



AP PHOTO/TOM TALBOT

# Smart Grid, Smart Broadband, Smart Infrastructure

Melding Federal Stimulus Programs to Ensure More  
Bang for the Buck

---

Peter Swire April 2009

# Introduction and summary

With a bit of imagination and coordination among multiple federal programs and agencies, the economic stimulus funding in the American Recovery and Reinvestment Act of 2009 could be used far more efficiently to achieve a diverse set of closely related goals. One section of the act provides billions of federal dollars to fund a “smart grid” for electricity that connects a far more flexible and efficient grid for long-distance transmission to regional feeder lines and local hubs, and then to that “last mile” to residences and businesses. A different part of the act provides billions in funding to upgrade broadband networks for unserved and underserved areas around the country. The broadband network has the same essential structure as the electricity network—long-distance transmission or the “Internet backbone,” the feeder lines to local hubs or the “middle mile,” and the “last mile” to fixed and wireless users.

Both the smart-grid and broadband efforts involve substantial planning, spending on new wires, and the creation of major new digital infrastructure to connect homes in vastly expanded networks of information exchange. So here’s a simple and powerful idea—construction of the electricity grid and the broadband network should go hand in hand. And here is an even more powerful idea—we should combine these efforts with other parts of the Recovery Act, such as health care information technology, education reform, weatherization initiatives, and future policy initiatives to create a nationwide smart infrastructure.

Begin with the Recovery Act’s work on the electric grid and broadband network, which should be coordinated with an exciting array of other initiatives. Specifically:

- Commitments for expanded mapping of broadband infrastructure should be coordinated with energy infrastructure planning to benefit from shared right of ways, identification of environmentally sensitive areas, and other potential opportunities for coordination.
- Road construction at minimal extra cost can include conduit pipe for high-speed broadband fiber.
- Health information technology funding can turn health centers into hubs for better broadband for their communities.
- Libraries and schools can similarly be hubs that help their communities have better broadband.
- The home weatherization program can turn into a public-policy triple play, insulating homes, adding smart-grid technology, and installing broadband into qualifying homes all at the same time.

Three common-sense ideas can guide all of the agencies and programs to work together to build the smart infrastructure. The first is the simple mandate to only “dig once,” and the best time to build the smart infrastructure is when a construction crew is already on site. For instance, the Federal Highway Administration estimates that 90 percent of the cost of deploying broadband fiber in a public right of way is associated with digging up and repairing the road to install the buried fiber. The agencies should look for two-fer and three-fer—ways to update our electricity system, deploy broadband, and achieve other goals when spending the stimulus money.

This notion should be further expanded to include the second mandate to “plan once” while coordinating the front-end mapping and data analysis for a host of new information infrastructure projects. By planning once and then digging once we would be installing everything at the same time to reduce the number of times that any given home is touched. What’s more, this process would coordinate broadband, smart metering, and energy-efficiency retrofit work at the community level.

The third idea is to find anchor tenants. When developing a shopping mall, the key first step is to sign up “anchor tenants,” the large stores such as Macy’s or Sears that anchor a mall, with space for the smaller stores to fill in afterwards. The same principle applies to broadband networks and smart infrastructure projects. An anchor tenant such as a community college or health care center can help justify a bigger pipe for an entire community or small town. Once that bigger pipe is in place, residences and other businesses can take advantage of the pipe to gain better service at lower cost.

President Barack Obama stresses that the current stimulus funding should meet short-term goals of reviving demand and also long-term goals of investing in America’s future. We must not waste this opportunity to coordinate spending from the smart-grid, broadband, health IT, education, road construction, and other parts of the stimulus package. Instead, the idea of a “smart infrastructure” emphasizes that we can meet multiple goals, including energy efficiency, bringing next-generation services to the underserved, and creating the physical and information infrastructure that is essential for the future of our nation.

---

---

The Center for American Progress is a nonpartisan research and educational institute dedicated to promoting a strong, just and free America that ensures opportunity for all. We believe that Americans are bound together by a common commitment to these values and we aspire to ensure that our national policies reflect these values. We work to find progressive and pragmatic solutions to significant domestic and international problems and develop policy proposals that foster a government that is “of the people, by the people, and for the people.”

---

---

