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The Problem with Municipal Broadband and Solutions for Promoting Private Investment

by

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I. Introduction and Summary

The debate surrounding municipal broadband has been a hot topic in communications policy for a long time. Though the debate is presently somewhat overshadowed by the Federal Communications Commission's (FCC) *Open Internet* proceeding,¹ battles over municipal broadband continue. In February 2015, the FCC adopted the *Municipal Broadband Order*,² which attempted to preempt laws in North Carolina and Tennessee that restricted the implementation of municipal broadband networks. Ultimately, in August 2016, the FCC's order was overturned by the Court of Appeals for the Sixth Circuit.³ Currently more than 20 states have laws that either prohibit municipal governments from offering broadband or that impose

¹ See Federal Communications Commission, FCC-15-24, In Re Protecting and Promoting the Open Internet (March 12, 2015), available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf.

² City of Wilson, North Carolina Petition for Preemption of North Carolina General Statute Sections 160A-340 et seq., WC Docket No. 14-115, The Electric Power Board of Chattanooga, Tennessee Petition for Preemption of a Portion of Tennessee Code Annotated Section 7-52-601, WC Docket No. 14-116, Memorandum Opinion and Order (February 26, 2015), available at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-25A1.pdf.

³ State of Tennessee, et.al. v. FCC, et.al., 832 F.3d 597 (6th Cir. 2016).

requirements they must meet, sometimes including a requirement that they show a sufficient lack of private alternatives.⁴

So, despite the appeals court decision, and with the ongoing focus on trying to ensure nearly ubiquitous access to broadband, the debate still lingers. But are people focused on the right issues when they talk about the federal government's involvement in municipal broadband? Often they are not. This is because government-owned broadband networks are not the only way to reach presently unserved Americans, and for most areas they are not the best option. Instead, there are actions that Congress, the FCC, and state and local governments can take to reduce regulatory barriers and streamline processes relating to private broadband deployment to unserved areas. These actions, more often than not, are the preferable solution to the perceived problem of extending broadband access.

In this paper, we first discuss how municipal broadband projects often crowd out private investment, discourage competition, and burden taxpayers with long-term debt. Then, we will also explore policy proposals at the federal, state, and local levels that could encourage private broadband deployment in unserved areas. While the focus of this analysis is primarily on unserved areas with no broadband providers, much of the analysis also applies to underserved areas with little or no competition among providers.

From an economic perspective, municipal broadband networks usually are not the most efficient solution to the perceived market failure from lack of broadband access. Broadband does not fit the usual "public good" and "natural monopoly" justifications for government-run utilities. Public goods, like police protection, courts, public parks, and most roads, are non-rivalrous in consumption and the operators of public goods cannot exclude anyone who does not pay for the services. Broadband is not a public good because even when it is run by governments, broadband is provided as a pay service that excludes customers who do not pay for it. Broadband is not a natural monopoly because many areas are now served by multiple competing providers. The goal for local officials in most markets should be to try to encourage multiple broadband providers that must compete for customers.

Instead, the usual justification for municipal broadband is that having too few broadband providers chokes off opportunities for businesses and individuals who depend on reliable broadband access. Economists call this a "positive externality" argument, which means that suppliers are producing less than is socially optimal because they are not considering the spillover effects their decisions have on other parties. A "positive externality" refers to the effect the actions of buyers and sellers have on third parties, who usually are in the same geographical area and are favorably affected in some way by the transaction. In this case, the spillover effects are the economic benefits that may arise from businesses, entrepreneurs, schools, and other parties being able to use Internet access to grow their own businesses and hire more employees. Rather than resort to government ownership, the usual economic response to a positive externality is to encourage private firms to provide more of the service, usually by offering favorable regulatory treatment, tax incentives, or subsidies. Local governments make similar

⁴ Randolph J. May and Seth L. Cooper, "Comments of the Free State Foundation, Petition Seeking Preemption of Certain State Restriction on Municipal Broadband Networks" (August 29, 2014), available at: http://www.freestatefoundation.org/images/Muni_Broadband_Comments_082814.pdf.

positive externality arguments for justifying tax breaks, zoning changes, or regulatory changes that favor major employers considering moving to their jurisdiction.

Having a municipal broadband provider also necessarily leads to other problems. The local government is both the regulator and the provider, so it has both the incentive and the ability to favor the government-run service over private competitors. Any private firms considering investing in a market with a municipal broadband utility must be concerned that even if the current local government is benevolent toward the firms, a future local government may try to help a failing broadband utility by favoring it over private providers.

Another concern with municipal broadband projects is the financial risk for local and state governments. As the paper recently released by Christopher Yoo of the University of Pennsylvania, a member of FSF's Board of Academic Advisers, and Timothy Pfenninger of the University of Pennsylvania shows, the recent fiscal performance of government-run broadband utilities is very poor.⁵ Many have not been financially viable, which can threaten the solvency of the local government. Some have been sold off for a loss, which is absorbed by taxpayers. Local governments usually finance the project with debt, often using long-term bonds. This debt can become a burdensome obligation for a local government whose broadband utility does not live up to expectations. Some states may offer guarantees for local bonds, but that only shifts the burden of failure from local taxpayers to state taxpayers who receive little or no benefits from the local broadband service.

Local governments that want to increase broadband availability where it is otherwise unavailable should start with the approaches they use when trying to encourage employers to move to their area. They should lower regulatory barriers to private deployment, expedite permitting and licensing for entrants, and assist private providers in obtaining rights-of-way. If a state or local government concludes that these regulatory approaches are not sufficient, then they may want to consider carefully targeted subsidies to promote broadband deployment or partnering with a private provider. All these measures should be explored before resorting to creating a government-run broadband system.

There is much that Congress and the FCC can do to increase broadband deployment, spur investment, create jobs, and close whatever digital divide gap exists. Public policy should focus on broadband investment across all technologies by reducing barriers that stand in the way. The FCC is already considering proposals to streamline the application process for processing pole attachment requests for fiber and cable providers, to expedite the replacement of copper wire, and to prevent the enforcement of state and local laws that inhibit broadband deployment. Congress is also considering legislation to implement a "dig once" policy to encourage installing broadband conduits during the construction of highway projects, which would reduce costs for broadband providers in unserved areas.

To the extent that wireless and satellite broadband services are becoming practical alternatives to wireline broadband services, much of whatever case for government-run broadband that

⁵Christopher Yoo and Timothy Pfenninger, "Municipal Fiber in the United States: An Empirical Assessment of Financial Performance," University of Pennsylvania Law School's Center for Technology, Innovation and Competition (May 2017), available at: <https://www.law.upenn.edu/live/files/6611-report-municipal-fiber-in-the-united-states-an>.

otherwise presently exists would no longer apply. Even if only some significant proportion of municipal broadband subscribers switch to satellite or wireless broadband because those services meet their needs and are cost effective, that could threaten the already unstable financial viability of municipal broadband agencies, leaving local or state governments on the hook for future losses.

The FCC has made closing the digital divide, the gap between those who are online and those who are not, a high priority.⁶ Closing any digital divide that exists is an admirable goal that must focus on increasing broadband deployment but also on adoption. But municipal broadband networks, at best, are often only short-term solutions that lead to future economic problems. In most markets, finding ways to encourage private broadband deployment across all technological platforms is the best way to meet the broadband needs of the nation's citizens.

II. Municipal Broadband Is a Questionable Solution to the Perceived Economic Problem

Most goods and services in the United States, including in the telecommunications sector, are provided by private businesses. As a general rule, companies that are privately owned tend to perform more efficiently than government-run entities, because they usually are more responsive to price signals and changing market conditions. That is not to say that private ownership always leads to better economic outcomes than government ownership, but any proposals to create a municipal or state-wide broadband provider should not disregard these important efficiency advantages associated with private ownership.

Services provided by government-owned and operated entities are most common in two situations. The first is for “public goods,” or goods that are non-rivalrous in consumption and for which the operator cannot exclude anyone who does not pay for the service. Police protection, courts, public parks, and local roads all generally (but not invariably) fit the criteria for public goods, because they can be used by many residents at the same time without limiting the use by others and also because no one is excluded for not paying for the public goods. At one time, local fire departments were often private businesses that only served residents who paid for the services, but eventually municipal fire departments became widely accepted as a public good that should be provided through local governments. To get around the problem of no one having the incentive to pay for a public good because they will not be excluded for non-payment, governments typically fund the operation through various types of compulsory taxes that are not necessarily related to how much service residents use.

Of course, many of these services are not “pure” public goods. For example, congested roads do not meet the requirement that more people using them does not limit the use by others, and toll roads do not meet the requirement that no one can be excluded for not paying. Still, the concept of public goods is useful as a reference point for determining whether a service should be provided by a local government. Broadband is clearly not a public good, as the term has been used to justify other government-provided services, because both private and municipal broadband providers charge customers for the service and exclude those who do not pay.

⁶ See “FCC Chairman Ajit Pai Announces Broadband Deployment Advisory Committee Members, Working Groups, and Leadership” (April 6, 2017), available at: https://apps.fcc.gov/edocs_public/attachmatch/DOC-344285A1.pdf.

The second type of service sometimes provided by governments rather than private firms is a so-called “natural monopoly” service, or a service for which the fixed costs are so high that having a monopoly provider may be more efficient than having competing firms that all must charge high enough rates to cover the fixed costs. Some municipalities offer electricity, natural gas, trash collection, or sewage utilities, while in other markets these services are provided by private businesses. These services are not public goods, because customers who do not pay can lose their access to the service. If a “natural monopoly” service is not provided by the municipality, it is often instead provided by a single firm that is regulated as a public utility because it possesses monopoly power. When local governments provide such services, they are normally substituting a government agency for a regulated private monopolist, so residents do not receive many of the benefits of competition regardless of how the service is provided by a single provider.⁷

Treating a service like a “natural monopoly” is normally not a preferred policy option, because it prevents customers from enjoying the benefits of having multiple providers compete for their business. For broadband, many markets can be found today with multiple broadband providers competing for the business of local customers. The goal for local officials in most markets should be to try to encourage multiple broadband providers to compete for customers.

Instead of the traditional public good or natural monopoly justifications, the usual economic argument for municipal broadband is that too few private providers are making broadband available, which is choking off business opportunities for entrepreneurs and individuals who depend on reliable broadband access.⁸ This is a positive externality argument. The contention is that suppliers are producing less than is socially optimal because they are not taking into account the spillover effects their decisions have on other parties. In this case, the spillover is the economic benefits that may arise from businesses, entrepreneurs, schools, and other parties being able to use Internet access to grow their own businesses and hire more employees.

Positive externalities are observed in many markets. Economists normally recommend that if governments respond, they do so by encouraging private parties to increase their output. Economists generally find encouraging more private output is preferable to the government itself offering the product or service that has positive spillover effects. An example found in many economics textbooks is the positive externality created by beekeepers. Beekeepers sell the honey to customers, but neither may be considering the positive externality from the bees cross-pollinating surrounding fields, which is a benefit for nearby farmers. In response to this externality, the U.S. Department of Agriculture, several state governments, and private organizations offer subsidies to promote more beekeeping.⁹

⁷ Notably, trash collection, which is less like a natural monopoly than the other services, has been privatized in recent years to the point where over 75% of trash collection is now operated by private business. Many areas now have several competing trash collectors. See Harris Kenny, “Annual Privatization report: Solid Waste Update,” Reason Foundation (May 6, 2013) available at <http://reason.org/news/show/apr-2013-solid-waste>.

⁸ See, e.g., “Municipal Networks and Economic Development,” Community Networks (visited June 6, 2017), available at <https://muninetworks.org/content/municipal-networks-and-economic-development>.

⁹ See, e.g., Carl Evangelista, “Beekeeping Grants Support an Important Industry,” Grants Guys (October 21, 2014), available at <http://grantsguys.com/beekeeping-grants-support-an-important-industry/>.

Municipal governments often make a similar positive externality argument when trying to attract employers to their community. In such cases, local governments argue that the new employer will bring new jobs, so that the positive externality will occur when the new employees spend their money at other local businesses. Another externality benefit for the municipality may be increases in property taxes paid by the business and its employees. Therefore, in order to attract the new employer, or encourage an existing employer to expand, the municipality may offer property tax breaks, direct subsidies, or help with regulatory requirements, like favorable zoning changes. The municipality may also offer to improve roads or make other municipal improvements as part of a package to get the employer to commit to moving to the community.

It is important to note that we rarely see municipalities propose that the local government own and operate major new businesses themselves. Instead the usual response by municipalities to positive externalities is to focus on what they can do to increase private employment by encouraging businesses to locate or expand in their community.

III. Municipal Broadband Leads to Poor Economic Outcomes and Taxpayer Waste

The lack of fit between the economic problem and proposed solution described in the previous section is not the only reason to be concerned about proposals for new municipal broadband services. Municipal broadband providers are not just competitors to private providers, but also part and parcel of the local government, which may create several incentives for them to act in ways that often are not in the best interest of local broadband customers.

First, the municipal provider might not operate on a profit motive the way a private company would. While it may be argued that this will create lower prices for consumers, the more likely result is that the service provider has less incentive to operate efficiently and a greater incentive to pay its managers above-market rates. Moreover, many municipalities also expect their utilities to make annual payments to the local government each year, which may be the same or higher than if the broadband agency was paying dividends to shareholders. As discussed below, the track record of government-run broadband providers suggests that they generally are less efficient than private providers, so customers usually are better off with a private provider.

Second, once a municipal broadband provider begins operations, the incentives for other providers to enter the market are reduced. If other providers were considering entering the market, in most cases they will be less likely to enter, or they may delay their entry in favor of investments in other markets where they do not have to compete with a government provider. Municipal providers have an advantage over private providers because they can impose the burden of their inefficiencies onto taxpayers. In contrast, inefficient private providers cannot continuously operate at a loss and will eventually lose their customers to more efficient competitors. Therefore, if the problem in the local market is a lack of private broadband investment, having a municipal broadband system can drive off future private investment, and often will lead to the market having fewer providers in the long run than if private firms were encouraged to enter by virtue of sound government policy.

Third, as Professors David M. Konisky and Manuel P. Teodoro observe, besides the efficiency considerations, municipal agencies operate at another significant disadvantage when compared to private firms:

Private firms may pass the costs of regulatory compliance through to consumers relatively easily and without serious threat to competitiveness, so long as other firms must also comply with the regulation. By contrast... public agency managers must secure political support for the revenue increases, capital investments, and increased operating expenditures that regulatory compliance requires. Political constraints similarly limit government agencies' abilities to maintain financial reserves and organizational slack that might help address regulatory challenges. The effective cost of compliance is therefore greater for a public agency than for a private firm because the public agency manager bears these political costs alongside the direct costs of compliance. Consequently, public agencies tend to underprice their services and produce inferior quality relative to private firms.¹⁰

While Konisky and Teodoro were discussing regulatory compliance issues, the political constraints faced by municipal providers also apply to other costs of service and how they are passed on to customers. These political constraints may be less relevant in the early years of service, as municipal providers first enter the market and may start out highly competitive with private providers. However, over time, these political constraints on municipalities can lead to a growing threat to the financial viability of municipal services.

Fourth, in markets that have at least one private provider, having a municipal government enter and compete on an uneven playing field raises other concerns. The government operator could provide new competition, but likely would also have several incentives to make sure it succeeds at the expense of incumbent private broadband providers. Once a municipal provider is established, the local government managers may have a vested interest in advantaging the local provider. Its employees typically will be government employees, and the local government may be concerned that its reputation will be harmed if its broadband operations fail.

Thus, the municipal government may have an incentive to protect their market share, most likely through subsidies from taxpayers that are redirected from other municipal funds or regulatory requirements that are applied more favorably to municipal projects than to private firms. These actions subsequently drive off private investment, because private firms know that even if they can operate more efficiently than the municipal provider, the local government will have an incentive to make sure the private firms never get that chance.¹¹

Even if the current local government has no intention of driving off private broadband providers, private firms have no way of assessing whether future local government officials will be so benevolent. This uncertainty can discourage private investment even if government managers are not currently running the municipal government in a way that deliberately disadvantages private firms.

Fifth, if a municipal broadband provider is subsidized by the local government, either with direct payments or indirectly with exemptions from local taxes, ending the subsidies may be very difficult once they are started. The subsidies can become self-perpetuating, as the subsidized

¹⁰ David M. Konisky and Manuel P. Teodoro, "When Governments Regulate Governments," *American Journal of Political Science*, Vol. 60, No. 3 (July 2016), 559, 560-61 (citations omitted).

¹¹ Jerry Ellig, "A Dynamic Perspective on Government Broadband Initiatives," Reason Foundation (November 2006), available at: <http://reason.org/files/cf0c4a2d38f923ab20a190e88b7e877e.pdf>.

activity drives off private investment, enabling municipal managers to argue that additional subsidies are needed for a failing broadband utility because too little private investment is coming into the market. Moreover, leaders of municipal and government-run broadband projects have little incentive to decrease their network's budget, which can lead to waste and misallocation of resources, which may lead to additional losses that require still greater subsidies.¹²

Finally, the financing of municipal broadband policies can be very risky for local and state governments. Local governments generally do not have enough cash on hand to finance the project without borrowing, often using long-term bonds.¹³ Some states may offer guarantees for local bonds, which shifts the burden of failure from local taxpayers to state taxpayers who received no benefits from the local broadband service.

A new study by Professor Christopher Yoo of the University of Pennsylvania, a member of FSF's Board of Academic Advisers, and Timothy Pfenninger of the University of Pennsylvania surveys twenty municipal fiber projects in the United States and provides an in-depth analysis of several of them. This study finds:

A closer examination of specific projects reveals that the risks and consequences are quite real. Many cities managing these projects have faced defaults, reductions in bond ratings, and ongoing liability, not to mention the toll that troubled municipal broadband ventures can take on city leaders in terms of personal turmoil and distraction from other matters important to citizens. City leaders should carefully assess all of these costs and risks before permitting a municipal fiber program to go forward.¹⁴

Thus, it is not surprising that many state legislatures have preempted local governments from establishing new municipal broadband utilities. Texas prohibits any municipalities from offering broadband services, while other states require ballot initiatives or in-depth cost-benefit analyses before municipalities can move forward. More common are requirements that local governments show an unwillingness by private providers to enter the local broadband market. States have a legitimate interest to make sure their political subdivisions act in a financially responsible way and to protect their residents from risky, ill-conceived burdensome municipal ventures. States also have legitimate reasons to be concerned about local governments both competing with and regulating private broadband services.¹⁵

¹² Gordon Tullock, "The Transitional Gains Trap." *The Bell Journal of Economics* 6, no. 2 (1975): 671-78, available at: www.jstor.org/stable/3003249.

¹³ For example, a current proposal to create a municipal broadband service in Traverse City, Michigan, assumes financing with 20-year bond and that the project will break even in the 11th year. Hannah Trostle, "A String of Municipal Network Ideas: Traverse City Mulls Options," *Community Networks* (April 17, 2017), available at <https://muninetworks.org/content/string-municipal-network-ideas-traverse-city-mulls-options>.

¹⁴ Christopher Yoo and Timothy Pfenninger, "Municipal Fiber in the United States: An Empirical Assessment of Financial Performance," University of Pennsylvania Law School's Center for Technology, Innovation and Competition (May 2017), available at: <https://www.law.upenn.edu/live/files/6611-report-municipal-fiber-in-the-united-states-an>.

¹⁵ Randolph J. May and Seth L. Cooper, Comments of the Free State Foundation, *Petition Seeking Preemption of Certain State Restriction on Municipal Broadband Networks* (August 29, 2014), available at: http://www.freestatefoundation.org/images/Muni_Broadband_Comments_082814.pdf.

IV. Evidence from Markets with Municipal Broadband

Local government officials often tout municipal broadband projects as providing the residents more jobs and economic growth. The evidence, however, of municipal broadband promoting economic activity and opportunities for entrepreneurs is weak and mostly anecdotal. In fact, the opposite may be true. A 2014 paper by Brian Deignan at the Mercatus Center found that municipal broadband networks increase business establishments by 3%, but have a negative effect on worker incomes and have no effect on private employment. Deignan also found that local government employment increases by 6%. Deignan concludes that any evidence of private sector growth due to municipal broadband deployment is “not large enough to ignore the growth in local government and the financial stress that publicly supported broadband puts on a community.”¹⁶

Despite the lack of evidence that municipal broadband leads to positive economic outcomes, municipalities continue to adopt broadband projects that often end up millions of dollars in debt. In July 2016, the Taxpayers Protection Alliance published a study profiling twelve failed municipal broadband projects. These projects include the municipal fiber-optic network in Provo, Utah, which cost \$39.5 million to build, but failed to keep up with consumer demand and technological innovation and ultimately was sold to Google for \$1. Similarly, the municipal network in Tacoma, Washington, currently loses about \$9 million a year and is projected to run a deficit of \$37.4 million over the next five years. Another questionable project is KentuckyWired, a statewide fiber optic cable network that is costing taxpayers \$350 million, even though more than 150 broadband providers are offering service throughout the state of Kentucky.¹⁷

Proponents of municipal broadband often point to the Chattanooga, Tennessee, network as the “gold standard” for government-run networks. President Obama praised the project in a January 2015 speech promoting community broadband.¹⁸ That network cost \$323 million to build, but had the advantage of receiving a \$50 million subsidy from the municipal electric power operations. It also received \$111 million in federal stimulus funds, a subsidy that seems unlikely to be available for future municipal broadband projects. The study by Yoo and Pfenninger considers only the \$173 million in funding that was not covered by subsidies and shows that even though the Chattanooga network is cash-flow positive, its rate of return is so small that it will take 412 years to break even.¹⁹

¹⁶ Brian Deignan, “Community Broadband, Community Benefits? An Economic Analysis of Local Government Broadband Initiatives,” *Mercatus Graduate Policy Essay*, No. 17 (Summer 2014), available at: https://asp.mercatus.org/system/files/MGPE_Deignan_0.pdf.

¹⁷ “The Dirty Dozen: Examining the Failure of America’s Biggest & Most Infamous Taxpayer-Funded Broadband Networks,” Taxpayers Protection Alliance (July 2016), available at: <https://www.protectingtaxpayers.org/assets/files/TPA-Dirty-Dozen-Report-July2016.pdf>.

¹⁸ Remarks by the President on Promoting Community Broadband, Cedar Falls, Iowa (January 14, 2015), available at: <https://obamawhitehouse.archives.gov/the-press-office/2015/01/14/remarks-president-promoting-community-broadband>.

¹⁹ Christopher Yoo and Timothy Pfenninger, “Municipal Fiber in the United States: An Empirical Assessment of Financial Performance,” University of Pennsylvania Law School’s Center for Technology, Innovation and Competition (May 2017), available at: <https://www.law.upenn.edu/live/files/6611-report-municipal-fiber-in-the-united-states-an>.

Despite the weak performance of the Chattanooga broadband provider even after receiving subsidies, it is performing better than most municipal broadband agencies. Professor Yoo finds that financial distress is common among municipal fiber projects:

Of the 20 municipal fiber projects that reported the results of their municipal fiber operations separately, eleven generated negative cash flow. Unless operations improve substantially, these projects cannot continue to operate over the long haul, let alone cover the capital costs needed to establish operations. Of the others, five are projected to take more than 100 years to recover their costs, and two others are projected to take over 60 years. Only two are on track to break even, and one of those is based on a highly urban, business-oriented model that few other cities are likely to be able to replicate, and the other includes data from two years of stronger performance when it offered only DSL service.²⁰

V. How Local Government Can Better Promote Private Investment in Unserved Areas

Municipal broadband is not the only solution to deploying broadband in unserved areas. Often local governments have other options available that are a better fit for the perceived market failure from having too little broadband available.

In particular, local governments that want to increase broadband availability should start with the approaches they use when trying to encourage employers to move to their area. Local governments should lower regulatory barriers to private deployment, expedite permitting and licensing for entrants, and assist private providers in obtaining rights-of-way. Encouraging private investment will create dynamic competition in local markets across the country and will help deliver the vast economic benefits of broadband access to unserved areas. If a state or local government concludes that these regulatory approaches are not sufficient, they may want to consider subsidies to promote broadband deployment or partnering with a private provider.²¹

Some states are already taking important steps toward finding alternative ways to expedite private broadband deployment. For example, the Tennessee legislature this year rejected a bill that would have allowed expansion of the Chattanooga network and instead passed a bill authorizing additional subsidies for private broadband providers.²² Presumably Tennessee's approach is based on what it has learned from its experience with the Chattanooga municipal broadband system.

VI. How Congress and the FCC Can Reduce Regulatory Barriers to Incentivize Private Investment in Unserved Areas

Since Ajit Pai took over as Chairman of the FCC in January 2017, the Commission has proposed several initiatives to reduce regulatory barriers that slow the deployment of broadband. One of

²⁰ Id.

²¹ In addition to its current proposal to create a municipal broadband service, Traverse City, Michigan, is also considering a proposal to partner with a private broadband provider. Hannah Trostle, "A String of Municipal Network Ideas: Traverse City Mulls Options," *Community Networks* (April 17, 2017), available at <https://muninetworks.org/content/string-municipal-network-ideas-traverse-city-mulls-options>.

²² Josh Cohen, "Tennessee Bills Send Message on Municipal Broadband, Next City (April 20, 2017), available at <https://nextcity.org/daily/entry/tenneese-municipal-broadband-bills>.

the first things Chairman Pai did was to establish the Broadband Deployment Advisory Committee, which will advise the Commission on “how to accelerate the deployment of high-speed Internet access, or broadband, by reducing and removing regulatory barriers to infrastructure investment.”²³ In addition, for rural areas with high costs, private investment in mobile or satellite broadband deployment could be an alternative to a government-run broadband project.

Congress and the FCC should continue to focus on removing or reducing regulatory and licensing barriers, which exacerbate the digital divide by preventing private broadband providers from delivering service to every American. The FCC and Congress are currently considering the following proposals to promote private investment and innovation among all broadband technologies.

Wireline Broadband

The FCC recently adopted a notice of proposed rulemaking (NPRM) which purports to “accelerate wireline broadband deployment by removing barriers to infrastructure investment.”²⁴ If the Order is adopted, these rules would streamline the application process for examining pole attachment requests, which currently take up to five months. Expediting this process would not only make it easier for fiber and cable providers to deploy in a timely and efficient manner, but it would advance small cell deployment by creating much-needed backhaul for the implementation of 5G technology.

The NPRM also would expedite copper retirement. Currently, a broadband provider must wait 180 days after the FCC’s public notice is released before it can continue with retiring an old copper network. This unnecessary requirement has stifled the implementation of next-generation technologies. Additionally, incumbent local telephone companies are prohibited from disclosing any information about planned network changes, which hinders competition by constraining the free flow of information. When one provider plans to make upgrades to a network, it signals to competitors a market for innovation. We saw this type of market signaling recently in the wireless market with the re-emergence of unlimited data plans.²⁵ The NPRM would eliminate this regulation.

The FCC also adopted a Notice of Inquiry (NOI) seeking comment on specific areas where the Commission could use its authority to prevent the enforcement of state and local laws that inhibit broadband deployment.²⁶ The FCC is collecting information on laws and regulations that artificially increase construction costs, create excessive delays in approvals for rights-of-way agreements, or impose fees that slow the provision of broadband services. The FCC could create a national standard for state and local broadband regulations and reduce exorbitant deployment fees across the country. Doing so would lessen the burden of regulatory compliance among large

²³ FCC Chairman Ajit Pai Announces Broadband Deployment Advisory Committee Members, Working Groups, and Leadership (April 6, 2017), available at: https://apps.fcc.gov/edocs_public/attachmatch/DOC-344285A1.pdf.

²⁴ Accelerating Wireline Broadband Deployment by Removing Barrier to Infrastructure Investment, WC Docket No. 17-84 (April 20, 2017), available at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-37A1.pdf.

²⁵ Michael J. Horney, “Free Market Orientation Spurs Unlimited Data Plans,” FSF Blog (March 23, 2017), available at: <http://freestatefoundation.blogspot.com/2017/03/free-market-orientation-spurs-unlimited.html>.

²⁶ Accelerating Wireline Broadband Deployment by Removing Barrier to Infrastructure Investment, WC Docket No. 17-84 (April 20, 2017), available at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-37A1.pdf.

and small broadband providers and would streamline the administrative process behind broadband deployment.

Congress is now considering the Broadband Conduit Deployment Act, which would implement a “dig once” policy.²⁷ Dig once means that, if there is a need, broadband conduits will be installed during the construction of covered highway projects, reducing the costs for broadband providers and freeing more resources for investment in rural and remote areas. A study by the Government Accountability Office found that dig once policies can save 25% to 33% on construction costs in urban areas and 16% in rural areas.²⁸ A dig once policy would help deploy broadband deployment in areas that have limited access, and this deployment will also create backhaul opportunities for the implementation of 5G wireless technology.

Wireless Mobile Broadband

Wireless mobile broadband is growing faster than any other broadband technology. Cisco’s Mobile Data Traffic update projects mobile traffic in the U.S. to increase fivefold from 2016 to 2021.²⁹ Additionally, according to an Accenture Strategy report, 5G technology will deliver up to 100 times faster speeds than 4G, creating \$275 billion in investment, 3 million jobs, and \$500 billion in gross domestic product.³⁰

Though past Commissions have failed to acknowledge mobile broadband may be a substitute for wireline broadband, the data shows that consumers across all income levels are dropping their wireline connections and becoming mobile-only.³¹ Chairman Pai stated in a recent interview that he believes mobile broadband is a substitute for wireline broadband.³² This is an important acknowledgement that is relevant to considering whether mobile connections (and even satellite connections as we will discuss below) are viable solutions for customers in rural areas. In some reports, the FCC has failed to include mobile broadband in its analysis of the broadband market, but that is no longer appropriate.³³

Access to mobile broadband is prevalent in the United States. According to the FCC’s *Nineteenth Report on Wireless Competition*, in January 2016, 99.7% of the U.S. population had

²⁷ Broadband Conduit Deployment Act of 2017, available at: <http://docs.house.gov/meetings/IF/IF16/20170321/105740/BILLS-115pih-BroadbandConduitDeploymentActof2017.pdf>.

²⁸ Michael J. Horney, “Congress Should Implement a Dig Once Policy,” *FSF Blog* (April 3, 2017), available at: <http://freestatefoundation.blogspot.com/2017/04/congress-should-implement-dig-once.html>.

²⁹ Michael J. Horney, “Cisco Forecasts Continued Extraordinary Mobile Traffic Growth,” *FSF Blog* (February 24, 2017), available at: <http://freestatefoundation.blogspot.com/2017/02/cisco-forecasts-continued-extraordinary.html>.

³⁰ “Smart Cities: How 5G Can Help Municipalities Become Vibrant Smart Cities,” Accenture Strategy (2017), available at: <https://www.ctia.org/docs/default-source/default-document-library/how-5g-can-help-municipalities-become-vibrant-smart-cities-accenture.pdf>.

³¹ Michael J. Horney, “NTIA Study Shows Mobile Is a Substitute for Fixed at All Income Levels,” *FSF Blog* (April 19, 2016), available at: <http://freestatefoundation.blogspot.com/2016/04/ntia-study-shows-mobile-is-substitute.html>.

³² “A New Course for the FCC: A Conversation with FCC Chairman Ajit Pai,” *American Enterprise Institute*, (May 5, 2017), available at: <http://www.aei.org/events/a-new-course-for-the-fcc-a-conversation-with-fcc-chairman-ajit-pai/>.

³³ Seth L. Cooper and Michael J. Horney, “The FCC’s Internet Access Report Ignores Broadband Market Realities,” *Perspectives from FSF Scholars* Vol. 11, No. 31 (August 25, 2016), available at: http://freestatefoundation.org/images/The_FCC_s_Internet_Access_Report_Ignores_Broadband_Market_Realities_082516.pdf.

access to at least one 4G provider. Moreover, 98.8% had access to two or more 4G providers, 95.4% had access to three or more 4G providers, and 86.8% had access to four or more 4G providers.³⁴ It will not be long before 5G is the new standard for mobile broadband and with speeds up to 100 times faster than 4G, the trend of consumers substituting mobile broadband for wireline broadband likely will continue.

Similar to the wireline NPRM, the FCC adopted a wireless NPRM³⁵ with the hopes of identifying regulatory barriers and examining how the Commission could act to remove or reduce those barriers. For example, the NPRM would streamline state and local approval processes by requiring applications to be “deemed granted” if agencies exceed their designated “shot clock” for the review process. The proposal would require state and local agencies to act within a reasonable time period when assessing applications for 5G and small cell deployment. State or local regulatory barriers to 5G deployment will not only hinder economic activity in those specific areas, but they will also lose out on government cost savings. Through the use of 5G technology, “smart cities” can cut local government spending by automating street lights, optimizing public transportation, and mitigating traffic congestion with vehicle-to-vehicle communication.

It is difficult to discuss mobile broadband without mentioning the increasing consumer demand for mobile data and impending need for more spectrum. In an April 2017 *Perspectives*, Free State Foundation Visiting Fellow Gregory Vogt described how the proposed MOBILE NOW Act would repurpose unused government spectrum for commercial wireless broadband use.³⁶ The proposed MOBILE NOW Act legislation would allocate at least 255 MHz of spectrum below 6 GHz for mobile and fixed broadband by the end of 2020. With mobile traffic projected to increase fivefold in the United States by 2021, Congress should make it a priority to provide the necessary spectrum to keep up with consumer demand.

Satellite Broadband

Like mobile, satellite broadband often has been dismissed as a substitute for wireline broadband. However, this technology is rapidly becoming more competitive with wireline broadband. According to the FCC’s Internet Access Service Report as of June 30, 2016, satellite broadband is accessible to 99.1% percent of census blocks at speeds of at least 10 Mbps downstream and 1 Mbps upstream.³⁷

Although these speeds likely are adequate for many consumers who currently have no Internet connection, many satellite connections do not fit the FCC’s definition of “broadband” at 25 Mbps downstream and 3 Mbps upstream. But this is quickly starting to change. In March 2016,

³⁴ Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, Nineteenth Report (September 23, 2016), available at: https://apps.fcc.gov/edocs_public/attachmatch/DA-16-1061A1.pdf.

³⁵ Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, WT Docket No. 17-79, (April 20, 2017), available at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-38A1.pdf.

³⁶ Gregory Vogt, “Now Is the time for MOBILE NOW,” *Perspectives from FSF Scholars* Vol. 12, No. 15 (April 28, 2017), available at: <https://www.fcc.gov/document/fcc-takes-steps-to-promote-wireless-broadband-deployment>.

³⁷ Internet Access Services: Status as of June 30, 2016, Industry Analysis and Technology Division, Wireline Competition Bureau, (April 2017), available at: http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0503/DOC-344499A1.pdf.

Hughes Network Systems unveiled a residential broadband plan called HughesNet Gen5, connecting consumers to 25 Mbps down and 3 Mbps up for \$49.99 a month.³⁸ As innovation continues to occur in the satellite broadband market, the FCC should adopt rules that would streamline satellite deployment and market the technology as a viable solution to closing the gap of the digital divide.

In May 2017, Patricia Cooper, Vice President of Satellite Government Affairs at SpaceX, testified before the Senate Committee on Commerce, Science and Technology discussing ways the FCC and Congress can reduce barriers for satellite broadband deployment. She said the following in her testimony:

While more than twenty-three million Americans living in rural areas account for the majority of those who lack access, nearly ten million Americans living in non-rural areas also lack basic access to high-speed internet service. As this Committee well knows, the U.S. lags behind other developed nations in both its broadband speed and in price competitiveness, and many rural areas are simply not served by traditional broadband providers due to the high capital expenditure required for last-mile infrastructure relative to low revenue opportunities.³⁹

She goes onto to say:

Despite a diverse set of technology platforms currently serving the ever-growing demand for broadband, from terrestrial fiber and cable systems to mobile cellular networks and, to a lesser degree, space-based systems, many parts of the United States and the world lack access to reliable broadband connectivity. However, next-generation satellite systems operating in orbits close to the Earth, with innovative technologies to provide rapid data rates and minimal latency, may offer a way around this gap in broadband access in the United States.⁴⁰

On May 18, 2017, the FCC adopted an NPRM to streamline satellite broadband deployment.⁴¹ This proposal would “integrate the three types of Earth Stations in Motion (ESIM) into a single regulatory category,” simplifying the regulatory approval process for ESIM, reducing the regulatory burden on applicants, and increasing the efficiency in the processing applications. It would do so by relaxing requirements for antenna pointing and frequency-band usage, enabling satellite broadband providers to experiment with consumer-friendly innovations.

³⁸ Alex Knapp, “Hughes Network Systems Is Launching High-Speed Satellite Internet For North America,” *Forbes*, (March 13, 2017), available at: <https://www.forbes.com/sites/alexknapp/2017/03/13/hughes-network-systems-is-launching-high-speed-satellite-internet-for-north-america/#23b607735ace>.

³⁹ Statement of Patricia Cooper, Vice President of Satellite Government Affairs, Space Exploration Technologies Corporation, Before the Committee on Commerce, Science & Technology, United States Senate (May 3, 2017), available at: <https://www.commerce.senate.gov/public/cache/files/6c08b6c2-fe74-4500-ae1d-a801f53fd279/655C5CBED75A50881172C1E9069D91E6.testimony-patricia-cooper---broadband-infrastructure-hearing.pdf>.

⁴⁰ Id.

⁴¹ Amendment of Parts 2 and 25 of the Commission’s Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed Satellite Service, IB Docket No. 17-95 (May 18, 2017), available at: http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0522/FCC-17-56A1.pdf.

In addition to this important action by the FCC, Congress should include satellite infrastructure deployment in any infrastructure legislation. Satellite broadband infrastructure includes launch facilities, consumer terminals placed on homes or businesses, hundreds of points of presence throughout the U.S., large antennas for controlling the satellites, and satellite operations centers. As with other broadband technologies, federal legislation can create guidelines that prevent states and municipalities from imposing unnecessary regulations or excessive licensing fees and taxes that discourage the adoption of satellite broadband.

Conclusion

For Americans who live in unserved areas, the prospect of municipal or government-run broadband can seem appealing. The poor financial performance by actual government-run broadband systems shows that the risks have usually far outweighed the rewards. Instead, government-run broadband has provided, at best, a short-term solution that creates public debt with networks that often fail to keep up with technological innovation. Economic theory and historical evidence demonstrate that a broadband utility usually is not the most efficient solution to the perceived market failure a municipality is trying to address. Instead, governments should focus on regulatory and legal barriers that may have created the perceived market failure and consider other ways they can encourage investment by private providers.

There is much that Congress and the FCC still can do to increase broadband deployment, spur investment, create jobs, and close whatever digital divide gap exists. Public policy should focus on promoting broadband investment across all technologies by reducing barriers that stand in the way.

To the extent that wireless and satellite broadband networks can become practical alternatives to wireline broadband, much of the case for government-run broadband no longer applies. Even if only some significant proportion of municipal broadband subscribers switch to satellite or wireless broadband networks because they meet their needs and is cost effective, that could threaten the already unstable financial viability of municipal broadband agencies, leaving their local or state governments on the hook for future losses.

Continuing investment and innovation in broadband technologies will be the key to deploying Internet access ubiquitously. Encouraging more private investment, whether by lowering regulatory barriers and/or by providing carefully targeted government support to private firms, offers the most sustainable solution to the problem of unserved markets for broadband, but without the significant problems associated with government-run broadband.

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