May 5, 2021

The Honorable Michael Doyle
Chairman
Subcommittee on Communications & Technology
2125 Rayburn House Office Building
Washington, DC 20515

The Honorable Robert Latta
Ranking Member
Subcommittee on Communications & Technology
2125 Rayburn House Office Building
Washington, DC 20515

Re: Broadband Equity: Addressing Disparities in Access and Affordability

Dear Chairman Pallone and Ranking Member

The Electronic Frontier Foundation (EFF) has been at the forefront of studying the future of broadband access in the high-speed market. It has conducted in-depth research that has produced both legal and technical publications on the issue. EFF's goal for broadband access is the deployment of universally available, affordable, and competitive high-speed networks. EFF focuses on, and recommends the government do the same, fiber-optic infrastructure because it is the only data-transmission medium capable of delivering 1) low-latency connections to homes; 2) speed upgrades for generations to come that far exceed alternative last mile options; 3) substantial cost savings to government subsidy efforts for low-income access; 4) ubiquitous 5G coverage and low earth orbit satellites, as it is a necessary component for both of these alternatives.

The disparity in broadband access extends far beyond the digital divide and beyond just rural markets. The pandemic revealed conclusively that differing infrastructures yield very different results in broadband speeds, capacity, pricing, and most importantly capability to deliver access in coordination with government support efforts. During the pandemic, some communities were able to get access to free gigabit broadband services,[1] while others were forced to spend large sums of funding to rent out capacity limited mobile hotspots. At the heart of all of this is how much fiber wireline infrastructure, a conclusively superior medium for transmitting data,[2] is present in a community and its proximity to residential homes. Even a single nearby fiber strand can mean the difference between being able to support a mesh wireless network delivering 100s of Mbps of wireless broadband access or being forced to subsidize internet access services options that fall below even the outdated 2015 federal definition of broadband.

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[1] BERKELEY PUBLIC SCHOOLS, *Sonic to Offer Free Gigabit Internet to BUSD Student Households* (Feb 11, 2021), *available at* https://www.berkeleyschools.net/2021/02/sonic-to-offer-free-gigabit-fiber-internet-to-busd-student-households-sonic-ofrecera-internet-de-fibra-optica-gratis-en-los-hogares-de-estudiantes-de-busd.; WRCB Staff, *Hamilton County Schools Announce Initiative to Help Thousands of Students Gain Internet Access*, WRCBTV (Jul. 29, 2020), available at https://www.wrcbtv.com/story/42427727/update-hamilton-county-schools-announce-initiative-to-help-thousands-of-students-gain-internet-access.

[2] Bennett Cyphers, *The Case for Fiber to the Home, Today: Why Fiber is a Superior Medium for 21st Century Broadband*, EFF Deeplinks Blog (Oct 11, 2019), https://www.eff.org/files/2019/10/15/why_fiber_is_a_superior_medium_for_21st_century_broadband.pdf.

Federal policy can remedy these inequities by addressing digital redlining in dense urban markets where deployment is being done in a socio-economically discriminatory fashion, identifying where fiber wireline infrastructure is located in order to facilitate sharing, and enabling various public and public/private models of fiber infrastructure with a substantial investment by local, state, and the federal government.

Digital Redlining Must Be Banned by the FCC and the States

Study[3] after study[4] shows that major national ISPs have decided to invest in fiber-optic infrastructure mostly in wealthy neighborhoods in large, densely populated cities while skipping low-income neighborhoods in those same cities. The result of this "digital redlining" is the formation of a first- and second-class broadband infrastructure where wealthy communities easily access 21st century opportunities with low-cost, fast internet while everyone else is left behind. This is different than the rural challenge, which is that of access and cost challenges due to density. The rural challenge can be solved by public investment in public infrastructure—such with the passage of Majority Whip Clyburn's Accessible, Affordable Internet for All Act. The problem of digital redlining, however, stems from the extra profitability of discrimination even in otherwise generally profitable to serve communities and must be stopped through regulation.

Make no mistake: communities that do not receive investments in fiber infrastructure will, over the years, face more expensive plans for worse access. They will not only miss out on the benefits of faster services, but over time, the costs of provisioning broadband to them will increase while failing to keep up with demand.[5] As applications and services continue to require more bandwidth, a community left with an underinvested legacy infrastructure will simply be unable to fully utilize the Internet and no amount of government subsidy effort will reverse that without considering the infrastructure.

A driving factor for digital redlining of fiber deployments stems from the three-to-five year return on investment formulas major ISPs have self-imposed. This emphasis on delivering fast profits is incompatible with making long term investments in fiber infrastructure. A longer, 10-year return on investment formula radically changes the deployment plan of an ISP, as evidenced by Frontier Communications bankruptcy filings, suddenly finding an additional 3 million of its customers profitable to serve with fiber under the new formula.[6] The absence of regulation drives major incumbent ISPs towards shorter timeframes for their investors and more discrimination.

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[3] Galperin, H., Bar, F., Kim, A.M., Le, T.V., Daum, K., *Who Gets Access to Fast Broadband? Evidence from Los Angeles County, Spatial Analysis Lab at USC Price*, Annenberg School for Communication (Sept. 2019), http://arnicusc.org/wp-content/uploads/2019/10/Policy-Brief-4-final.pdf.

[4] Communications Workers of America & National Digital Inclusion Alliance, *AT&T's Digital Redlining Leaving Communities Behind for Profit* (Oct. 2020), available at https://cwa-union.org/sites/default/files/20201005attdigitalredlining.pdf.

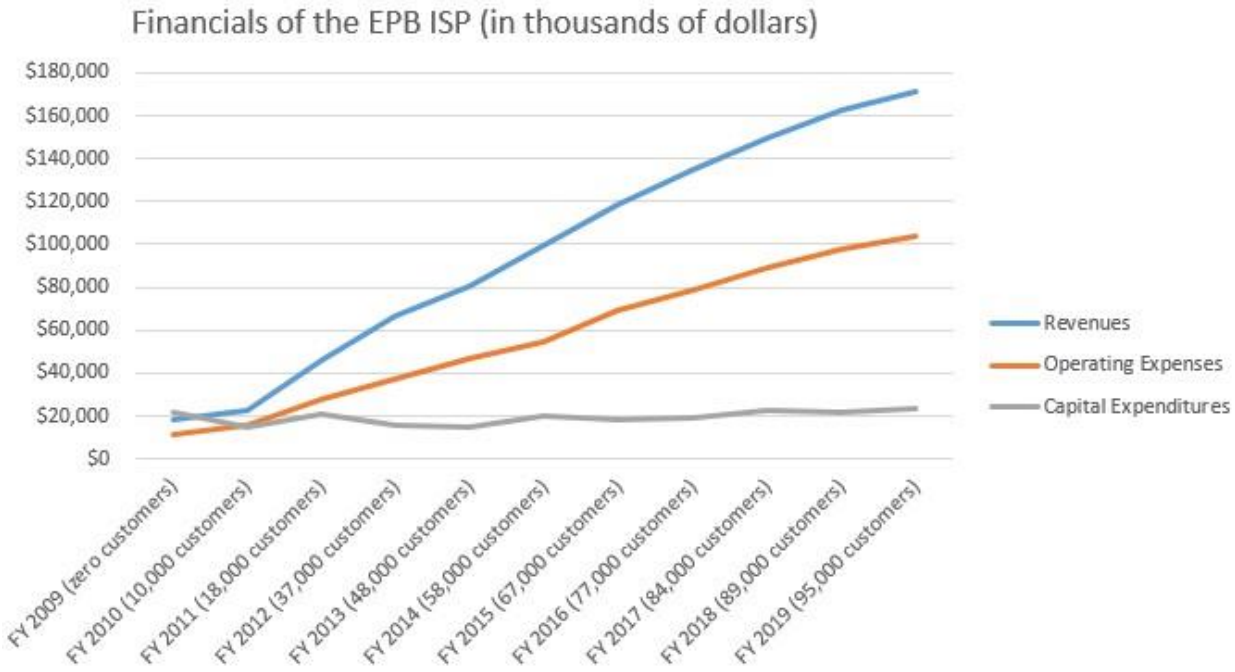
[5] State of New Mexico Broadband Strategic Plan and Rural Broadband Assessment (2020) at page 89, available at https://www.ctcnet.us/wp-content/uploads/2020/07/New-Mexico-Broadband-Strategic-Plan-20200616.pdf.

[6] Frontier Communications, *Presentation to Unsecured Bondholders* (Jan. 2020), *available at* https://www.sec.gov/Archives/edgar/data/20520/000114036120007104/nc10009883x2_ex99-1.htm.

Historically, regulations prohibiting deployment based on socioeconomic status resulted in ubiquitous equivalent access in major cities and the same will be true with a reapplication of build-out rules today.

There should be no doubt that major cities are completely profitable to serve ***in their entirety*** for large incumbent ISPs ***without*** government subsidy because they have sufficient density and subscriber base to generate profits at the aggregate level while deploying ubiquitous fiber. Yet, the absence of rules to require large incumbent ISPs to adopt universal deployment plans that reach everyone results in discriminatory deployment.

For example, Oakland, California has a density of 7,004 people per square mile,[7] rating it as one of the most densely populated cities in the U.S. However, systemic digital redlining has occurred coinciding with housing discrimination patterns of the past.[8] By comparison, Chattanooga, Tennessee[9] has around 1/5th the population density of 1,222 per square mile, yet full deployment of fiber to the home (FTTH) has occurred with revenues far exceeding costs. Chattanooga's public financial data shows that only a fraction of the population is necessary to cover the costs of providing a FTTH network to an entire community—with revenues outpacing the costs of adding new customers year after year (see chart below) and upgrade costs to future speeds barely impacting the operations costs of the ISP due to it being a fiber network.



[7] UNITED STATES CENSUS, Oakland, *available at* https://www.census.gov/quickfacts/oaklandcitycalifornia.
[8] Vinhcent Le and Gissela Moya, *On the Wrong Side of the Digital Divide: Life Without Internet Access, and Why We Must Fix It in the Age of COVID-19*, THE GREENLINING INSTITUTE (June 2, 2020), https://greenlining.org/publications/online-resources/2020/on-the-wrong-side-of-the-digital-divide.
[9] UNITED STATES CENSUS, Chattanooga city, Tennessee, *available at* https://www.census.gov/quickfacts/chattanoogacitytennessee .

Moreover, a recent study of the cost of bandwidth and the prices consumers pay found that Chattanooga's costs for bandwidth are comparable with the most competitive markets in the world.[10] In essence, not only do major ISPs try to boost their profits by discriminating against low-income neighborhoods, but they charge high-income neighborhoods far more for high-speed access than they would in a more competitive climate.

To the extent local barriers inhibit an ISP from deploying, federal policy enforced by the FCC can establish a process to eliminate barriers that result in making otherwise economically feasible-to-serve households infeasible. ISPs can demonstrate those barriers by detailing how a specific community's cost per household is significantly above a comparable market due to local factors. In exchange for intervention, a build-out deadline would be attached to the regulatory benefit. However, should the FCC determine that no meaningful barriers exist that prohibit an ISP from fully serving the entirety of a major city with equivalent services, then the ISP either remedies the situation with a build-out plan or the FCC should intervene to promote short term and long term solutions.

Such short-term remedies could include requiring the provider to open up their existing fiber to other smaller ISPs so that they can serve those communities. This enables smaller providers the ability to generate revenue and finance their own fiber deployments. Longer term solutions require a revisiting of the 2005 FCC decision to not require the sharing of incumbent fiber infrastructure to promote competition. Clearly if fiber infrastructure is not reaching everyone even in commercially feasible markets, the original premise of the FCC's 2005 decision to abandon the sharing of fiber infrastructure was wrong. EFF's own research into the regulatory justifications to not require sharing obligations of fiber infrastructure by established incumbents in light of the lack of competition and fiber deployment have not panned out today.[11] A new approach can yield significant improvements in the broadband market. For example, South Korea required fiber infrastructure to be shared in order to quickly promote national high-speed 5G coverage.[12]

Communities Have No Readily Identifiable Way to Locate Fiber Infrastructure to Facilitate Local Solutions

Access to existing fiber capacity at competitive market rates can enable small wireless ISPs to assist their local communities' broadband needs. For example, Common Networks serves much of the low-income community within Alameda County, California[13] because it had access to

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[10] Becky Chao & Claire Park, *The Cost of Connectivity*, Open Technology Institute (Jul. 15, 2020), available at https://www.newamerica.org/oti/reports/cost-connectivity-2020.

[11] Elliott Browning, *Managing Last-Mile Monopolists: Reevaluating Sharing Obligations for the Modern U.S. Wireline Broadband Market*, ELECTRONIC FRONTIER FOUNDATION (Mar. 22, 2019), https://tlpc.colorado.edu/wp-content/uploads/2019/05/2019.05.22-TLPC-EFF-Broadband-Sharing-White-Paper-Final.pdf.

[12] Joseph Waring, *KT Dissatisfied with Government 5G Fiber Plan,* MOBILE WORLD LIVE (Apr. 13, 2018), *available at* https://www.mobileworldlive.com/featured-content/asia-home-banner/kt-dissatisfied-with-government-5g-fibre-plan.

[13] Common Networks, *Common Networks Brings Discounted Internet to the Largest Low-Income Housing Community in Alameda County* (May 19, 2020), *available at* https://www.prnewswire.com/news-

competitive middle mile fiber in Oakland. Another example is the small town of Dillon Beach, California (population of 400) where a father determined to get broadband access for his daughter to do her schoolwork drove around town following the AT&T truck until he found a nearby wireless tower. He then contacted AT&T repeatedly until they agreed to let him pay to draw a fiber line into his garage to launch his own broadband small business.[14] Fortunately for him, the distance to draw the fiber line was minimal, resulting in $12,000 in costs. If he was never able to identify the location of fiber, he would have been unable to solve his own problem.

Both of these fiber-based wireless solutions in different markets came into existence because they discovered the location of the fiber line and had a willing seller for capacity. Facilitating this natural organic growth of broadband markets can be done with publicly available data. EFF has recommended both to the states and FCC that mapping of broadband efforts go beyond just measuring speeds and include fiber mapping in order to inform potential local private and public partners of the location of fiber capacity. In an ideal scenario a local player can view the map and contact the provider that owns the nearest fiber and enter into an arrangement for purchasing capacity. However, in the instances that access to fiber capacity is being unreasonably withheld, the FCC and states should intervene in such cases where such withholding is preventing a community from self-provisioning high-speed access. Unless a holder of fiber infrastructure is in the process of extending to that community, allowing for withholding of a high-capacity resource will drive up the costs of local solutions and ultimately stymie universal access efforts.

New Models Need to be Promoted to Reach Universal 21st Century-Ready Access

Fiber's flexibility and capacity for multiple shared uses without congestion problems creates a lot of opportunities for shared uses. In particular, an open access fiber infrastructure can sustainably deploy fiber because it can attract multiple revenue sources given that it can support 5G high-speed wireless, low-earth-orbit satellite data networks, electrical grid communications, transportation monitoring, cloud computing, public safety, distance education, telehealth, real-time applications, earthquake detection, and ISP competition. We are seeing states take the lead on these new business models, but they lack federal support from the FCC and Congress with a robust future proof focused infrastructure program.

Alabama, for example, has demonstrated the potential for joint ventures. Its state legislature passed a law clarifying that electric utilities could leverage their easements and private rights-of-way to enable telecommunications services over their fiber assets.[15] As a result, Mississippi-based C Spire and Alabama Power have jointly invested and begun sharing fiber infrastructure to mutually support the needs of both electricity and telecommunications. Homes in Birmingham, Shelby County, and other parts of the state will now obtain FTTH from C Spire. Such partnership would not have happened without policy from the state government to promote efficient infrastructure sharing.

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releases/common-networks-brings-discounted-internet-to-largest-low-income-housing-community-in-alameda-county-301061867.html.

[14] Mimosa Networks, *Dillon Beach internet Lights up California Beach Town with Mimosa, available at* https://mimosa.co/case-studies/dillon-beach-internet-lights-up-california-beach-town-with-mimosa.

[15] H.B. 400, 2019 Leg., Reg. Sess. (Al.), https://legiscan.com/AL/bill/HB400/2019.

The C Spire/Alabama Power model operates on the premise that C Spire is granted exclusivity in exchange for gaining access to the utility's fiber network in order to justify C Spire's costs in updating the fiber lines to serve telecommunications needs. The exclusivity gave C Spire the confidence that their investments in the utility's fiber network to make it broadband-ready could be recovered from newly connected customers, while Alabama Power was assured that C Spire would try to attract as many customers as possible to provide a stable and growing revenue base to the electric utility, resulting in lower rates. Through a revenue-sharing agreement, a telecom could dramatically save on their fiber deployment costs by paying an electric utility for access to their fiber network, while the utility's fiber construction costs would be reduced by obtaining a new revenue stream.

In any joint venture model, the Congress and FCC can encourage the merger of these interests but also promote competition through open-access policies—even with initial exclusivity arrangements. Specifically, exclusivity should be seen as a means to help the electric utility recover its one-time construction costs for deploying fiber while reducing telecommunications providers' costs because they need not build a duplicative fiber network. The telecom provider will have reaped the initial benefit of exclusivity, the electric utility will have reduced the cost on ratepayers for financing the fiber, and end users will initially gain high-speed access and eventually competition when the exclusivity expires.

Another form of open access has been taking place in Utah where more and more households are connected to an expanding open-access fiber network run by local cities where residents enjoy 11 private small business options for gigabit service.[16] This type of approach to broadband infrastructure, where the government builds the wires and shares its capacity to broadband providers, holds tremendous promise. Privately financed[17] open access exists in the EU but required changes in the European Electronic Communications Code designed around promoting their entry to assist in the effort to deploy national fiber infrastructure.[18] It will remain limited in the United States, though, so long as federal broadband infrastructure policy remains stuck in past thinking that subsidizing any qualifying broadband service at slow speeds is good enough while ignoring the necessity to future proof investments.

Sincerely,

Electronic Frontier Foundation

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[16] Utopia Fiber, Residential Pricing, https://www.utopiafiber.com/residential-pricing (last visited February 4, 2020).

[17] Infracapital and Macquarie Capital are examples of the type of entities regularly investing in fiber infrastructure in the EU, *see Infracapital and Nokia named preferred bidder for Polish Fibre Broadband Network* (Jun. 15, 2017); *available at* https://www.infracapital.co.uk/Controls/Brochure/-/media/Literature/UK/Infracapital/Infracapital-and-Nokia-named-preferred-bidder-for-Polish-fibre-broadband-network.pdf.; *see Macquarie Capital to Acquire Fibre Broadband Network in Move to Create Spain's First Independent Wholesale Bitstream Operator* (Nov. 6, 2019), *available at* https://www.macquarie.com/us/en/about/news/2019/maccap-to-acquire-fibre-broadband-network-in-move-to-create-spains-first-independent-wholesale-bitstream-operator.html.

[18] *Europe's wholesale-only and open access operators form new alliance to accelerate the rollout of fiber networks*, Reykjavik Fibre Network (last visited Feb. 3, 2019), http://www.reykjavikfibrenetwork.is/news/europes-wholesale-only-and-open-access-operators-form-new-alliance-accelerate-rollout-fiber.