

## Summary of FCC's National Broadband Plan

*The Mission of the Plan “is to create a high-performance America—a more productive, creative, efficient America in which affordable broadband is available everywhere and everyone has the means and skills to use valuable broadband applications.”*

In early 2009 Congress directed the Federal Communications Commission to develop a National Broadband Plan to ensure every American has access to broadband capability. Congress required this plan to include a detailed strategy for achieving affordability and maximizing broadband use to advance various issues.

The FCC released its National Broadband Plan on March 16, 2010. In the Plan, the FCC notes that while broadband adoption has grown steadily, it is far from universal. It lags considerably among certain demographic groups. An FCC analysis found that it would take approximately

\$24 billion in financial support to fill those gaps. Instead of choosing a specific path for America, the FCC describes actions it recommends the government take to encourage more private innovation and investment.

The plan is a 360 page document containing many recommendations. The FCC admits this plan will constantly be changing and rulemakings or further action from Congress will be required to implement many of the recommendations. The plan will be revised technologies and markets change.

The plan identifies six long-term goals for the next decade. The most notable goal is having at least 100 million U.S. homes with affordable access to actual download speeds of at least 100 megabits per second and actual upload speeds of at least 50 megabits per second. The plan is divided into three parts.

### **Part I: Innovation and Investment (addresses such issues as broadband competition and innovation policy, spectrum, infrastructure and research/development)**

#### Broadband Competition and Innovation Policy (Chapter 4: pages 33-72)

The Report notes that consumers have little information about the actual speed and performance of the service they purchase. Marketing materials typically feature “up to” peak download and upload speeds, although actual performance experienced by consumers is often much less than the advertised peak speed. This disparity confuses consumers and makes it more difficult for them to compare the true performance of different offers, thus hindering choice and competition. It also reduces incentives for service providers to invest in better performing networks. The FCC states that consumers need more information about the speed and overall performance of the services they receive and of competitive offers in their area, and about the gap between actual and advertised speeds and the implications of that difference. Even when providers attempt to add information about the applications broadband offers will support, the lack of standards makes it nearly impossible for consumers to compare providers and their offers.

The Report recognizes that the presence of a facilities-based competitor impacts investment. Further, broadband providers appear to invest more heavily in network upgrades where they face competition. Additionally, providers tend to offer higher broadband speeds when competing against each other. The Report underscores that the dearth of consistent, comprehensive and detailed price data make it difficult to evaluate price competition. However, some evidence indicates that monthly prices are lower when consumers have a choice of more than one provider, but data limitations make it difficult to draw robust conclusions. To ensure that the right policies are put in place so that consumers and businesses benefit from meaningful broadband competition as it evolves, the Report encourages an ongoing, data-driven evaluation of the state of competition on a national basis.

Because of the risk of higher prices, fewer choices, and less innovation, the Report concludes that it is crucial for the FCC to track and compare the evolution of pricing in two primary areas: (1) where two service providers offer very high peak speeds (e.g. speeds in excess of 20 Mbps) and (2); areas where only one provider can offer very high peak speeds. The Report states the FCC should benchmark prices and services and include these in future reports of the state of broadband deployment. The Report recommends the following steps be undertaken:

- Collect and publish more detailed and accurate data on actual availability, penetration, prices, churn and bundles.
- Improve the current data collection; specifically, the FCC should collect broadband availability data at the census block level, by provider, technology, and actual speed.
- The FCC should transition as quickly as practical to collecting location-specific subscribership data by provider, technology, and speed. Such data should be aggregated by geographic level, rather than relying on providers to allocate subscribers by census tract or block.
- Collect price, cost of customers associated with switching carriers, customer churn and market share information.
- Collect data on advertised prices, prices actually paid, service plans, bundles and promotions of fixed and mobile broadband services, by provider and by geographic area.
- Collect information about the pricing plans to which customers are actually subscribing, and not just those that are available but are not marketed by service providers.
- Collect information related to switching barriers, such as early termination fees and contract length.

- Collect data required to determine whether broadband service is being denied to potential residential customers based on the income of the residents in the particular geographic area.
- Collect data that enable more detailed analyses of the market and competition and make more data and analysis publically available to ensure visibility into competitive behavior of firms.
- Continue efforts to measure and publish data on actual performance of fixed broadband services. Open a proceeding on data roaming.
- Develop principles to require that customers provide informed consent before broadband service providers share certain types of information with third parties.

The Report recommends FCC action in both wholesale services and special access services. According to the Report, regulatory policies for wholesale access affect the competitiveness of markets for retail broadband services provided to small businesses, mobile customers and enterprise customers. The Report characterizes the FCC's current regulatory approach as an unfortunate hodgepodge of wholesale access rights and pricing mechanisms that were developed without the benefit of a consistent, rigorous analytic framework. Accordingly, the Report states the FCC should comprehensively review its current policies and develop a cohesive and effective approach to advancing competition through its wholesale access policies and ensure that rates, terms and conditions for special access services are just and reasonable. The FCC has historically regulated the rates, terms and conditions of special access services primarily through interstate tariffs filed by incumbent local exchange carriers. However, the Report questions the adequacy of the existing regulatory regime in ensuring that rates, terms and conditions for these services be just and reasonable, and states that special access service has been subject to much debate. The Report makes the following recommendations.

- Comprehensively review wholesale competition regulations to develop a coherent and effective framework.
- Ensure that special access rates, terms and conditions are just and reasonable.
- Ensure appropriate balance in copper retirement policies.
- Clarify interconnection rights and obligations, and encourage the shift to IP-to-IP interconnection where efficient.
- The FCC should confirm that all telecommunications carriers, including rural carriers, have a duty to interconnect their networks.
- Establish technical broadband performance measurement standards and methodology and a process for updating them.
- Initiate a proceeding to ensure that all multichannel video programming distributors (MVPDs) install a gateway device or equivalent functionality in all

new subscriber homes and in all homes requiring replacement set-top boxes, starting on or before Dec. 31, 2012.

- On an expedited basis, adopt rules for cable operators to fix certain CableCARD issues.
- Consider clarifying the relationship between users and their online profiles.
- Consider helping to spur development of trusted “identity providers” to assist consumers in managing their data in a manner that maximizes the privacy and security of the information.
- Put additional resources into combating identity theft and fraud.
- Consumer online security efforts should support broader national online security policy, and should be coordinated with the Department of Homeland Security (DHS), the FTC, the White House Cyber Office and other agencies.
- Create an interagency working group to coordinate child online safety and literacy work, facilitate information sharing, ensure consistent messaging and outreach.
- The federal government should investigate establishing a national framework for digital goods and services taxation.

#### Spectrum (Chapter 5: Pages 73-106)

- Make more spectrum available for existing and new wireless broadband providers in order to foster additional wireless-wireline competition at higher speed tiers.

#### Infrastructure Recommendations (Chapter 6: pages 107-118)

The Report concludes that a coherent and uniform policy for broadband access to privately owned physical infrastructure is essential to establishment of a comprehensive national broadband infrastructure policy. Both wireless and wired networks rely on cables and conduits attached to public roads, bridges, poles and tunnels. Securing rights to this infrastructure is often a difficult and time-consuming process that discourages private investment. The rental rates paid by communications companies to attach to a utility pole vary widely and are considerably higher in rural areas. Moreover, different rates are charged based solely on the regulatory classification as either “cable” or “telecommunications.”

Rearranging existing pole attachments or installing new poles- a process referred to as “make- ready” work – can be a significant source of cost and delay in building broadband networks. There are no deadlines for a utility to complete the steps in the process of providing access to its poles, ducts, conduits and rights-of-way. For large broadband network builds, the pole attachment process is highly fragmented and often involves dozens of utilities, cable providers and telecommunications providers in multiple jurisdictions. The Report encourages reform of the existing system, and states that

absent regulation, pole owners will continue to have few incentives to change their behavior.

- The FCC Should Use Its Existing Authority to Improve the Broadband Deployment Process.
- Implementation of the following cost-saving steps will have an immediate impact on driving fiber deeper into networks, and advance the deployment of both wireline and wireless broadband networks.
- Establish a uniform schedule of charges for common categories of make-ready work.
- Codify right-to-use space and implement other cost-saving techniques.
- Allow use of independent, certified engineering contractors for make-ready work.
- Establish time limits to accommodate new attachments to existing structures.
- Eliminate the requirement that all make-ready work be paid for prior to commencement of the work activity.
- The FCC should convene a Joint Task Force with a Mandate to Recommend and Develop a Consistent Rights-of-Way Policy.
- Establish a partnership of state, local and Tribal authorities to make recommendations for the FCC to develop guidelines for public rights-of-way that will ensure that best practices are applied nationally.
- States should remain free to enforce standards that are not inconsistent with Federal Law.
- Due to exemptions written into Section 224, adoption of a National Broadband Plan would apply to only 49 million of the nation's 134 million utility poles. The federal statute does not apply in states that adopt their own system of regulation and exempts poles owned by co-operatives, municipalities, and non-utilities. The Report concludes that additional congressional authority will be needed by the FCC to overcome the "convoluted rate structure" for cable and telecommunications providers. The Report recommends Congress consider amending or replacing Section 224 with a harmonized policy that establishes minimum standards throughout the nation.
- Establish rental rates for pole attachments that are as low and close to uniform as possible.

- All poles, ducts, conduits and rights-of-way will be subject to a regulatory regime addressing a minimum set of criteria established by federal law.
- All providers will have ubiquitous availability of pole attachments, ducts, conduits and rights-of-way based on rates, terms, and conditions that are reasonable.
- Infrastructure access will be provided within standard timelines established by the FCC, and the FCC will have the authority to award damages for non-compliance.
- The FCC will have the authority to compile and update a comprehensive database of physical infrastructure assets.
- Make federal financing of highway, road and bridge projects contingent on states and localities allowing joint deployment of conduits by qualified parties.
- Congress should consider enacting “dig once” legislation applying to all future federally funded projects along rights-of-way (including sewers, power transmission facilities, rail, pipelines, bridges, tunnels and roads).
- Congress should consider expressly authorizing federal agencies to set the fees for access to federal rights-of-way on a management and cost recovery basis.
- The Executive Branch should develop one or more master contracts to expedite the placement of wireless towers on federal government property and buildings.

## **Part II: Inclusion (addresses availability issues along with adoption and utilization)**

### Availability (Chapter 8: pages 133-151)

The FCC’s initial goal is to ensure by 2020 a universal availability of 4 Mbps of actual download speed and 1 Mbps of actual upload speed. This target would be reviewed every four years. Essentially this FCC goal targets 7 million housing units.<sup>1</sup> The FCC notes that today, half of the unserved housing units are located in territories served by AT&T, Verizon and Qwest, while about 15 percent are located in the territories of carriers such as CenturyLink and Windstream. The Plan sets a goal for the FCC to target areas that are currently unserved, focusing first on areas that require lower subsidies, and over time addressing areas that are the hardest to serve.

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<sup>1</sup> The 7 million housing units translates to 14 million people. There are a total of 130 million housing units in the U.S. Therefore the FCC’s Broadband Plan is attempting to target 5% of all housing units; yet, the FCC estimates that the USF and intercarrier compensation reforms discussed in the Plan could enable the buildout of broadband infrastructure to more than 99 percent of American households by 2020.

The FCC projects a \$33.4 billion cost to achieve its initial broadband goal by 2020.<sup>2</sup> This estimated cost will partially be recovered from consumer revenues for voice, data and video services; however, the FCC predicts \$24 billion in public funding is ultimately needed.<sup>3</sup> The FCC's Broadband plan describes proposals to recover some, but not all, of this public funding need; however, the FCC wants to reform the USF program so it remains close to its current size but also broaden the contribution base.<sup>4</sup> Besides reforming the USF program the FCC also proposes to reform the intercarrier compensation system. Both reforms are viewed as ways to encourage broadband availability.

The FCC's plan discusses how USF and intercarrier compensation will be conducted in three stages; however for all practical purposes Stage One (2010-2011) is simply working out the details in various rulemakings. Stage Two (2012-2016) is when various new broadband funding and intercarrier compensation reductions begin. Stage Three (2017-2020) primarily continues with Stage Two's reform measures. The FCC's proposed reform measures for USF and intercarrier compensation are discussed below:

### USF Reform

The FCC proposes to reform the USF program so it shifts from primarily supporting voice services to supporting a broadband platform enabling many applications including voice. When targeting areas where there is no business case to justify offering broadband service, the Plan states the FCC should consider the role of state high-cost funds and encourage states to provide funding to support broadband.

Specifically the FCC recommends a gradual elimination of the USF's existing High-Cost program in ten years. In addition the FCC proposes the creation of two new funds that would start disbursing funds in 2012.

- The proposed Connect America Fund (CAF) is intended to ensure broadband coverage.  
CAF will be awarded to only one provider per area; however, support is company and technology neutral. CAF will provide support in unserved areas and will

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<sup>2</sup> These costs reflect all capital expenditures and ongoing costs over 20 years (\$15.2 billion in additional capital expenditures + \$18.2 billion in ongoing costs = \$33.4 billion). The FCC also predicts expanding broadband to unserved areas will generate an additional \$9.3 billion in revenues. (Note: Without explanation the FCC's cost and revenue projections are for a 20 year time period even though the FCC is trying to achieve its broadband goal in 10 years.)

<sup>3</sup> According to Exhibit 8-B with Chapter 8, the FCC anticipates a cash flow gap of \$24.3 billion. This figure is presumably based on \$33.4 billion cost minus \$9.3 billion in revenues = \$24.3 billion gap. (Curiously the FCC's math is slightly incorrect which should reflect a \$24.1 billion gap.)

<sup>4</sup> The total size of the USF fund for 2010 is projected to be \$8.7 billion. This amount is divided into the following four programs: High-Cost \$4.6 billion, Low Income \$1.2 billion, E-rate \$2.7 billion, Rural Health Care \$214 million.

provide on- going support in areas that are served because of receipt of previous USF support.

- The proposed Mobility Fund is designed to provide one-time support ensuring all states have 3G availability.



The FCC is also proposing the following specific USF reform savings measures to primarily help fund these two new funds:

Proposed USF-related reform measures	Savings
Order Sprint and Verizon Wireless to implement voluntary commitments to eliminate within five years the high-cost funding they receive as competitive ETCs.	\$3.9 billion
Freeze Interstate Common Line Support (one component of high cost support) and require rate of return carriers to move to price cap regulation.	\$1.8 billion
Shift Interstate Access Support toward broadband deployment.	\$4.0 billion
Immediately require any wireless family plan to be treated as a single line for purposes of USF funding, while phasing out high-cost support for competitive ETCs over five years.	\$5.8 billion
<b>Total</b>	<b>\$15.5 billion</b>

The FCC plans to divert the \$15.5 billion in savings so that \$11.5 billion goes to the CAF while

\$4 billion goes to the new Mobility Fund as well as help with revenue replacement needs for intercarrier compensation reform. The FCC also proposes various USF reform measures to improve USF performance and accountability. The FCC also hints at perhaps eventually re-examining the uncapped portions of the USF program such as the Low Income program.

### Inter-carrier Compensation Reform

The FCC is proposing to reform the intercarrier compensation system based on the belief current intercarrier compensation arrangements may be stalling broadband development. Ideally the FCC intends to eliminate the current per-minute switched access rate system by 2020.<sup>5</sup> Included in the FCC's plan is pre-empting states by proposing to reform intrastate switched access rates.<sup>6</sup>

- The FCC's first step to reforming intercarrier compensation is reducing intrastate terminating switched access rates to interstate rate levels. These rate reductions begin in 2012 and would be in equal increments over a two to four year time period.

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<sup>5</sup> The FCC estimates the switched access rate structure corresponds to \$14 billion. (The FCC's plan is unclear but presumably this figure represents both inter and intrastate switched access.)

<sup>6</sup> The FCC doesn't use the term "preemption" or clearly discuss the FCC's legal authority over intrastate switched access rates; however, the FCC states that it has the authority to establish a new methodology for intercarrier

- To help offset the decrease in switched access revenues, the Plan suggests companies should be allowed to increase the subscriber line charge and the FCC suggests deregulating this charge may be appropriate in some areas.
- The FCC also encourages states to rate rebalance whereby local rates are increased.

Once intrastate switched access rates are at parity with interstate rate levels then the FCC proposes to establish a “glide path” to phase out all per-minute charges by 2020. For example the FCC states it could reduce interstate rates to reciprocal compensation rate levels and reduce originating access rates in equal increments. In addition the FCC could reduce all terminating rates to a uniform rate. The FCC suggests a staged transition when reducing per-minute rates will give carriers adequate time to make adjustments to off-set lost revenue.

The FCC acknowledges some companies may need support from the reformed USF to ensure adequate cost recovery; however, the FCC suggests such support will require a company’s local rates to meet or exceed an established benchmark.

The FCC expresses concern about the rates associated with special access circuits; however, the FCC’s plan lacks any specific proposals.<sup>7</sup> The FCC simply states it intends to review its special access policies.

#### Adoption and Utilization<sup>8</sup> (Chapter 9: pages 165-190)

##### Address Cost Barriers:

- Expand Lifeline and Link-Up programs to make broadband more affordable for low-income consumers.
  - Require ETCs to permit Lifeline customers to apply Lifeline to packages and service bundles.
  - Integrate expanded Lifeline/Link-up with other state and local e-government efforts.
    - State social service agencies should take a more active role.
    - Streamline enrollment. Allow online applications (Florida).
    - Should FCC have a centralized database for online certification?
    - Expand Lifeline to non-facility-based prepaid wireless providers?
  - Have pilot programs to evaluate most efficient long term broadband support mechanism.
- Consider requiring a wireless licensee to provide free or very low-cost wireless broadband as a condition for licensing spectrum.

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<sup>7</sup> “Adoption” refers to whether a person uses broadband service at home. “Utilization” refers to the intensity and quality of use of the connection to communicate, conduct business and pursue online activities. Adoption is necessary for utilization but utilization is necessary to extract value from a connection.

Address Digital Literacy Barriers: Launch a National Digital Literacy Program that creates a Digital Literacy Corps. Have an Online Digital Literacy Portal. Train Digital Literacy Partners (i.e. library staffs)

Address Relevance Barriers: Explore potential for public/private partnerships to improve broadband adoption.

Address Accessibility Issues: Convene a Broadband Accessibility Working Group to maximize broadband adoption by people with disabilities. Establish an Accessibility and Innovation Forum. Modernize accessibility laws, rules and related subsidy programs.

**Part III: National Purposes (addresses broadband-related concerns for health care, education, energy and the environment, economic opportunity, government performance)**

Healthcare (Chapter 10, pages 191-222)

- Replace the existing Internet Access Fund with a Health Care Broadband Access Fund.
- Establish a Health Care Broadband Infrastructure Fund.
- To protect against waste, fraud and abuse in the Rural Health Care Program, the FCC should require participating institutions to meet outcomes-based performance measures to qualify for Universal Service Fund (USF) subsidies, such as HHS's meaningful use criteria.
- Congress and the Secretary of Health and Human Services (HHS) should consider developing a strategy that documents the proven value of e-care technologies, proposes reimbursement reforms that incent their meaningful use and charts a path for their widespread adoption.
- Consider reducing regulatory barriers that inhibit adoption of health IT solutions.
- Clarify regulatory requirements and the approval process for converged communications and health care devices.
- Establish common standards and protocols for sharing administrative, research and clinical data, and provide incentives for their use.
- Congress should consider providing consumers access to—and control over—all their digital health care data in machine-readable formats in a timely manner and at a reasonable cost.
- Authorize participation in the Health Care Broadband Funds Congress should consider providing support for for-profit institutions that serve particularly vulnerable populations.

- Congress should consider authorizing an incremental sum (up to \$29 million per year) for the Indian Health Service (IHS) for the purpose of upgrading its broadband service to meet connectivity requirements.
- The FCC should periodically publish a Health Care Broadband Status Report.

#### Education (Chapter 11: pages 223-244)

- Establish standards to be adopted by the federal government for locating, sharing and licensing digital educational content by March 2011.
- The federal government should increase the supply of digital educational content available online that is compatible with standards established by the U.S. Department of Education.
- Periodically re-examine the digital data and interoperability standards to ensure that they are consistent with the needs and practices of the educational community, including local, state and non-profit educational agencies and the private sector.
- Congress should consider taking legislative action to encourage copyright holders to grant educational digital rights of use, without prejudicing their other rights.
- Change course accreditation and teacher certification requirements to allow students to take more courses for credit online and to permit more online instruction across state lines.
- The U.S. Department of Education and other federal agencies should provide support and funding for research and development of online learning systems.
- Consider investment in open licensed and public domain software.
- Establish a program to fund the development of innovative broadband-enabled online learning solutions.
- Include digital literacy standards, curricula and assessments in their English Language Arts and other programs.
- Provide additional grant funding to help schools train teachers in digital literacy and expand digital literacy requirements and training programs for teachers.
- Encourage the adoption of standards for electronic educational records.
- Develop digital financial data transparency standards for education. Encourage adoption and develop incentives for the use of these standards.
- Provide a simple Request for Proposal (RFP) online “broadcast” service.
- Adopt pending Notice of Proposed Rulemaking (NPRM) to remove barriers to off-hours community use of E-rate funded resources.
- Initiate a rulemaking to set goals for minimum broadband connectivity for schools and libraries and prioritize funds accordingly.

- Provide E-rate support for internal connections to more schools and libraries.
- Give schools and libraries more flexibility to purchase the lowest-cost broadband solutions.
- Initiate a rulemaking to raise the cap on funding for E-rate each year to account for inflation.
- Initiate a rulemaking to streamline the E-rate application process.
- Collect and publish more specific, quantifiable and standardized data about applicants' use of E-rate funds.
- Work to make overall broadband-related expenses more cost-efficient within the E-rate program.
- Congress should consider amending the Communications Act to help Tribal libraries overcome barriers to E-rate eligibility arising from state laws.
- Initiate a rulemaking to fund wireless connectivity to portable learning devices.
- Award some E-rate funds competitively to programs that best incorporate broadband connectivity into the educational experience.
- Congress should consider providing additional public funds to connect all public community colleges with high-speed broadband and maintain that connectivity.

#### Energy and the Environment (Chapter 12: pages 245-262)

The FCC considered how broadband and advanced communications can make the greatest impact on energy and the environment; can serve as the foundation for a smarter electric grid; how industry and the federal government can improve the energy efficiency and environmental impact of information and communications technologies usage; and, how broadband and advanced communications can make transportation safer, cleaner and more efficient. The Plan recommends three parallel paths – harden existing commercial mobile networks to support Smart Grid applications; share public safety mobile broadband networks for critical communications; empower utilities to construct and operate their own broadband networks.

- States should reduce impediments and financial disincentives to using commercial service providers for Smart Grid communications.
  - Evaluate a utility's network requirements and commercial network alternatives before authorizing a rate of return on private communications systems.
  - Consider letting recurring network operating costs qualify for a rate of return similar to capitalized utility-built networks.

- o Public utility commissions (PUCs) must ensure that utilities' incentives do not lead them to make suboptimal communications and technology decisions.
  - o State regulators should carefully evaluate a utility's network requirements and commercial network alternatives before authorizing a rate of return on private communications systems.
  - o PUCs should also consider letting recurring network operating costs qualify for a rate of return similar to capitalized utility-built networks.
  - o A national strategy to support the growth of the Smart Grid must recognize that many large electric utilities have inherent financial incentives to deploy regulator- approved communications systems but have mixed-to-poor incentives to use these systems to deliver energy more efficiently.
- The U.S. Department of Energy (DOE), in collaboration with the FCC, should study the communications requirements of electric utilities to inform federal Smart Grid policy.
- States should require electric utilities to provide consumers access to, and control of, their own digital energy information, including real-time information from smart meters and historical consumption, price and bill data over the Internet. If states fail to develop reasonable policies over the next 18 months, Congress should consider national legislation to cover consumer privacy and the accessibility of energy data.
  - o PSCs should mandate data accessibility as a part of Smart Grid rate cases, especially smart meter deployments.
  - o PSCs should require regulated utilities to adopt business processes that clearly articulate the methods by which consumers can authorize and de-authorize third party access to data.
  - o PSCs should strongly consider requiring distribution utilities to provide consumers' generation mix and emissions data in as close to real time as possible.
  - o By the end of 2010, every state PSC should require its regulated utilities to provide historical consumption, price and bill data over the Internet, in machine-readable, standardized formats. By the end of 2011, every IOU should develop and implement this capability.
- The Federal Energy Regulatory Commission (FERC) should adopt consumer digital data accessibility and control standards as a model for states.
- DOE should consider consumer data accessibility policies when evaluating Smart Grid grant applications, report on the states' progress toward enacting consumer data accessibility and develop best practice guidance for states.
- The Rural Utilities Services (RUS) should make Smart Grid loans to rural electric cooperatives a priority,

- The FCC should start a proceeding to improve the energy efficiency and environmental impact of the communications industry. Information and communications technologies account for 120 billion kWh (or 3 percent) of the electricity used annually. They are responsible for 2.5 percent of the national greenhouse gas emissions, which is predicted to grow 3 times faster than other sectors of the economy. The FCC estimates information and communications technologies can eliminate as much as 400 million metric tons of greenhouse gas emissions from transportation by 2020. The federal government should take a leadership role in improving the energy efficiency of its data centers.
- Start a proceeding to explore the reliability and resiliency of commercial broadband communications networks.
- The North American Electric Reliability Corporation (NERC) should clarify its Critical Infrastructure Protection (CIP) security requirements.
- Congress should consider amending the Communications Act to enable utilities to use the proposed public safety 700 MHz wireless broadband network.
- Continue efforts to identify new uses for federal spectrum and consider the requirements of the Smart Grid.

#### Economic Opportunity (Chapter 13, pages 263-280)

- Small Business Administration (SBA) resource partner programs should provide enhanced information technology (IT) applications training.
- Current federal small and medium enterprise (SME) support programs should use broadband and online applications.
- Develop a public-private partnership to provide technology training and tools for small disadvantaged businesses (SDBs) and SMEs in low-income areas.
- Congress should consider additional funds to bolster entrepreneurial development programs with broadband tools and training.
- Accelerate and expand efforts to create a robust online platform that delivers virtual employment assistance programs and facilitates individualized job training.
- Congress should consider eliminating tax and regulatory barriers to telework.
- The federal government should promote telework internally.
- The federal government should develop regional and community broadband benchmarks for use as a central component within economic development planning and programs.
- Create an easy-to-use, dynamic online information center that gives regional development managers access to integrated federal, state, local and Tribal data.
- Use technology transfer grants to spur regional innovation and development as well as greater collaboration across universities.

Government Performance (Chapter 14, pages 281-296)

- Federal government agencies and departments should serve as broadband anchor tenants for unserved and underserved communities.
- When feasible, Congress should consider allowing state and local governments to get lower service prices by participating in federal contracts for communications services.
- The Office of Management and Budget (OMB) should review and coordinate federal grants that have a broadband connectivity requirement.
- The Executive Branch and Congress should consider using federal funding to encourage cities and counties to gather information on initiatives enabled by broadband.
- OMB should develop a vision and strategy to guide agencies on cloud computing.
- OMB and the Federal Chief Information Officers (CIO) Council should develop a competition to annually recognize internal efforts to transform government using broadband-enabled technologies.
- Create an interagency working group to implement guidelines and requirements for interagency coordination of grants.
- The Federal CIO Council should accelerate agency adoption of social media technologies for internal use.
- Develop machine-readable repositories of actionable real-time information concerning cybersecurity threats.
- The federal government should take an active role in developing public-private cybersecurity partnerships.
- Expand existing and develop additional educational programs, scholarship funding, training programs and career paths to build workforce capability in cybersecurity.
- Develop a coordinated foreign cybersecurity assistance program.
- The FCC should work with Internet service providers (ISPs) to build robust cybersecurity protection and defenses into networks offered to businesses and individuals without access to cybersecurity resources.
- Accelerate technical actions to secure federal government networks.
- Develop a single, secure enterprise-wide authentication protocol that enables online service delivery.
- Establish a mechanism that allows citizens to request their personal data held by government agencies.



- Congress should consider re-examining the Privacy Act to facilitate the delivery of online government services and to account for changes in technology.
- The federal government should undertake a series of efforts to improve the delivery of government services online.
- The Executive Branch's review of the Paperwork Reduction Act should aim to enable government to solicit input to improve government services.
- The White House Office of Science and Technology Policy (OSTP) should develop a five-year strategic plan for online service delivery.
- The federal government should improve the delivery of means-tested benefits to low-income Americans.

### **Civic Engagement** (Chapter 15: pages 297-310)

All data and information that the government treats as public should be available and easy to locate online in a machine-readable and otherwise accessible format in a timely manner.

- The primary legal documents of the federal government should be free and accessible to the public on digital platforms.
- Government should make its processes more transparent and conducive to participation by the American people.
  - For the Executive Branch, independent agencies, Congress and state and local government, all government meetings, public hearings and town hall meetings should be broadcast online.
- All responses to Freedom of Information Act (FOIA) requests by Executive Branch and independent agencies should be made available online at [www.\[agency\].gov/foia](http://www.[agency].gov/foia).
- The Executive Branch should revise its Data Quality Act guidance to encourage agencies to apply the Act more consistently and facilitate the re-publishing of government data.
- Congress should consider increasing funding to public media for broadband-based distribution and content.
- Congress should consider amending the Copyright Act to include online and digital information.
- Create and fund publication of digital video archival material and facilitate the creation of a federated national digital archive to house public interest digital content.

- Accelerate the adoption of social media technologies that government can use to interact with the American people.
- Create an Open Platforms Initiative that uses digital platforms to engage and draw on the expertise of citizens and the private sector.
- Expand opportunities for Americans with expertise in technological innovation to serve in the federal government.
- Federal, state and local stakeholders should work together to modernize the elections process.
- The Department of Defense (DoD) should develop a secure Internet-based pilot project that enables members of the military serving overseas to vote online.

#### Public Safety (Chapter 16: pages 311-330)

The Report states the United States has not yet realized the potential of broadband to enhance public safety. The Report observes that first responders from different jurisdictions and agencies often cannot communicate during emergencies. The Report concludes that careful planning and strong commitment could create a cutting-edge public safety communications system to allow first responders anywhere in the nation to communicate with each other, sending and receiving critical voice, video, and data to save lives, reduce injuries and prevent acts of crime and terror.

Broadband can also make 911 and emergency alert systems more capable, allowing for better protection of lives and property. Especially noted by the Report are the text, pictures, and video broadband information that could be relayed to first responders and, the use of broadband technology for the government to disseminate vital information to the public during emergencies, such as disasters and pandemics. The recommendations are designed to hold broadband communications networks to high standards of reliability, resiliency, redundancy, and security.

- Create a nationwide interoperable public safety wireless broadband communications network (public safety broadband network).
- Preserve broadband communications during emergencies.
- Issue a cybersecurity roadmap.
- Expand outage reporting requirements to broadband service providers.
- Prepare a report to identify the costs of deploying a nationwide NG 911 system and recommend that Congress consider providing public funding.
- Establish a funding mechanism to ensure the network is deployed throughout the United States and has necessary coverage, resiliency and redundancy.
- Survey public safety broadband wireless infrastructure and devices.

- Ensure that broadband satellite service is a part of any emergency preparedness program.
- Create a voluntary cybersecurity certification regime.
- Create a cybersecurity information reporting system.
- Expand international participation and outreach.
- Explore network resilience and preparedness.
- Create priority network access and routing for broadband communications.
- Explore broadband communications' reliability and resiliency.
- Congress should consider enacting of a federal regulatory framework.
- Address IP-based communications devices, applications and services.
- Launch comprehensive next-generation alert system inquiry.
- Clarify agency roles on the implementation and maintenance of a next-generation alert and warning system.
- Create a public safety broadband network
- Create an administrative system that ensures access to sufficient capacity on a day-to-day and emergency basis.
- Ensure there is a mechanism in place to promote interoperability and operability of the network.
- Conform existing programs to operate with the public safety broadband wireless network.

#### Implementation and Benchmarks (Chapter 17: pages 331-340)

- Create a Broadband Strategy Council to coordinate the implementation of National Broadband Plan recommendations.
- The FCC should quickly publish a timetable of proceedings to implement plan recommendations within its authority, publish an evaluation of plan progress and effectiveness as part of the annual Section 706 Advanced Services Inquiry, create a Broadband Data Depository and continue to utilize Broadband.gov as a public resource for broadband information.
- Publish a Broadband Performance Dashboard with metrics designed to track broadband plan goals.