years. Today, 85% of Californians use the Internet and 79% access the Internet at home with a high speed connection (including 8% that access the Internet only by a mobile "smart phone"). Also, there have been significant increases in broadband adoption by priority consumer populations of those most underserved:

- Low-income households up 32 percentage points (from 33% in 2008 to 65% in 2015 with 16 percentage points by smart phone only);
- Latino households up 36 percentage points (from 34% in 2008 to 70% in 2015 with 14 percentage points by smart phone only); and
- People with disabilities up 23 percentage points (from 36% in 2008 to 59% in 2015 with 8 percentage points by smart phone only).

The Role of the California Emerging Technology Fund

The California Emerging Technology Fund has been a pivotal partner in driving progress on closing the Digital Divide, serving as a catalyst for focus, action and results by: (a) setting the goals for broadband deployment and adoption; (b) delineating the strategic framework to achieve the goals with regular reports on progress to foster accountability; and (c) making targeted and leveraged investments in public policy initiatives and grants to CBOs. CETF is performance-driven and outcomes-focused.

The CETF Strategic Action Plan is based on research and fact finding about "what works" and sets forth the overall approach and strategies to close the Digital Divide, including the metrics for accountability that provide the disciplined focus on results. CETF set the following goals for achieving success by 2017—10 years after CETF began operations—which have been embraced widely by policymakers and stakeholders, not only in California but elsewhere in the nation.

Broadband Supply – 98% Deployment

- Access for at Least 98% of All Households
- Robust Rural-Urban California Telehealth Network (CTN)[2]

[2] The California Telehealth Network was established with a $22.1 million grant from the Federal Communications Commission (FCC) as part of the Rural Health Care Pilot Project (RHCPP), with $3.1 million in matching funding provided by CETF. Additional funding has been provided by the California HealthCare Foundation, the California Teleconnect Fund, Kaiser Permanente, National Coalition for Health Integration, United HealthCare, and the University of California. CTN is California's authorized FCC broadband consortia for healthcare with priority access to the FCC's Healthcare Connect fund for California healthcare providers. CETF began enrolling providers

- All Tribal Lands Connected and Part of CTN

Broadband Demand – 80% Adoption

- Overall Statewide Adoption at Least 80% by 2015 and 90% by 2020
- All Regions and Socioeconomic Groups within 10 Percentage Points of Overall Adoption (At Least 70%)
- Increased Overall Accessibility and Universal Design

Broadband Global Leadership – Within Top 3 Rankings

- Appropriate and Sufficient Speeds for Consumer Applications that Drive Adoption
- Increased Economic Productivity
- Reduced Environmental Impacts

There is not a "silver bullet" to closing the Digital Divide. CETF has found that no one strategy or action will get this complex job done. However, there is "silver buckshot"—a "critical mass" of inter-related and mutually-reinforcing strategies and actions that do succeed. To achieve the optimal impact and a higher return on investment of the original seed capital, CETF employs five overarching strategies to drive progress on the broadband deployment and adoption goals:

1. Civic Leader Engagement
2. Venture Philanthropy Grantmaking
3. Public Policy Initiatives
4. Public Awareness and Education
5. Strategic Partnerships

Successful implementation of these strategies requires engaging and partnering with "trusted messengers" and "honest brokers" who know their local communities and target neighborhoods, including local government officials, regional civic organizations, and successful CBOs. CETF has focused on three priorities for grantmaking: (1) rural and remote areas; (2) urban disadvantaged neighborhoods; and (3) people with disabilities. CETF has awarded more than $31 million in grants to community-based organizations (CBOs) and public agencies as "partners" in achieving the broadband deployment and adoption goals.

Support from the California Congressional Delegation

California's progress in closing the Digital Divide has been significantly advanced by the leadership of the California Congressional Delegation and strategic investments by the federal government. Notably, the Federal Communications Commission (FCC) awarded $22.1 million from the Rural Health Care Pilot Program (matched by $3.6 million from CETF) to connect a network of more than 800 facilities in rural and urban medically-underserved communities that comprise the California Telehealth Network (CTN). Telehealth is a major public policy initiative in California to drive telehealth initiatives, broadband deployment and adoption, and promote electronic health records, particularly in rural areas but relying on partnerships with urban hospitals and specialty care providers. Thus, the FCC's successor program to the RHCPP, the Healthcare Connect Fund, is a vital resource for the future. Requiring federal attention are policy changes that would promote and encourage telehealth by federal health agencies in the areas of reimbursement and medical licensing, as examples.

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in the program as of April, 2013. CTN will connect over 800 California healthcare providers in underserved areas to a state- and nation-wide broadband network dedicated to healthcare. Utilizing the Health Resources and Services Administration (HRSA) $1.3 million grant, CTN works with the California Telehealth Resource Center (CTRC) to expand telehealth training and support for rural and medically underserved clinics and hospitals in California.

In addition, California has benefited greatly from grants and sincere partnerships with the U.S. Department of Commerce National Telecommunications and Information Agency (NTIA) under the American Recovery and Reinvestment Act (ARRA) Broadband Technology Opportunities Program (BTOP). NTIA awarded 13 ARRA BTOP grants for broadband infrastructure deployment exceeding $428 million and 17 grants for broadband adoption totaling almost $122 million, including support for CTN operations and development of services. NTIA provided two grants to CETF for a total of $14,359,476 (matched by CETF $2,551,796) to support 19 CBOs (sub-awardees) resulting in more than 200,000 broadband adoptions and more than 2,700 jobs. These results met and exceeded the contractual performance objectives. These grants were concluded as of June 2013 and are summarized below.

Broadband Awareness and Adoption

The Broadband Awareness and Adoption (BAA) project mobilized the expertise and resources of eight partners (sub-awardees) to reach communities most impacted by the Digital Divide: low-income families, limited English-speaking Latinos, rural residents and people with disabilities. BAA partners worked with schools, churches, health clinics, job training programs, and social service providers to develop model "service ecosystems" which included technical support, low-price computers, and affordable broadband connections. Key accomplishments of the BAA project include:

- Increased awareness about the benefits of broadband among 13,296,068 low-income residents (266% goal).
- Provided 719,255 low-income individuals with basic Digital Literacy skills to use broadband technology (106% goal).
- Achieved 198,714 new broadband subscriptions by low-income households (149% goal) and distributed 6,866 computers to low-income households (172% goal).

Access to Careers in Technology

The Access to Careers in Technology (ACT) project engaged 11 partners (sub-awardees) to establish scalable workforce development programs while expanding access to broadband and 21st Century jobs in low-income communities throughout the state. Individuals with multiple barriers to employment--ranging from the homeless to former drug addicts—completed Information and Communications Technology (ICT) training to obtain jobs in a spectrum of major industries from engineering to entertainment with pathways to living-wage careers in high demand. Key accomplishments include:

- Trained 24,675 low-income youth and adults and 12,044 small business owners and employees with Digital Literacy skills (101% goal).
- Secured 2,745 ICT career-path jobs for low-income residents (107% goal).
- Achieved 9,331 new broadband subscriptions by low-income households and distributed 5,547 computers to low-income households (101% goal).

Lessons Learned

The successful implementation of the NTIA grants by CETF and our 19 partners was led by CETF Senior Vice President Susan Walters, who prepared a report *Lessons Learned from the Field*.

The four major lessons about sustainable adoption:

(1) Leverage everyday activities into broadband training and curricula: How to engage participants with relevant training topics that will help drive new, sustainable home broadband adoptions;
(2) Secure job placements in the growing ICT field: Strategies that have successfully helped program participants find jobs in Information and Communications Technology (ICT);
(3) Drive broadband adoption by offering affordable full services: Service and resource combinations that are effective at driving and securing adoptions along with affordable broadband, computing devices and improving digital literacy skills; and
(4) Pursue sustainable programs: How to integrate broadband adoption into other activities, such as health, education, financial literacy and community development.[3]

CETF Lessons Learned from Managing the ARRA NTIA BTOP Grants

- Grantee executive leadership and staff management capacity are essential.
- Coaching and the "learning community" were key to reaching goals.
- Thoughtful work plans in advance led to faster recognition of problems.
- Anchor institutions and community organizations need to work to ensure that clients actually obtain broadband (information and encouragement alone are not sufficient).
- Integrating digital literacy training and broadband adoption into existing programs is the best way to ensure sustainability and continually narrow the Digital Divide.

The experience of all NTIA grantees has been incorporated into the NTIA Took Kit which is a useful compilation of data and recommendations for accelerating broadband adoption. NTIA Administrator Larry Strickling and his team have a wealth of knowledge about "what works" and established working relationships with state agencies and non-profit organizations throughout the nation that are valuable assets that should be supported and leveraged for sustained progress in closing the Digital Divide.[4]

Some key questions the federal government should focus on as to its contribution to a solution:

(1) How can the BOC encourage one consistent definition of "broadband" – set by the FCC, the expert agency, to ensure consistency for all residents. Inconsistent broadband definitions may inadvertently create a "slow lane" for rural and remote communities because at present, the Department of Agriculture Rural Utility Service's definition of broadband is significantly slower in speed that the FCC benchmark definition for urban areas. Also, the BOC may weigh in on how often the broadband definition should be updated (e.g. yearly, every two years or every three years) to keep pace with global developments, and recommend what agency should have leadership on this critical question.
(2) The BOC can also recommend the scope of the federal broadband efforts for broadband access and adoption projects.
(3) The BOC is in the best position to prioritize broadband access and adoption as to federal agencies, and explain why a robust and redundant network is important for the country's socio-economic welfare.
(4) The BOC can play a critical role in selecting guiding principles, goals and metrics.

[3] CETF Lessons Learned from the Field, January 2013 at 5; see http://www.getconnectedtoday.com/files/j11560_cetf_web_0.pdf

[4] Much of this information was presented by Sunne Wright McPeak on October 29, 2013 to the U.S. Senate Subcommittee on Communications, Technology and the Internet. See Appendix G for a copy of the testimony.

(5) The BOC can recommend a federal "broadband champion" that will ensure federal agencies incorporate broadband goals and metrics in their programs on an ongoing basis and understand the benefits that can follow.

1. **(a.) What resources are most useful to communities?**

National and State leadership coupled with local broadband champions are best for developing strategies and a coherent integrated broadband plan for a community. "Broadband Coaches" from expert agencies like the FCC, NTIA or RUS can help a community organize itself to lead a broadband transformation appropriate to that community's needs. California has modeled this approach with our California Broadband Task Force, the CPUC's California Advanced Services Fund broadband infrastructure fund, the California Broadband Council, the formation of Rural Regional Broadband Consortia with budgets for local broadband planning activities, and a Local Resource Guide, broadband resolutions by municipal governments, and regional leadership meetings.[5]

Sustainable broadband adoption requires a comprehensive approach that targets and aligns resources in low-income communities with an integrated, comprehensive "neighborhood transformation" strategy that incorporates broadband adoption into other services, such as education, workforce preparation and healthcare. In the eight years, CETF has demonstrated these approaches in California with our California Telehealth Network,[6] our School2Home program,[7] our Get Connected initiative[8] program, and our affordable housing unit broadband project.

1. (b.) What actions would be most helpful to communities seeking to improve broadband availability and use?

Right of Ways and Access to Federal Poles/Towers. Broadband providers need easier access to rights-of-way and towers/poles, including on U.S. highway, U.S. Forest Service lands and national parks in order to facilitate broadband projects to rural, remote and tribal areas.

Establish Accelerated Permitting for Broadband Projects. Accelerated local, state and federal permitting for broadband facilities, both wired and wireless.

Additional Federal Funding for Broadband Grants. Additional federal funds communities can use for broadband adoption grants to connect low-income, persons with disabilities, non-English speaking immigrants, and seniors. Affordable broadband rates are required to increase adoption by low-income households.

Tapping CBOs for Outreach for Target Communities. Broadband adoption will succeed by working in partnership with community-based organizations ("CBOs") who are "trusted messengers" and "honest brokers" for the unserved and disadvantaged populations. These CBOs should receive compensation for actual sign-ups of first time Internet users by a Broadband Lifeline program.

Promote Wi-Fi Access in Federal Public Facilities. Promote community Wi-Fi hotspots in appropriate federal facilities such as post offices, national park visitor centers, federal courthouses, and other appropriate federal facilities. Wi-Fi hotspots should be placed in public

[5] http://www.cetfund.org/resources/cainiative
[6] http://www.caltelehealth.org/
[7] http://www.school2home.org/
[8] See both http://www.cetfund.org/investments/overview/Get_Connected and http://www.getconnectedtoday.com/

libraries, schools, community colleges, community centers, civic centers, unemployment offices, highway rest stops, and affordable housing complexes.

2. **How can the federal government best promote the coordination and use of federally-funded broadband assets?**

Broadband Champion and Designating Expert Federal Agencies. Using the expertise gained through the American Recovery and Reinvestment Act (ARRA) broadband grants, the FCC, National Telecommunications Information Administration (Department of Commerce), the Rural Utility Service (RUS) of the Department of Agriculture are the best federal government agencies to work in a coordinated fashion to gather assets from every federal agency to promote broadband access and adoption in federal programs in a coordinated manner. The Executive Branch may consider a "Broadband Champion" named to promote broadband integration and strategies in major federal departments where broadband is transformational, examples include: Education, Healthcare, Housing, and Transportation.

Set Goals and Metrics. Set performance goals and metrics for the nation for broadband deployment including wireline speeds, and broadband adoption. Promote and encourage commitments from Internet service providers to deploy and upgrade high-speed Internet infrastructure available to 98% of the U.S. population, particularly in rural areas, and transportation corridors (highways, rail, state routes), and anchor institutions (emergency responders, schools, community colleges, high education, libraries, community centers, fairgrounds).

Establish A National Advisory Committee to Ensure Each Agency Develops A Broadband Plan. Establish a National Advisory Committee on broadband from each Executive agency to develop a broadband plan for each agency. Expert coaches for the agencies could come from the FCC or NTIA. The critical areas for action are education, health, housing, workforce development, transportation/infrastructure, and emergency communications.

Fund Broadband Mapping. Continued funding for broadband mapping should continue under the leadership of the FCC with continued coordination with the state commissions with jurisdiction over broadband. Such maps should be used to determine the priority order of projects that will bring broadband access to unserved and underserved populations.

Collaborate with States to Set Plans with Goals and Metrics. The federal government should collaborate with the State agency with jurisdiction over broadband to ensure the state has a strategic plan to close the Digital Divide. These broadband strategic plans should have goals to achieve 98% broadband access to the population, and at least 80% broadband adoption in all low-income neighborhoods in each major market by 2020. When implemented, the plans should have metrics to accurately measure progress towards the goals and be monitored by the state agency and a national advisory oversight committee.

3. What federal regulations and/or statutes could be modernized or adapted to promote broadband deployment and adoption?

On Broadband Deployment

Fund Fair Shares. Each state and territory should receive its fair share of federally-funded broadband assets. Early adopter states should not be penalized for early broadband initiatives.

Prioritize Broadband Facilities on Federal Facilities. Adopt federal policies allowing and encouraging broadband facilities in federal lands, right-of-ways, towers, poles, roofs and conduits. Place a priority on such projects, comply with FCC shot clock deadlines?, and reduce permitting delays and other administrative barriers on such projects. Improve rights-of-way management for cost and time savings on federal facilities. Develop a federal database of towers/poles that are available for broadband facilities.

Develop a Model Permitting Standard. Develop a model permitting standard for federal facilities, and establish a best practices guide for rights-of-way policies and fee practices that are consistent and encourage broadband deployment.

Set Fair and Affordable Rates for Access to Federal Facilities. Establish fair and affordable rates for access to federal poles, and simplify processes for access. This will promote infrastructure upgrades and facilitate entry by competitors.

Establish Federal "Dig Once" Policy. Establish efficient new broadband infrastructure construction including "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas.

Increase Broadband Spectrum Available for Wireless Broadband. Increase spectrum available for wireless broadband by 2020 which is consistent with the National Broadband Plan, (500 megahertz by 2020 and 300 megahertz by 2015).

On Broadband Adoption

Champion Digital Literacy: The Federal Government needs to push further as it uses ICT to reinvent how it serves citizens more efficiently and train employees on the ICT skills as part of the work. As a first step, the BOC could adopt the use of "Information, Communications, and Technology" (ICT), which is the commonly used term in most countries. ICT includes all of what IT includes and adds to it the communications technologies that are required for the Internet Age.

California established the Digital Literacy Council as an interagency working group as the result of Executive Order S-06-09 California Digital Literacy: http://gov.ca.gov/news.php?id=12393. The Executive Order contains very concrete steps that should be taken for ICT skill training for digital literacy. The Governor issued a "Call to Action" to all state agencies in their work with K-12 schools, higher education institutions, employers, workforce training agencies, local governments, community organizations and civic leaders to advance the State as a global leader in ICT Digital Literacy by:

1. Incorporating ICT Digital Literacy into workforce training programs and curricula.
2. Supporting and promoting ICT Digital Literacy by encouraging all public agencies to optimize e-government and the availability of public services online.
3. Requiring employers and employer organizations to identify requisite ICT Digital Literacy skills for 21st Century jobs and to articulate appropriate training and assessment standards to local, regional and state agencies responsible for workforce training.
4. Encouraging public and private sectors to join forces and form public-private partnerships to promote ICT Digital Literacy.

CETF suggests that this framework could be adapted to federal agencies to promote similar goals. In California, some of the above was achieved, including the action plan. Copies of the

Executive Order, an excerpt of the basic digital literacy definition adopted in California along, with the Policy Framework are in Appendix A. The latter two documents provide detail on the definition of ICT Digital Literacy, and include a Policy Framework that is adaptable to the federal regime.

Modernize Lifeline for an Affordable Broadband Rate. Support the development of and promote an FCC Broadband Lifeline discount for low-income persons in addition to the Lifeline telephone discount program. This should be done in a technologically neutral fashion.

Fund CBOs for Adoption Outreach/Education to Disadvantaged Communities. Promote and support states that fund experienced Community-Based Organizations (CBOs), libraries, and schools to assist in achieving subscription sign-ups for the 80% broadband adoption goal. Any grant must include payment to the CBO only for actual, verified broadband subscriptions to first time users. Funds should be managed by a small independent advisory oversight fund manager that monitors performance and is publicly accountable. The fund manager should be selected in an open request for proposal.

Require Stand-Alone Broadband Service. Require all Internet service providers offer a stand-alone, Internet access product that is affordable (under $14.95) and at speeds adequate for modern applications.

4. As the federal government transitions to delivering more services online, what should government do to provide information and training to those who have not adopted broadband?

Achieve Sustainable Adoption. Broadband is essential 21st Century infrastructure for global competitiveness. It is a key factor in attracting capital investment to generate jobs. Communities without broadband are being left behind in the Digital Age – remote rural areas, poor urban neighborhoods, and people with disabilities are even more disadvantaged without broadband availability and computing devices to access the Internet. Closing the Digital Divide with public policies and strategies to achieve ubiquitous broadband deployment and to accelerate broadband adoption is an imperative for economic prosperity, quality of life and family self-sufficiency.

It is a goal that can be achieved with inspired vision, focused leadership alignment of existing resources and enlightened investment of a modest amount of additional public funding to encourage partnerships: federal-state, public-private and provider-community.

The federal government cannot expect the residents of the U. S. to receive online services if it does not provide its residents the skills and tools to access them. Federal leadership is required to implement broadband strategies and training in federal programs where online access skills to access the service or information are required.

Key areas of focus to increase digital literacy training, including ICT certified skills, are K-12, community colleges, and higher education strategies. Train and certify teachers in information communications technology and require them to teach using 21st Century strategies. Train administrators in addition to teachers to use information communications technology.

Support policy that results in “Bring Your Own Device” (BYOD) and each student that needs a device can borrow one at no charge. All education campus’ need to have free Wi-Fi connectivity on campus that allows them to connect to the Internet, access digital books, and other learning resources that enable students to become digitally literate. Please refer to the attached documents in Appendix B relating to ICT Digital Literacy: CETF ICT Digital Literacy

Initiative; California ICT Digital Literacy Assessments and Curriculum Framework; The Stride Center, EmpowerNet and CETF World Class E-Skill Workforce Presentation, on Digital Literacy and ICT; Sample Workforce Development Board Resolution re Digital Literacy; See also "Digital Literacy Pathways in California" ICT Leadership Council Action Plan Report, July 2010.[9]

4. (a) What should the federal government do to make reasonable accommodations to those without access to broadband?

Making government information available online to 75% but then to leave out the 25% of Americans without broadband access deepens the Digital Divide. CETF has seen that the disadvantages of not having broadband at home are very serious, comparable to lacking telephone connectivity, water or electricity. The federal government needs to audit the implementation of the 508 standards it adopted for web accessibility for all the agencies within the executive branch so it sets the pace.

Those without broadband are those who live in rural or remote areas, low-income persons including the homeless, urban disadvantaged, people with disabilities, and seniors. These vulnerable populations require access and outreach to understand why they need to become digitally literate. In general the federal government should seek make online access equitable for populations that face additional barriers. For example someone who is deaf should not have to pay more for broadband because they need higher resolution to communicate in sign language. A provider has subsidies from the Connect America Fund for the deployment of high-speed broadband in a way that rural residents should not have to pay more for this essential service.

Broadband access should be focused on unserved communities and then underserved communities, meaning those with broadband below speeds adequate for today's applications. Community anchor institutions should offer no cost computing centers and access. These anchor institutions should include schools, libraries, civic centers, public parks, community centers, courts, community colleges, and higher education facilities. Affordable Internet service plans must be available to low-income persons. Fourth, digital literacy must be taught in all educational settings, including for adults and seniors.

5. How can the federal government best collaborate with stakeholders (state, local, and tribal governments, philanthropic entities, industry, trade associations, consumer organizations, etc.) to promote broadband adoption and deployment?

Establish Federal Broadband Champion. The support of President Obama on the issue of broadband, Net Neutrality, and the Digital Divide has brought these important issues into the spotlight. Global competitiveness is dependent on world-class broadband infrastructure. The establishment of the BOC is a very positive step. A federal "broadband champion" would be a huge asset to promote the appropriate integration of broadband access and adoption in all federal programs.

Further, within each federal agency, there should be a senior level broadband advocate who can help identify in a programmatic way how broadband may enhance and promote that agency's programs. Further the agency needs to ensure vulnerable populations are not left out by the lack of broadband access or adoption. The federal government should sponsor regularly scheduled "best practices" conferences and webinars to educate and share ideas to federal agency leaders

[9] http://www.ictliteracy.info/rf.pdf/Digital%20LiteracyMaster_July_2010.pdf.

on the importance of broadband to their programs, best practices, and how online access and smart phone applications may help promote their agency's program goals.

Broadband innovation and research particularly for government uses should be engaged in and rewarded.

B. Addressing Regulatory Barriers to Broadband Deployment, Competition, and Adoption

6. What regulatory barriers exist within the agencies of the Executive Branch to the deployment of broadband infrastructure?

The key regulatory barriers are (1) a lack of cohesive leadership and policies on this issue within the Executive Branch; (2) lack of awareness of how best to use broadband strategies to promote federal programs, and assisting states in promoting their programs similarly; (3) silos in which the federal agencies operate; and (4) lack of funding for broadband initiatives. Broadband policies have primarily been driven by federal policies at both the U.S. Congress and the FCC. To date, the federal government has pursued a competitive, very lightly regulated broadband policy. Until recently, state agencies have limited jurisdiction over broadband providers because broadband services were classified as interstate information services. This policy has been largely successful in driving more private sector investment in broadband infrastructure but it has not fully addressed deployment in rural high cost areas, or broadband adoption issues among low-income households. With the recent FCC decision asserting Title II jurisdiction over broadband, the FCC (and state commissioners) will have more tools in its toolkit to promote broadband access and adoption.

In recent years, the FCC has initiated broadband infrastructure programs to advance broadband in high cost areas through programs like its Connect America Fund. However, the program goals for broadband infrastructure deployment could be greatly advanced with the cooperation of the federal transportation authorities for conduit and siting along federal highway right-of-ways; model permitting standards; ISP access to poles, towers and other federal assets; and speedier permitting on federal lands.

Broadband expertise resides at the FCC, NTIA and RUS but they operate in silos from the other Executive Branch agencies.

7. What federal programs should allow the use of funding for the deployment of broadband infrastructure or promotion of broadband adoption but do not do so now?

Reform Medicare Reimbursement Policies for Telehealth. One key area of change that could be driven by better regulations is reimbursement for telehealth costs. Currently there is no single widely accepted standard. Medicare only reimburses for telehealth services when the originating site (where the patient is located) is in a Health Professional Shortage Area (HPSA) or in a county that is outside of any Metropolitan Statistical Area (MSA), defined by HRSA and the Census Bureau, respectively. The policy should be changed to allow the originating site to include a patient's home, not just a medical facility, such as a practitioner's office, hospital and rural health clinic. Also, a current policy should be changed that only allows Medicare to pay for "face-to-face", interactive video consultation services wherein the patient is present (in other words telemedicine services that mimic normal face-to-face interactions between patients and health care providers. All store-and-forward applications, such as tele-radiology, remote EKG applications and tele-dermatology, should also be covered. By doing this, private payers and

states may be encouraged to adopt this federal policy as a standard. Currently private payers and states wisely vary as to reimbursement policies for telehealth applications.[10]

Deploy Broadband in New Affordable Housing Units. As to federal housing agencies, adopt policies to deploy next generation broadband infrastructure in all new residential affordable housing, and allow retrofit for existing residential affordable housing units.

8. What inconsistencies exist in federal interpretation and application of procedures, requirements, and policies by Executive Branch agencies related to broadband deployment and/or adoption, and how could these be reconciled? One example is the variance in broadband speed definitions.[11]

See answer to Question 7 relating to telehealth reimbursement policies of Medicare which vary among private payers and states.

Make Broadband Speed Consistent Among Agencies. CETF agrees that the broadband speed example given in the BOC question does need clarification. Recently, the FCC set a broadband benchmark of 25 Mbps for download speeds and 3 Mbps for upload speeds, yet the USDA is still using the 2014 Farm Bill's definition of broadband for rural service areas as 4 Mbps down/1 Mbps up. This implies that there are fast lanes for urban residents and slow lanes for rural residents. The definition should be set to be for broadband speeds that allow for the use of modern applications and consistent in both rural and urban.

9. Are there specific regulations within the agencies of the Executive Branch that impede or restrict competition for broadband service, where residents have either no option or just one option? If so, what modifications could agencies make to promote competition in the broadband marketplace?

Ensure Incentives Exist. Incentives can spur competition in broadband services in all technologies, particularly for markets with no broadband providers or just one provider. Competition promotes adequate facilities, lower rates to consumers, and better quality of service. Municipalities should be allowed to offer broadband if there are no providers willing to provide broadband service at speeds below the FCC broadband benchmark at an affordable rate.

Increase Federal Broadband Infrastructure Grants. The federal ARRA broadband infrastructure grants brought broadband to rural areas with no service or one provider at below the definition of broadband set by the FCC. This type of program should be continued in addition to the FCC's Connect America program.

Broaden The Contribution Base to All Internet Service Providers. The FCC's Universal Service Fund (USF) for broadband needs to assess all providers (therefore consumers) equitably to ensure a competitive high-speed network and access for all in the U. S. now and overtime, along with a speedy implementation of broadband grants to bring broadband access to 98% of all Americans. All Internet service providers should be required to contribute to USF, to ensure a fund large enough for the capital intensive costs of bringing broadband to 98% of the population. It is important that the USF be efficiently run and have the appropriate oversight.

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[10] More on this telehealth reimbursement issue may be found here: http://ctel.org/expertise/reimbursement/reimbursement-overview/ and http://www.hrsa.gov/healthit/toolbox/RuralHealthITtoolbox/Telehealth/whatarethereimbursement.html

[11] The definition of what constitutes broadband has evolved over time. The FCC currently defines broadband as 25 Mbps for download speeds and 3 Mbps for upload speeds. . . USDA uses the 2014 Farm Bill's definition of broadband for rural service areas as 4 Mbps for download speeds and 1 Mbps for upload speeds.

Drive Innovation By Modernizing Device Regulations. In the health care arena improving the device approval, licensing and credentialing to promote telehealth applications will be a tremendous incentive to developers.

Coordinate, Inventory Opportunities to Improve Accessibility and Integrate 508 Standards in New Applications. Most agencies have programs that offer opportunities to align around accessibility standards for information and documents and demonstrate the power of Section 508. The BOC can also inventory the opportunities to amend Section 508 to stay current with technology.

Ask Questions to Breakdown "Bureaucratic Silos". For example, how can these agencies (Housing, Education, Labor, ILMS) work together to increase ICT training and broadband adoption within public housing developments in a way that more people with ICT skills are available for jobs in the local community? What can the Department of Labor and Department of Education do to support improved career pathways in stem fields at the state and local levels?

Coordinate with Community-Based Organizations (CBOs) for Solutions. When a federal employee is working with a consumer who does not have Internet access, prepare an education sheet of what the employee can do to encourage broadband adoption that is friendly, informative and helpful on the spot to assist the person subscribe to Internet at home. CBOs experienced in broadband adoption can assist in outreach and training as a trusted messenger to a community.

Negotiate with Computer Leasing Companies to Contribute Federal Equipment to Refurbishers. A portion of the federal government computing devices could be distributed to non-profit refurbishers that serve low-income clients.

10. Are there federal policies or regulations within the Executive Branch that create barriers for communities or entities to share federally-funded broadband assets or networks with other non-federally funded networks?

Leverage Federal Broadband Projects. American Recovery and Reinvestment Act (ARRA) broadband projects funded by NTIA and RUS helped build two major middle mile and last mile projects to rural areas in California. One critical flaw to these ARRA programs are that adequate planning costs, operating costs, personnel salaries, some types of equipment, and personnel training costs were not provided. These policies have hindered the ability of these projects to build out in a timely and efficient manner, staff up adequately with trained IT personnel, obtain necessary equipment (e.g. computers for classrooms/libraries), and achieve operational sustainability. CETF recommends that funds be provided for costs such as adequate planning, operating, personnel salaries, all necessary equipment and IT personnel training.

Further the ARRA projects had strict 3-year timeframes for build-out. This federal timeline did not take into consideration the difficulty getting timely permits, easements and other permissions from the U.S. Forest Service, the Bureau of Land Management, the National Park Service, and other federal agencies. Large broadband infrastructure projects should receive on a priority basis, permits from all federal agencies to ensure adequate infrastructure. Tribes should be encouraged to cooperate with broadband projects because broadband enables telehealth and tele-education that will benefit remote and rural communities.

Further, some federal agencies were very slow or difficult in obtaining permits by grantee of the ARRA projects. Thus, the BOC can assist greatly by encouraging each federal agency to allowing broadband providers to share sites, rights-of-ways, and easements with it. Further

providers should be encouraged to add antennas to existing federally-owned poles and right-of-ways controlled by the agencies. The BOC should ensure that data on federal potential poles or tower to share are made available for broadband grantees.

11. Should the federal government promote the implementation of federally-funded broadband projects to coincide with other federally-funded infrastructure projects? For example, coordinating a broadband construction project funded by USDA with a road excavation funded by DOT?

Develop a Robust Federal "Dig Once" Policy. CETF recommends establishing policies to promote efficient new broadband infrastructure construction, including sensible "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas. Internet Service Providers should be notified well in advance so that middle mile or last mile conduit could be laid while the roadbeds or other federal right-of-way paths are open. The laying of fiber in this manner can greatly reduce the costs of rural broadband projects and bring high speed broadband to rural and remote areas.

C. Promoting Public and Private Investment in Broadband

12. How can communities/regions incentivize service providers to offer broadband services, either wired or wireless, in rural and remote areas? What can the federal government do to help encourage providers to serve rural areas?

Continue Federal Broadband Grant Programs. The first step to getting advanced communications infrastructure to all communities is to acknowledge that competition will not get broadband to rural, remote and tribal communities and thus, subsidies may be necessary to be granted to willing broadband providers on a competitively and technology neutral basis that are willing to build broadband infrastructure to such communities. This is the equivalent of two programs that have been undertaken in the past: (1) Universal Service programs to bring telephones to all Americans via a small surcharge paid by all users; and (2) the rural electrification program to bring electricity to rural America. The FCC is in the process of developing subsidy programs for rural broadband infrastructure projects, both for middle mile projects and last mile projects. Lessons should be learned from the ARRA broadband projects, with more flexible funding, less restrictions, and operational/staffing/training costs covered until sustainability can be achieved.

Encourage State Broadband Infrastructure Programs. Full funding of these projects is critical to the nation's development of 21st Century broadband infrastructure. California has developed a state level broadband infrastructure programs, called the California Advanced Services Fund. It provides funding for broadband infrastructure projects in unserved and underserved areas, and requires the applicant to provide matching funds, among other requirements. Prior to the ARRA funding, the California Legislature found it necessary to stimulate competition by giving incumbent providers first right of refusal and to no longer require that applicants be existing, CPUC-licensed wireless or wireline providers, such as incumbent telephone carrier or cable companies.
See http://www.cpuc.ca.gov/PUC/Telco/Information+for+providing+service/CASF/

Subject matter expertise lies at the FCC, NTIA, RUS and in some state agencies that have jurisdiction over broadband. The National Broadband Plan requires funding to implement more of its recommendations with a specific timeline, goals and objectives.

Use Telehealth and Tele-education to Leverage Rural Broadband. A key way to engage rural communities initially is to promote telehealth and tele-education programs. In California, the development of a statewide telehealth network, called the California Telehealth Network (CTN), has promoted telehealth applications in rural health clinics, and government-owned hospitals and clinics. Using a $22.1 million grant plus matching funds, the CTN has enjoyed success with 270 sites connected by broadband, and assisting them in understanding various telehealth applications, facilitating the exchange of electronic health records, and obtaining specialty care from urban partners (example, dermatology and psychiatry are in high demand). In the tele-education area, CETF has pioneered its School2Home program to bring electronic devices into classrooms, and to ensure in depth training of the teachers, administrators, parents as well as the students as to digital literacy and effective e-learning. http://www.school2home.org/ Other major drivers for rural broadband may be the FirstNet project for emergency responder communications.

13. What changes in Executive Branch agency regulations or program requirements could incentivize last mile investments in rural areas and sparsely populated, remote parts of the country?

Develop a Robust Federal "Dig Once" Policy. CETF recommends establishing policies to promote efficient new broadband infrastructure construction, including sensible "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas. Internet Service Providers should be notified well in advance so that middle mile or last mile conduit could be laid while the roadbeds or other federal right-of-way paths are open. The laying of fiber in this manner can greatly reduce the costs of rural broadband projects and bring high speed broadband to rural and remote areas.

Support Free Wi-Fi in Public Federal Facilities. Federal facilities that are typically community gathering places should provide free Wi-Fi to the public. As examples, these should include U.S. Post Offices, federal courthouses, visitor centers of national parks, and publicly available community centers of military installations.

14. What changes in Executive Branch agency regulations or program requirements would improve coordination of federal programs that help communities leverage the economic benefits offered by broadband?

Champion Digital Literacy. The Federal Government needs to push further as it uses ICT to reinvent how it serves citizens more efficiently and train employees on the ICT skills as part of the work. As a first step, the BOC could adopt the use of "Information, Communications, and Technology" (ICT), which is the commonly used term in most countries. ICT includes all of what IT includes and adds to it the communications technologies that are required for the Internet Age.

California established the Digital Literacy Council as an interagency working group as the result of Executive Order S-06-09 California Digital Literacy: http://gov.ca.gov/news.php?id=12393. The Executive Order contains very concrete steps that should be taken for ICT skill training for digital literacy. The Governor issued a "Call to Action" to all state agencies in their work with K-12 schools, higher education institutions, employers, workforce training agencies, local governments, community organizations and civic leaders to advance the State as a global leader in ICT Digital Literacy by:

(1) Incorporating ICT Digital Literacy into workforce training programs and curricula.

(2) Supporting and promoting ICT Digital Literacy by encouraging all public agencies to optimize e-government and the availability of public services online.
(3) Requiring employers and employer organizations to identify requisite ICT Digital Literacy skills for 21st Century jobs and to articulate appropriate training and assessment standards to local, regional and state agencies responsible for workforce training.
(4) Encouraging public and private sectors to join forces and form public-private partnerships to promote ICT Digital Literacy.

CETF suggests that this framework could be adapted to federal agencies to promote similar goals. In California, some of the above was achieved, including the action plan. Copies of the Executive Order, an excerpt of the basic digital literacy definition adopted in California along, with the Policy Framework are attached as Appendix A. The latter two documents provide detail on the definition of ICT Digital Literacy, and includes a Policy Framework that is adaptable to the federal regime.

Take Bold Action, Set Broadband Adoption Goals for 100% of the Nation. CETF suggests that the Federal Government needs to be bolder about its broadband adoption goals. While CETF has supported an 80% broadband adoption goal by 2015 and 90% by 2020, the Tinder Foundation and Go ON UK in the United Kingdom recommend reaching **100%** broadband adoption of their population by 2020. This forward-looking report calculates the cost of bringing the 22% of unconnected UK residents up to the level of having Basic Online Skills, and then calculates the cost savings represented to national agencies of doing business online with residents instead of through face-to-face visits. It also looks at economic benefits this will bring the UK. After calculating the cost as being 875 million British pounds, it suggests a public private partnership between the UK Government, the private sector and the voluntary and community sector. The investment would be 292 million British pounds for each sector. See "A Leading Digital Nation by 2020: Calculating the Cost of Delivering Online Skills for All", Executive Summary at pp. 4-6, at this link: https://www.tinderfoundation.org/sites/default/files/research-publications/a_leading_digital_nation_by_2020_0.pdf (Appendix D hereto).

Offer Low-Cost Federal Loans for Broadband Projects. Another idea is beginning a program for low-cost federal loans for broadband projects for unserved or underserved communities. In California, the California Advanced Services Fund (CASF) includes a Revolving Loan program. CASF grants and loans are designed to assist in the building and/or upgrading of broadband infrastructure in areas that are not served or are underserved by existing broadband providers. Under rules adopted in 2012 by the California PUC Decision No. 12-02-015, California provides grants of up to 70% of construction costs for projects in unserved areas and up to 60% of construction costs for projects in underserved areas. The Revolving Loan Program provides supplemental financing for projects also applying for CASF grant funding. Using the same project and applicant eligibility requirements as the Infrastructure Grant Program, CASF applicants may obtain loans of up to 20% of projects costs, with a maximum of $500,000.

15. How can Executive Branch agencies incentivize new entrants into the market by lowering regulatory or policy barriers?

Facilitate Federal Permitting. Facilitate speedy permitting of broadband equipment on federal facilities as discussed elsewhere in the Comments.

Support Pro-Competition Policies. Support FCC preemption of any state or local statutes, regulations or ordinances that limit competition for broadband providers.

D. Promoting Broadband Adoption

16. What federal programs within the Executive Branch should allow the use of funding for broadband adoption, but do not do so now?

"Think broadly, every sector benefits from ICT use." The Institute of the Future published a brief with that statement entitled, "A Policymaker's Guide to Spurring ICT Adoption Report recently (see link in Appendix C). Policymakers around the world often wonder how to create "the next Silicon Valley." This is understandable, but the truth is that since the turn of the millennium, using ICT has created much more growth than producing it. That's because ICT products and services are essential tools of production for all industries in today's economy, not just tech. ITIF further opines that, "From basic digital literacy to software engineering, ICT skills exist on a spectrum from simple to advanced. Nations should ensure that schools teach digital literacy, high schools and technical institutes provide training for more advanced ICT skills, and colleges support computer science programs" we can put with the education related comments.

Establish a WIB Strategy on ICT Workforce Development. One broadband adoption strategy that CETF has employed has been to educate Workforce Investment Boards (WIBs) on the importance of ICT Digital Literacy. WIBs are regional entities created to implement the Workforce Investment Act of 1998 in the U.S., and U.S. Territories. Every U.S. community is associated with a Local WIB (LWIB). For each LWIB, a chief elected official (typically, a county commissioner or mayor of a major city in the geographic area) appoints members to sit on the WIB in unpaid positions. Half of the WIB's membership is to come from private business entities, and other WIB seats typically go to representatives of organizations like labor unions, educational institutions (e.g. community colleges), etc. who have interests in workforce development issues. The WIB's main role is to direct federal, state and local funding to workforce development programs. For example, it might conduct and publish research on workforce development programs in their area, and the needs of their region's economy to attract businesses and skilled workers. They may also run career centers, where employment information is available for job seekers.

CETF has performed outreach to WIBs to educate them on why ICT digital literacy skills are vital to the region's ability to compete successfully in a global information and knowledge economy. In presentations and webinars, WIBs are educated in how many companies, how much of the total region's revenues, number of workers, private sector wages and job growth is coming from ICT industries in the region. The case is made that ICT industries are a major driver and strategically important in the local economy, representing a significant percentage of its businesses, revenues, employment and job growth. After employer surveys, statistics are presented showing that ICT is important to the productivity of the region's businesses, that ICT skills sets are growing in importance to their employees, that applicants with ICT digital literacy certificate and skills would have a competitive advantage during the hiring process, and that firms surveyed expected to add workers with ICT skills to their payroll in the next two years. Even basic ICT competencies are expected by most employers for many jobs.

In California, high level state leadership by Governor Arnold Schwarzenegger's issuance of Executive Order 12393 in June 2009,[12] which supported an ICT Digital Literacy policy framework. It declared that, "ICT Digital Literacy skills are vital to California's ability to compete successfully in a global information and knowledge economy." Among the things the Executive Order directed was for the California WIB to: (1) develop a technology literacy component for its five year Strategic State Plan to raise the level of digital literacy skills by

[12] Link to Executive Order 12393, S-06-09, dated June 2009, http://gov.ca.gov/news.php?id=12393

supporting technology training and integrating digital literacy skills into workforce development activities; (2) expand Career Technical Education (CTE) opportunities and Digital Literacy programs in community colleges; (3) build consensus at the state and local levels by identifying digital literacy ecosystems to drive models of excellence, benchmarking and reliable metrics for ensuring success; (4) provide workforce examples of skills training and job placement community value projects for e-government, e-health, or other applications; (5) engage the ICT industry and large employers to promote applications; (6) highlight collaborative models in underserved communities and culturally diverse populations; (7) build and resource a strong coalition empowered to achieve near term action and results oriented outcomes; and (8) reward success to reinforce best practices, individual champions, economic results and public awareness and support.

In particular, ICT Digital Literacy training is an idea for entry level or transitioning workers because it obtains for the worker an industry-recognized credential which increases the chance of employment. An ICT job also provides a living wage (entry level pay ranges from $15 to $24 per hour, up to 56% wage gains in the first three years, with excellent future pay potential), with a proven career path in a cross-sector job market. Finally the overall ICT industry has a promising labor market outlook.

In California, a major success story for our workplace efforts has been The Stride Center and EmpowerNet. The Stride Center is a non-profit social venture working to empower economic self-sufficiency for individuals and communities in the San Francisco Bay Area. It harnesses the power of technology and the digital economy to help men, women and families on the road to self-sufficiency and independence. The Stride Center has developed a curriculum and teaching staff that responds to the unique circumstances of men and women who face barriers to employment[13] and access to careers in the burgeoning technology economy. The Stride Center's professional environment for learning and proven, comprehensive learning model is helping deserving, capable people gain jobs, self-respect and financial independence.

The Stride Center's comprehensive career development program includes:

- Technical skills, life skills, professional and career skills training.[14]
- Industry recognized credentials (technical certifications).
- Work experience through its social venture enterprise, ReliaTech.[15]
- Job placement assistance.

In addition to the training programs, The Stride Center operates its own social enterprise. ReliaTech is a full-service technology consulting, installation and maintenance business, providing low-cost tech support to the community, and paid and volunteer technical internship positions to students, and jobs for graduates. ReliaTech also contributes 100% of its net income towards The Stride Center's operating expenses. The Stride Center has enjoyed success, with student retention is over 80%, with 80% receiving industry recognized technical ICT certificates, with job placement of students at over 80%. More information about The Stride Center is here: http://www.stridecenter.org/

EmpowerNet California is a project of the Stride and Goodwill Industries that helps non-profit training providers across the state to start best practice ICT training programs. The organization

[13] Typical Stride Center students have come from inner cities, with backgrounds of poverty/low income, drug abuse, criminal backgrounds, homelessness, welfare, with barriers to employment.
[14] The students are trained in IC3 Computer Basics Certified, Internet, Microsoft Office and Basic Troubleshooting.
[15] ReliaTech is a social enterprise of The Stride Center who provides low cost tech support services in underserved communities and resells refurbished computers worked on by ReliaTech interns from The Stride Center.

provides hands-on consulting to new programs to ensure successful start-up and strong results. It further has built a learning community for continuous improvement. It has provided program start-up funding for qualified new programs, and until May 2012, its services were virtually free to new program providers. EmpowerNet has this framework for action: (1) adopts local initiatives to promote digital literacy in all approved training programs; (2) adds primary and secondary ICT jobs and careers to local training initiatives and approved career tracks; (3) encourages ICT job development; and (4) helps prepare local providers to delivery best practice ICT training.

In recent years, CETF has reached out to regional WIBs throughout California to encourage them to pass an ICT Digital Literacy Resolution resolving to support steps to enable people to harvest the benefits of an information and knowledge society and to promote (1) access to ICT by our people regardless of income or advantage; (2) opportunities for our people to acquire ICT digital literacy skills to benefit academically, economically and socially; and (3) initiatives encouraging local training providers to incorporate ICT digital literacy training in all approved training programs. Information relating to ICT Digital Literacy are in Appendix A.

Revise Medicare Reimbursement Policies to Allow Telehealth. Medicare reimbursement policies must be changed to allow telehealth reimbursement. See response to question 7.

Secure Funding for Sustainable Broadband Adoption Grants for the Next Five Years. The successful implementation of the NTIA grants by CETF and our 19 partners was led by CETF Senior Vice President Susan Walters, who prepared a report *Lessons Learned from the Field*.

The four major lessons about sustainable adoption:

(1) Leverage everyday activities into broadband training and curricula: How to engage participants with relevant training topics that will help drive new, sustainable home broadband adoptions;
(2) Secure job placements in the growing ICT field: Strategies that have successfully helped program participants find jobs in Information and Communications Technology (ICT);
(3) Drive broadband adoption by offering affordable full services: Service and resource combinations that are effective at driving and securing adoptions along with affordable broadband and computing devices and improving digital literacy skills; and
(4) Pursue sustainable programs: How to integrate broadband adoption into other activities, such as health, education, financial literacy and community development.[16]

CETF Lessons Learned from Managing the ARRA NTIA BTOP Grants

- Grantee executive leadership and staff management capacity are essential.
- Coaching and the "learning community" were key to reaching goals.
- Thoughtful work plans in advance led to faster recognition of problems.
- Anchor institutions and community organizations need to work to ensure that clients actually obtain broadband (information and encouragement alone are not sufficient).
- Integrating digital literacy training and broadband adoption into existing programs is the best way to ensure sustainability and continually narrow the Digital Divide.

[16] CETF Lessons Learned from the Field, January 2013 at 5; see http://www.getconnectedtoday.com/files/j11560_cetf_web_0.pdf

The experience of all NTIA grantees has been incorporated into the NTIA Took Kit which is a useful compilation of data and recommendations for accelerating broadband adoption. NTIA Administrator Larry Strickling and his team have a wealth of knowledge about "what works" and established working relationships with state agencies and non-profit organizations throughout the nation that are valuable assets that should be supported and leveraged for sustained progress in closing the Digital Divide.

17. Typical barriers to broadband adoption include cost, relevance, and training. How can these be addressed by regulatory changes by Executive Branch agencies?

Require Affordable Broadband Rate and Support Training. Cost can be best addressed by the FCC by requiring an affordable broadband rate to be offered by Internet Service Providers to low-income persons. This program can be developed similar to the Lifeline telephone program.

Offer Trainers and New Adopters Basic Digital Literacy Skills. Provide digital literacy training in programs that offer education, workforce preparation, and health enrollment, prevention and management, including to the staff of these programs.

Promote the Relevance of Digital Literacy. Public service announcements should be promoted by federal agencies and by ISPs on the importance of broadband applications to Americans to encourage them to learn digital literacy skills so they may participate in the 21st Century information economy.

E. Issues Related to State, Local, and Tribal Governments

18. What barriers exist at the state, local, and/or tribal level to broadband deployment and adoption? How can the federal government work with and incentivize state, local, and tribal governments to remove these barriers?

Develop Model Permitting Standards And Encourage Collaboration. Work with states to develop model permitting standards and encourage collaboration among broadband providers. Among the work product could be: (1) a voluntary municipal application process; (2) E-permits; (3) a permitting timeline for standard types of permits; (4) metrics to measure efficiency of the permitting process and compliance to issued permits; (5) guidelines for use of blanket permits for large, long-term infrastructure placements; (6) guidelines for moratoria on above-ground facility construction; and (7) conduit standards and commitments for placing standard spare conduit in the Rights-of-Way at times of construction.[17]

New Developments: One of the biggest costs to broadband deployment is cutting or trenching roadways. Developers can ensure that capacity is available in the future as to new developments by placing standard spare conduit and innerduct in the rights-of-way at the time of construction. By proactively placing this infrastructure in the ground, when the subdivision or business development is built, users will have greater broadband availability in the future.

19. What federal barriers do state, local, and tribal governments confront as they seek to promote broadband communities?

Expedite Siting of Broadband. Local, state, federal and tribal lands permitting continues to delay and increase costs of broadband infrastructure projects, whether wireline or wireless.

[17] CBTF Report, at 63.

Model permitting practices, facilitated permits, databases of facilities, collocation sites, facilitated environmental review and a true collaboration of government entities with ISPs would go a long way to improving broadband coverage in the unserved and underserved areas of the country. There are many models of how fast and well things can go if the local government has a strong leader and local support for a project. The Google Fiber projects (Kansas City, Provo, Austin), the Chattanooga, Tennessee fiber projects are a few examples.

20. What can the federal government do to make it easier for state, local, and tribal governments or organizations to access funding for broadband?

Bring New Broadband Grants. Undertake another round of federal broadband grants for funding of projects in unserved areas (first priority) and underserved areas, according to the FCC broadband maps.

21. How can the federal government support state, local, and tribal efforts to promote and/or invest in broadband networks and promote broadband adoption? For example, what type of capacity-building or technical assistance is needed?

Develop Low-Cost Collocation Facilities. Federal agencies could make available at low cost collocation facilities (buildings with sufficient power and cooling equipment to house networking equipment) to broadband providers, to help lower the cost or service provision in unserved areas and encourage network upgrades in underserved areas.

Leverage Federal Infrastructure. As noted previously the Federal government could engage in public-private partnerships relating to federal infrastructure (towers, poles and vaults) to support broadband infrastructure in unserved and underserved areas at low cost or no cost leases. Partnerships involving wireless communications can assist private broadband providers as to siting. Further, the deployment of FirstNet, the new national emergency communications system, gives opportunities to leverage its infrastructure in any unserved or underserved areas to last mile Internet Service Providers.

F. Issues Related to Vulnerable Communities and Communities With Limited or No Broadband

22. How can specific regulatory policies within the Executive Branch agencies be altered to remove or reduce barriers that prevent vulnerable populations from accessing and using broadband technologies? Vulnerable populations might include, but are not limited to, veterans, seniors, minorities, people with disabilities, at-risk youth, low-income individuals and families, and the unemployed.

Develop an Affordable Housing Initiative. As to low-income communities, CETF draws attention to unique work it undertook with the housing authority of the largest city in California. We suggest this as a model for others to emulate. CETF and the Housing Authority of the City of Los Angeles (HACLA) began their partnership in March 2013. CETF developed a Smart Housing Pilot Partnership (SHPP) in Los Angeles with HACLA to demonstrate the viability of smart housing and to document the costs of broadband deployment, training and adoption in publicly-subsidized housing with very low-income residents. The first task was to identify the housing projects to work in, then to select a wireless provider and finally to select vendors for refurbished computers and to conduct on-site training. Two HACLA multi-family properties were selected, Jordan Downs and Mar Vista Gardens, with more than 1,000 housing units combined.

The work of CETF and HACLA enabled both groups to present useful information about the experience working to connect these two publicly-subsidized housing projects to gain support from California Assembly and Senate Committee members. This pilot helped inform the state legislation that became Assembly Bill 1299 for housing stakeholders to replicate as they pursue Digital Inclusion programs. The program is the California Smart Housing Initiative and implemented by the California Public Utilities Commission. The California PUC began accepting applications on January 15, 2015 and is planning to process applications on a quarterly basis. CETF and CPUC staff conducted comprehensive webinars and in-person workshops that were attended by more than 275 representatives from housing and service provider organizations. As of April 30, 2015 more than $7 million has been requested to date for infrastructure and adoption projects in affordable housing units in California. This money comes from the Commission's California Advanced Services Fund program, funded by a small surcharge on California telephone providers (wireline and wireless).

As part of the effort, The National Housing Conference, Eden Housing, and CETF conducted a Roundtable among several national stakeholders in Washington, D.C. in June 2014. As a result, there was agreement to form a Connectivity Working Group to focus on expanding meaningful Internet access in publicly-subsidized housing developments.

CETF affirms a key issue is that far too many low-income households do not have even a basic broadband connection at home, as we describe in the accompanying research brief: "The Connectivity Gap: The Internet is Still Out of Reach for Many Low-Income Renters." See Appendix E. Making sure all households have an affordable connection plus the computing device and the digital literacy to best use it will create new economic opportunities for households moving toward self-sufficiency, kids achieving in school, businesses reaching new markets, and communities building a higher-skilled workforce.

To help achieve affordable broadband connectivity for all, the National Housing Conference (NHC) convened a Connectivity Working Group to recommend policy changes. The group draws from affordable housing developers, public agencies, policy experts, capital providers, national intermediaries, and more, all committed to the shared mission of closing the digital divide for low-income people. The recommendations presented here draw on the expertise of the Connectivity Working Group, the policy briefs from NHC's Center for Housing Policy, and advice from other stakeholders. We recognize that achieving broadband connectivity for all will require action by many, including Congress, the President, the Federal Communications Commission (FCC), the Department of Housing and Urban Development (HUD), internet service providers, state and local governments, and more. To ensure that the affordable housing community does its part, we recommend:

1. **Set a national goal for connectivity in HUD properties as part of a national connectivity goal**. With a strong federal commitment of new resources and partnerships with the private sector, we believe all HUD-assisted properties could have affordable, cost-effective, basic broadband connectivity for all residents by 2020. There are innovative solutions in public housing and privately-owned assisted housing that we could encourage others to adopt. If states commit to this goal as well, we could also reach all Low Income Housing Tax Credit properties. Aligning broadband connectivity with existing initiatives such as Choice Neighborhoods and Promise Zones may help pave the way, but achieving the national goal will ultimately require a concerted effort nationwide.

2. **Implement digital literacy and equipment support into broadband provision**. For access to broadband to transform lives, it must be more than just a plug in the wall or a wireless access point. Low-income residents need access to reliable equipment (particularly computers or tablets, not just smart phones, for a full range of education and work-related

activities) and training in how to make the most of it. Successful examples of these solutions combine small contributions from residents with grants and owner contributions so that all share a commitment to the success of the effort.

3. **Treat broadband as an eligible expenditure in affordable rental housing**. As pilot programs are demonstrating, basic broadband provided at the property level can serve residents effectively while containing costs. HUD should issue guidance allowing properties to use available funds to implement cost-effective connectivity for residents and should support pilot programs to test different implementation methods. Building on these initial steps, HUD should explore treating cost-effective basic broadband as a standard operating cost for affordable housing properties. This would affect all HUD properties, but would be most meaningful for those using a budget-based rent calculation, such as Section 202, some project-based Section 8, Section 811, and others. For it to meaningfully affect public housing, HUD would need to revise additional guidance possibly through an "add-on" expense under the asset management formula in sec. 990.190. Ultimately, to implement basic broadband widely, Congress would need to provide additional funds, per recommendation 5 below.

4. **Support Broadband in Affordable Housing Through FCC Actions**. The Federal Communications Commission (FCC) is uniquely positioned to reduce costs of broadband service for low-income households, encourage public-private partnerships to serve low-income communities, and make broadband part of coordinated neighborhood transformation strategies. For example, as the FCC considers the Comcast-Time Warner Cable merger, it should require both companies to:
   a. Work with HUD, state and local housing agencies, and affordable housing stakeholders to implement broadband access in publicly-subsidized housing developments including public housing, Section 8, Low Income Housing Tax Credit, and others.
   b. Contribute to independent funds to support broadband adoption at home and implement strategies to improve and expand Comcast's Internet Essential program to all low-income families and individuals.
   c. Upgrade infrastructure in underserved areas and extend into unserved communities to improve broadband deployment, with special attention to low-income neighborhoods and multifamily buildings serving households below median income.
   d. Ensure that provider-supported connectivity programs reach all people in need, especially seniors and people with disabilities who may not be captured by school-related criteria for eligibility.

The FCC should consider these aspects in future mergers and consolidations that require approval.

5. **Provide federal funds to support broadband connectivity in affordable housing**. Existing resources are not sufficient to accomplish all that is needed, including capital installation, ongoing operation, equipment, digital literacy training, and technical support. As part of annual appropriations, Congress should allocate additional funding for public and assisted housing to pay for broadband costs in property operations, as well as large-scale pilots to refine best practices for implementing broadband at a property level. Tax incentives are an alternative mechanism for defraying cost of broadband connectivity in affordable housing, if properly structured in a pay-for-performance model and not diverted from existing affordable housing programs.

6. **Use public resources to leverage private resources**. Private businesses can be part of the solution to the digital divide, through both corporate philanthropy and private investment for

business purposes at the large and small scale. In-home connectivity can make property management more efficient for multifamily housing, deliver health care services efficiently, and allow telecommuting for workers. It can also bring low-income people into the economic mainstream as workers, consumers, and entrepreneurs. Scarce public resources should therefore leverage private contributions, of which there are many models, including community development financial institutions, tax credit incentives, loan pools, and in-kind contributions. Examples include Google Fiber projects in Austin and Comcast's Internet Essentials program.

Modernize Lifeline for an Affordable Broadband Rate. As previously discussed in Section D, encourage low cost, affordable broadband rates for low-income persons at the FCC. Allow subscribers to broadband Lifeline programs to choose a wireline or wireless option that best fits their needs.

Champion ICT Digital Literacy. As previously discussed in Section D, promote a digital literacy policy and framework that supports a continuum of digital literacy skills, benchmarking and metrics that are consistent with globally accepted standards, and would ensure accountability for assessing progress and success.

Promote Workforce Development Policies: Promote workforce development policies that promote: (1) access to information and communications technology by our workers regardless of income or advantage; (2) opportunities for workers to achieve ICT digital literacy skills in order to benefit academically, economically and socially; and (3) initiatives encouraging local training providers to incorporate ICT digital literacy training in all approved training programs.

Initiate Federal Wi-Fi Initiatives. As previously discussed in Section A, provide for public access to Wi-Fi from federal facilities that are open to the public, such as Post Offices, federal court houses, military installations, etc.

Reform Medicare Reimbursement Policies for Telehealth in Rural Areas. As previously discussed in the answer to question 7, Medicare reimbursement policies should be amended to encourage telehealth applications and drive more consistent policies across the public and private payors in the health care insurance system. This is particularly acute for prison populations, rural and remote residents, seniors, the homeless, the unemployed, at-risk youth, and low-income persons.

23. How can the federal government make broadband technologies more available and relevant for vulnerable populations?

Modernize Lifeline for an Affordable Broadband Rate. As noted previously, the FCC is in the best position to bring affordable broadband offers through a Broadband Lifeline program to low-income communities and other community groups with low adoption numbers (for example, senior citizens, persons with disabilities, non-English speaking, and disabled veterans).

Provide Vulnerable Populations with Access to Broadband. Encourage policies that provide for places where vulnerable populations have access to broadband facilities so they may connect to social service and government programs, via voice, email box or voicemail box.

Excel at Accessibility and Universal Design for People with Disabilities. Promote accessibility and universal design to promote broadband access for people with disabilities, a greatly unserved population with low broadband adoption metrics. Partner with national disability associations to explore how best to connect people with disabilities most effectively,

including ensuring accessibility in equipment design, and focused broadband adoption outreach for this community.

G. Issues Specific to Rural Areas

24. What federal regulatory barriers can Executive Branch agencies alter to improve broadband access and adoption in rural areas?

Champion Agricultural Technology (AgTech) as a Major Benefit for Rural Areas. There are many benefits to bringing broadband to rural areas. Agriculture Technology (AgTech) enables the following applications on the production side thus benefitting for rural businesses, farmers and consumers: Agricultural Drones to provide multi spectral imagery of farmland status; variable rate irrigation (saves water); food safety is enhanced using test kits to detect foodborne pathogens; drip irrigation may be monitored with wireless technology using wireless soil sensors; precision input applications allow precise planting of crops for maximum output. Further, rural telehealth and telemedicine keeps rural residents healthier and with access to specialty care comparable to urban dwellers. Other benefits of rural broadband include rural agro tourism and recreation, more direct access to global markets by rural farmers and agricultural businesses. Finally, rural libraries greatly benefit from rural connectivity to have access to materials, enable education at any age, and serve as a key broadband access point for rural low income persons. Rural broadband also enables distance learning for learners of any age. See Attachment E, "Agricultural Technology and the Future of Farming: It's Not Your Grandfather's Farm, Anymore", Robert Tse, USDA Rural Development, CFEE Roundtable on Information and Communications Technology (March 5, 2015).

Promote Farm Bill Funding for Broadband for Rural Areas. According to Valley Vision, a Sacramento-based policy non-profit organization, the Executive Branch also should consider support in the Farm Bill for broadband projects in unserved and underserved rural areas. This deployment of broadband infrastructure would drive advancements in mobile technology and rural economic diversification and expansion. Additional spectrum for wireless broadband applications was deemed critical. See Attachment E, Capitol-to-Capitol 2013, Sacramento Metro Chamber Briefing Paper, entitled Agriculture & Food, Broadband Access Essential to Meet Growing Food Demands and Enhance Rural Economies (April 13-17, 2013).

Encourage Broadband In Tribal Lands. Encourage and educate tribes to bring broadband to tribal lands to encourage economic development and other social benefits.

Promote speedy permitting and siting of broadband facilities across federal lands.
One huge barrier to entry for the large broadband ARRA projects was delays in siting by federal agencies like US Forest Service and the National Park Service. CETF recommends that these agencies and other federal agencies be required to act more speedily on broadband siting requests and be encouraged to allow it where feasible.

Ensure Federal Assets Made Available for Broadband Facilities. Encourage federal poles, towers and rights-of-way be made available on a timely basis for broadband projects.

Promote Telehealth Networks for Rural, Remote and Tribal Communities. Encourage and ensure funding for rural-urban telehealth networks, including funds for operational costs, necessary equipment and robust Internet access, with funding from the FCC Healthcare Connect Fund and coordinated funding from federal health agencies. Reform health reimbursement

mechanisms and policies to encourage efficient and cost saving telehealth applications for high quality consults.

25. Would spurring competition to offer broadband service in rural areas expand availability and, if so, what specific actions could Executive Branch agencies take in furtherance of this goal?

CETF has prepared a list of actions that the BOC and specific federal agencies may take on broadband access and adoption in their scope of work.

President's Broadband Opportunity Council

- Set national goals and performance metrics for broadband deployment and adoption along with a timetable and assigned responsibilities for achieving them to encourage implementation of the National Broadband Plan and utilization of the NTIA Tool Kit. The Council can institute regular Congressional oversight proceedings to ensure performance and accountability.

- Integrate broadband and information technologies into all federal policies and programs through funding incentives to align efforts across agency departments. There is a need to "connect the dots" with a set of coherent strategies that transcend "bureaucratic silos" to optimize access to and use of the Internet with high-speed connections.

- Foster public-private partnerships with participation of the White House to accelerate broadband deployment and adoption. There is no substitute for the innovation and efficiency of the private sector when engaged as sincere partners motivated to achieve explicit goals as measured by metrics. Public-private partnerships can significantly leverage public resources for a higher return on investment to taxpayers and ratepayers.

- Encourage states to adopt broadband adoption strategies and plans by giving priority consideration for federal funding to projects that align with and complement state programs that have explicit adoption goals with accountability for performance.

- Establish broadband as a green strategy with the federal agencies dealing with climate change and clean green energy.

- Order creation of a federal database of federal towers, poles, facilities, and right-of-ways available for siting of broadband facilities; establish a uniform and fair rate for use of such facilities; and establish a priority for permitting for broadband facilities, particularly in rural, remote and Tribal lands.

U.S. Department of Health and Human Services (HHS)

— Build upon the ARRA Health Information Technology for Economic and Clinical Health Act (HITECH) framework to encourage stronger linkages and purposeful collaboration of health exchanges and "meaningful use" to the telehealth networks funded by the FCC Rural Health Care Pilot Projects and/or the new FCC Healthcare Connect Fund.

— HHS and the FCC should make a concerted joint effort to connect all state and local government public health services, federally-qualified health centers (FQHCs), critical care hospitals, tribal healthcare facilities (if desired by Tribal Leaders) to these telehealth-telemedicine networks. This kind of an effort will need to be coordinated with other departments and programs, such as the U.S. Department of Agriculture's Distance Learning,

Telemedicine and Broadband Program to ensure rural communities are sustainably connected.

U.S. Department of Education (DOE)

— Integrate broadband and computing technologies aggressively into the teaching and learning processes in all federal grants to improve education, particularly to turn around low-performing schools because of the ability of the technology to engage and involve low-income parents with an approach similar to School2Home.
— Assist educators and policymakers in the implementation of nationwide of Common Core Standards with the technology needs as it requires a major effort on a scale not yet contemplated.
— Encouraged Promise Neighborhoods grantees to promote "smart communities" by incorporating broadband adoption strategies into their programs.

U.S. Department of Labor (DOL)

— Encourage integration of digital literacy and ICT skills training into all existing workforce preparation programs through Workforce Investment Act allocations to states and all other grants.

U.S. Department of Housing and Urban Development (HUD)

— Promote "smart housing" in all publicly-subsidized multi-unit complexes by allowing the installation of an advanced communications system with broadband connectivity in each residence to be included in construction costs and the maintenance of such a system to be included in operating budgets.
— Encouraged Choice Neighborhoods grantees to incorporate broadband adoption strategies into their programs.

U.S. Department of Agriculture (DOA)

— Encourage larger-scale integrated proposals for existing grant funds that combine broadband deployment and adoption. This especially applies to the Rural Utility Service and all other rural economic development programs.
— Educate farmers and large agricultural businesses on the advantages and benefits of Agricultural Technology to save water, reduce fuel consumption, enable self-operating farm equipment, and real time detection in the field of food pathogens to prevent contamination of crops.
— Consider easements for broadband deployment in National Forests to support public safety, emergency response, and homeland security.

U.S. Department of Interior (DOI)

— Identify all resources to assist Tribal Leaders (who request such assistance) in providing broadband service to Tribal Lands.
— Consider easements for broadband deployment in National Parks to support public safety, emergency response, and homeland security.

U.S. Department of Homeland Security (DHS)

— Become a proactive partner in FirstNet to accelerate broadband deployment and adoption to support public safety, emergency response, and homeland security.

Federal Communications Commission (FCC)

- Request and support the FCC to accelerate reform of the Universal Services Fund (USF) and to incorporate best practices for sustainable broadband adoption.
- Give priority consideration for funding and/or subsidies to broadband providers that: (a) have a coherent, explicit program with quantified goals and metrics to increase broadband adoption; (b) partner with CBOs that have a proven track record as the "trusted messenger and honest broker" in broadband adoption; and (c) target low-income communities in collaboration with other stakeholders pursuing "digital inclusion" and "neighborhood transformation" strategies (such as digital literacy in schools, workforce training, or publicly-subsidized housing).
- Establish an affordable Broadband Lifeline Rate Program within the next year and make it available to residents in low-income census tracts in which there is a coherent "digital inclusion" component of a "neighborhood transformation" initiative with responsible local governments, key stakeholders, and respected CBOs.
- Prioritize in FCC E-Rate program low-performing schools and libraries in low-income neighborhoods that have established a coherent program with quantified goals and accountability to increase broadband adoption, especially as part of an overall "neighborhood transformation" initiative.
- Centralize the verification of annual E-Rate certification to encourage efficiency and reduce cost of administration and ineligible participants.
- Prioritize funding of the Connect America Fund and other programs to subsidize broadband infrastructure to deployment projects with plans and partners to promote broadband adoption.
- Request assistance from the National Association of Regulatory Utility Commissioners (NARUC) to engage states agencies responsible for broadband, and convene information forums on development of broadband adoption strategies and plans.
- Request the FCC and NTIA to engage broadband providers in helping design the "next generation" broadband adoption program to achieve explicit goals and measurable outcomes.
- Encourage providers to partner with EveryoneOn (formerly Connect-to-Compete) by setting adoption targets coupled with affordable broadband offers (e.g. $10/month) that can be made available without undermining profitability. There needs to be market competition for low-income consumers to become sustainable broadband customers.
- Structure USF reforms for a Broadband Lifeline Rate Program and E-Rate to encourage and reward providers who partner with non-profit intermediaries (such as EveryoneOn) and trusted Community Based Organizations (CBOs) with a proven track record and align with state plans. Reimbursement and subsidies from the USF should reward public-private partnerships that drive to and achieve explicit broadband adoption goals.

U.S. Department of Commerce (DOC)

- Seek additional funding for NTIA as a prudent investment in global competitiveness to establish the "next generation" broadband adoption program that builds upon the ARRA Broadband Technologies Opportunity Program experience, aligns with other existing efforts, and leverages federal resources through partnerships to achieve explicit adoption goals and outcomes by 2020.
- Facilitate collaboration among successful BTOP grantees to join forces with state governments to develop broadband adoption strategies and plans.
- Request the FCC and NTIA to engage broadband providers in helping design the "next generation" broadband adoption program to achieve explicit goals and outcomes.

Environmental Protection Agency (EPA)

— Educate on how telecommuting, Agricultural Technology applications and other broadband-enabled applications help keep the environment clean by reducing transportation emissions, less water consumption, less ground contamination from fertilizer, and reduced fuel usage.

Federal Energy Regulatory Commission (FERC)

— Educate on how smart grids and other broadband-enabled applications result in clean green energy and assist in achieving climate change goals of the nation.

Allow Municipal Entities to Provide Broadband Services. One key issue in provision of service to rural areas is the cost of deployment of upgraded broadband systems where there are not the typical economies of scale as in an urban deployment. Competition could be enhanced by allowing municipal entities such as community service districts to provide broadband services, and spurring competition with the rural telephone company, rural cable company or rural ISPs. (See CA Government Code 61000(af) as an example of how a California Community Service District may be allowed to offer broadband service if these is a lack of service by private providers. http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=61001-62000&file=61100-61107) The FCC recently took action to effectuate such a change and more federal work should be done to encourage municipal entities to undertake projects where appropriate.

26. Because the predominant areas with limited or no broadband service tend to be rural, what specific provisions should Executive Branch agencies consider to facilitate broadband deployment and adoption in such rural areas?

Establish Low and Uniform Rental Rates for Access to Federal Facilities. Establish low and uniform rental rates for access to federally owned poles, towers, collocation facilities or other sites to simplify and speed up access to federal facilities for broadband facilities, particularly in rural or remote areas.

Improve Federal ROW Practices. Improve federal rights-of-way management practices to make federal facilities available for broadband in a more time efficient and resource efficient manner for applicants.

Establish Federal Dig Once Policies. Establish efficient new broadband infrastructure construction including "dig once" policies that would make federal financing of highway, road and bridge projects contingent on state and localities allowing joint deployment of broadband particularly to rural areas.

H. Measuring Broadband Availability, Adoption, and Speeds

27. What information about existing broadband services should the Executive Branch collect to inform decisions about broadband investment, deployment, and adoption? How often should this information be updated?

Study Broadband Progress. The Executive Branch should periodically look at the U.S. competitiveness in broadband deployment and adoption and ensure adequate funding and priorities are being devoted to these issues. Data on broadband speeds, broadband adoption and broadband rates should be collected in every geographic area by census block group, and by

socio economic groups. A starting point should be the CETF-funded Field Study on Broadband[18] and the broadband studies by the Pew Research Center.[19]

28. Are there gaps in the level or reliability of broadband-related information gathered by other entities that need to be filled by Executive Branch data collection efforts?

Establish Federal Database of Federal Facilities. As previously discussed, a database of available federal towers, poles, available right-of-ways or other facilities for siting purposes would be a valuable asset to broadband companies.

Perform Study Wireline and Wireless Broadband Speeds and Adoption Data. Wireline and wireless broadband speeds should be collected at a granular level, in addition to adoption data, including by income, ethnicity, language spoken, and education, in order to better understand the challenges of broadband adoption.

29. What additional research should the government conduct to promote broadband deployment, adoption, and competition?

Conduct Federal Funding for Necessary Research. Very little research has been done on effective broadband deployment of facilities and adoption to the most vulnerable populations, such as tribal, people with disabilities (particularly those with mobility disabilities), and non-English speaking persons. Also research should be funded on how to get broadband access to very remote places in a cost effective manner.

Research Broadband as a Green Strategy. Little research has been done on the cost effectiveness of broadband as a green strategy. With the White House's leadership on climate change and green energy issues, this aspect has been overlooked. Funded by CETF, Valley Vision in Sacramento, California has performed two sets of research in a policy paper and laid out the benefits of broadband from a green perspective. The goal of the project is to identify best practices where applications using broadband helps achieve environmental and economic goals. This research project determined pollution and waste avoiding broadband benefits. It looks at ways that remote health care, teleworking, digital learning, smart utility grids and other applications offer green environmental benefits. Reducing the amount of vehicle miles driven, or minimizing land use and real estate space requirements due to digital infrastructure has the potential to reduce greenhouse gas emissions and lower costs. See http://valleyvision.org/projects/broadband-as-a-green-strategy

Promote a Broadband Lifeline Program. Research should be performed to chart a path from a telephone-only Lifeline program to a broadband Lifeline program, to ensure low-income, seniors or other vulnerable populations do not get left out in the transition. Research should be done on how the federal executive branch agencies can be more effective in their policy goals by using broadband strategies for outreach, cost efficiencies and services.

30. How might the federal government encourage innovation in broadband deployment, adoption, and competition?

Provide Incentives for Broadband Innovation. The federal government should promote innovation for prizes for important breakthroughs, such as very cost effective broadband service to very remote areas with challenging geography.

[18] http://www.field.com/fieldpollonline/subscribers/Rls2476.pdf
[19] http://www.pewinternet.org/

Appendices

Appendix A: Digital Literacy Materials:
Executive Order S-06-09 by California Governor Arnold Schwarzenegger at http://www.cetfund.org/node/538

CETF Basic Digital Literacy Standards http://www.cetfund.org/investments/initiative-digital-literacy/digital-literacy

CETF California ICT Digital Literacy Policy Framework at this link: http://www.cetfund.org/files/CETF%20ICT%20Digital%20Literacy%20Policy%20Framework.pdf

CETF California ICT Digital Literacy Assessments and Curriculum Framework at this link: http://www.cetfund.org/files/CETF%20ICT%20Digital%20Literacy%20Policy%20Framework.pdf

The Stride Center, EmpowerNet and CETF World Class E-Skill Workforce Presentation, on Digital Literacy and ICT

Sample Workforce Development Board Resolution re Digital Literacy

See also "Digital Literacy Pathways in California" ICT Leadership Council Action Plan Report, July 2010 at this link:
http://www.ictliteracy.info/rf.pdf/Digital%20LiteracyMaster_July_2010.pdf

Appendix B: Broadband Adoption

"The Connectivity Gap: The Internet is Still Out of Reach for Many Low-Income Renters."

Appendix C: **ITIF Broadband Adoption**
Information Technology and Information (ITIF) Report, entitled
"A Policymaker's Guide to Spurring Broadband Adoption". Also found at this link:
http://www2.itif.org/2015-policymaker-ict-adoption.pdf?mc_cid=c41c44fd84&mc_eid=20a04feda0

Appendix D: **Tinder Report**
"A Leading Digital Nation by 2020: Calculating the Cost of Delivering Online Skills for All", by the Tinder Foundation and Go ON UK, What is the investment needed to get everyone in the UK using the internet regularly with Basic Online Skills?" (February 2014)
https://www.tinderfoundation.org/sites/default/files/research-publications/a_leading_digital_nation_by_2020_0.pdf

Appendix E: Agricultural Technology
"Agricultural Technology and the Future of Farming: It's Not Your Grandfather's Farm, Anymore", by Robert Tse, USDA Rural Development, presented at California Foundation for the Environment and the Economy Roundtable on Information and Communications Technology (March 5, 2015).

Capitol-to-Capitol 2013, Sacramento Metro Chamber Briefing Paper, entitled Agriculture & Food, Broadband Access Essential to Meet Growing Food Demands and Enhance Rural Economies (April 13-17, 2013).

Appendix F: "Broadband and the Environment: Technology Strategies for a Greener California" Valley Vision (2014)
http://valleyvision.org/projects/broadband-as-a-green-strategy
http://valleyvision.org/resources/broadband-and-the-environment-technology-strategies-for-a-greener-california

See also CETF website page on Green Benefits at:
http://www.cetfund.org/resources/information/green-benefits

Appendix G: Actions by Federal Agencies
Comments Submitted for the President's Broadband Opportunity Council Organized by Federal Agency from the California Emerging Technology Fund

Testimony to the United States Senate, Senate Subcommittee on Communications, Technology and the Internet, "Broadband Adoption: The Next Mile," October 29, 2013, Sunne Wright McPeak, President and CEO, California Emerging Technology Fund