June 16, 2021

Office of the Undersecretary for Domestic Finance
Department of the Treasury
1500 Pennsylvania Avenue NW
Washington, DC 20220

> **Re: Coronavirus State and Local Fiscal Recovery Funds Interim Final Rule Comments**

Dear Department of the Treasury:

We submit these comments in response to the Department's request for comment on its State and Local Fiscal Recovery Funds Interim Final Rule's questions with respect to ensuring broadband investments will best meet our nation's needs.

We applaud the work of the Treasury Department, Congress, and the Biden Administration in recognizing with the American Rescue Plan Act that, despite our nation's best efforts and significant investment by the public and private sectors, we still face serious challenges in connecting homes and businesses of all sizes to reliable high-speed broadband. Many Americans have faced significant challenges during the COVID-19 pandemic due to the fact they do not have robust broadband network availability in their communities.

INCOMPAS, the internet and competitive networks association, represents a diverse membership, including competitive network companies that are building the next generation of communications networks across the country—fiber, fixed wireless, mobile, and satellite broadband networks. Our companies are making substantial investments in broadband infrastructure and innovative technologies to offer residential, small business, enterprise customers, and anchor institutions such as schools, libraries, and hospitals, cutting-edge services at affordable prices in urban, suburban, and rural areas.

A number of our members have participated in the FCC's Connect America Fund, the Rural Digital Opportunity Fund, and USDA's ReConnect program, and we have members that provide broadband service and technology solutions to schools and libraries through the FCC's E-rate program and healthcare facilities through the Rural Healthcare Fund. INCOMPAS supports the American Rescue Plan's investment in broadband infrastructure. The demand for affordable, robust connectivity during COVID increased significantly; nonetheless, there are still too many geographic areas that remain unserved or underserved.

With public sector funding, however, many of these areas can now receive the robust, fast, and affordable connectivity that they deserve. We applaud the work of Congress and the

Administration to bring broadband to every American and business. As you well know, many Americans have faced significant challenges during the COVID-19 pandemic due to the fact that they do not have broadband network availability in their communities or they cannot afford it, and INCOMPAS' member companies have been working diligently throughout the pandemic to keep their customers connected and to extend connectivity and competitive broadband options wherever possible. Indeed, 70% of our qualifying members are participating in the FCC's Emergency Broadband Benefit program, and we are anticipating that percentage will be even higher for the FCC's Emergency Connectivity Fund.

The American Rescue Plan—through its State and Local Fiscal Recovery Funds with $350 billion allocated for states, cities, and towns, as well as the $10 billion allocated for the Coronavirus Capital Projects Fund—recognizes growing digital disparities and presents a great opportunity to invest in broadband infrastructure to connect consumers, businesses, and anchor institutions that lack adequate access to robust, future-proofed networks. If implemented wisely, the American Rescue Plan investment can be used to meet both the short-term and long-term needs of communities. In deciding which broadband projects to finance through the State and Local Fiscal Recovery and Capital Projects Funds, INCOMPAS believes it is critical that this investment be made in robust and reliable networks that can offer *where it is feasible* at least 1 gigabit fixed connectivity today and higher speeds in the future.

As we saw in the Federal Communications Commission's recent Rural Digital Opportunity Fund (RDOF) reverse auction for unserved census blocks, there was significant interest in delivering 1 gigabit connectivity. Indeed, most of the winning bids were in the gigabit tier,[1] and a number of INCOMPAS members won funding to deploy much needed broadband infrastructure. INCOMPAS members are often delivering fiber to the premise, and in certain situations members may be delivering last mile connectivity via a fixed wireless connection. INCOMPAS recognizes that some flexibility in determining the most cost effective and efficient technologies may be appropriate. Our member companies are working with their state and local officials to plan new, reliable and fast networks to ensure consumers, businesses, and anchor institutions' connectivity needs are being met today and in the future with the most cost-effective technology. They also are hiring locally and are supporting local job growth.

INCOMPAS believes a fiber backbone is a critical component in meeting increasing demand on our nation's networks. Every technology in the broadband ecosystem needs access to fiber—including fixed broadband, cable, cellular (mobile & 5G), and satellite. Building more fiber helps all, and fiber densification throughout the U.S. is critical for winning the race to 5G. This often means that areas without adequate fiber investment also need connections from the retail consumer (last mile) to other net providers and the greater internet (middle mile deployment). Thus, it is vitally important that Treasury permit state and local officials to work with those

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[1] *See* Rural Digital Opportunity Fund Phase I Results*, available at* https://www.fcc.gov/reports-research/maps/rdof-phase-i-dec-2020/; *see also* Joan Engebretson, *"*RDOF Winner Map: Fiber, Fixed Wireless Win Big, Winners Commit to Gigabit Speeds," Telecompetitor, Dec. 8, 2020, *available at* https://www.telecompetitor.com/rdof-winner-map-fiber-fixed-wireless-win-big-winners-commit-to-gigabit-speeds/.

companies in their states to deploy the network that is needed to deliver the capacity and speeds that will ensure communities' short-term and long-term broadband needs are being met.

To better address the criteria and guidance as set forth by the Interim Final Rule, the following are our association's comments on questions related to Broadband Infrastructure:

Question 22: What are the advantages and disadvantages of setting minimum symmetrical download and upload speeds of 100 Mbps? What other minimum standards would be appropriate and why?

Setting minimum standards that have the potential to promote additional fiber deployment can be beneficial to communities who are currently not served by fiber.

As we discussed above, fiber connectivity will help support a number of technologies, including wired, fixed wireless, 4G and 5G mobile services, and satellite. INCOMPAS also notes that our member companies that are deploying new networks often are able to deliver 1 gigabit connectivity or more to end users. Those that are delivering fiber to the premise and some fixed wireless offerings that have access to licensed spectrum can offer symmetrical 100/100 Mbps speeds. Those that are using other technology in the last mile may not be able to deliver a minimum of 100/100 Mbps immediately; however, as technology evolves and improves, they may be able to do so in the future. As such, we believe that the Interim Final Rule as drafted that sets an expectation of 100/100 Mbps, but allows 100/20 Mbps in the immediate delivery of network capability in *some* situations, provides states and localities, along with their network solution partners, the flexibility they may need to deploy in areas where the geography and topography make deployment difficult and costly. Nonetheless, to ensure that the goal of future proof network investment is being met, Treasury should encourage or require states and localities to set minimum criteria establishing the specific circumstances or thresholds under which 100/100 Mbps projects are deemed impracticable, and therefore eligible to be built to the lower 100/20 Mbps standard. This will ensure that 100/100 Mbps projects receive adequate consideration under established criteria and that 100/20 Mbps projects are not selected simply because they are lower cost.

As Treasury acknowledges, the ability to scale is important because the use of the network is increasing significantly every year (see comment to next question below). Broadband infrastructure that is deployed in a community by local employees or contractors and can be scaled via software updates can help support job growth *and* internet growth. Encouraging investment in infrastructure that can scale to 1 gigabit connectivity also should be included in Treasury's final rule. Other countries in the world are setting 1 gigabit and/or fiber goals,[2] and a number of U.S. areas have access to gigabit connectivity today and will be getting it through the

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[2] In Appendix A, we have attached our research in this area.

FCC's RDOF.[3] Thus, a recognition that infrastructure should be scalable over time and that speeds are expected to increase to keep pace with usage patterns is appropriate.[4]

Question 23: Would setting such a minimum be impractical for particular types of projects? If so, where and on what basis should those projects be identified? How could such a standard be set while also taking into account the practicality of using this standard in particular types of projects? In addition to topography, geography, and financial factors, what other constraints, if any, are relevant to considering whether an investment is impracticable?

It is critical that states and localities are educated about the benefits of broadband deployment and the various technological capabilities and limitations they may encounter depending upon the various factors on the ground, such as topography, geography, financial factors, including the availability of middle mile connectivity. All technologies for delivering the best service possible should be considered, and setting an expectation that this funding is being used based on an assessment of short-term needs as well as long-term needs is important.

INCOMPAS advocates that new networks need to be scalable over the medium and long-term, and there should be a recognition that online demand is increasing.[5] According to Open Vault, broadband usage increased 40% over the past year, the highest annual growth rate in nearly 10 years. The chart below demonstrates the gigabyte consumption increasing per household,[6] and we anticipate that consumption will continue to grow given the proliferation of connected

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[3] *See* Statement of Commissioner Rosenworcel, *Rural Digital Opportunity Fund, Connect America Fund*, Report and Order, WC Docket Nos. 19-126, 10-90 (rel. Feb. 7, 2020) (stating "we are going to need more symmetrical upload and download speeds as we move from an internet that is about consumption to one that is about creation.").

[4] *See* Jonathan Sallet, *Broadband for America Now* (Oct. 2020), at 22 (explaining that "[f]ast uploads and downloads are non-negotiable, because these symmetrical speeds reflect how Americans are using connections today— from hybrid learning to connecting with doctors"), *available at* https://www.benton.org/sites/default/files/BroadbandAmericaNow_final.pdf.

[5] *See* Cisco's Annual Internet Report (March 2020) (explaining that the "number of devices connected to IP networks will be more than three times the global population by 2023."), *available at* https://www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white-paper-c11-741490.html; *see also* PEW, *How Much Broadband Speeds Do Americans Need?* (Nov. 30, 2020) ("[t]he pandemic has resulted in 18% growth in in-home data use, comparing March 2019 to March 2020. The typical U.S. household has 11 internet-connected devices, and research indicates that this trend will likely grow."), *available at* https://www.pewtrusts.org/en/research-and-analysis/articles/2020/11/30/how-much-broadband-speed-do-americans-need.

[6] *See* Sara Fischer, Margaret Harding McGill, Axios, "Broadband usage will keep growing post-pandemic," May 4, 2021 *available at* https://www.axios.com/broadband-usage-post-pandemic-increase-32d0858b-9f54-4065-aa9b-b1716dcf6c2f.html.

devices, cloud computing, and two-way streaming needs for business, education, and entertainment:

Average broadband consumption per household

Gigabytes consumed, downstream and upstream

GB	
500 GB	
400	
300	
200	
100	

2013 2014 2015 2016 2017 2018 2019 2020 2021
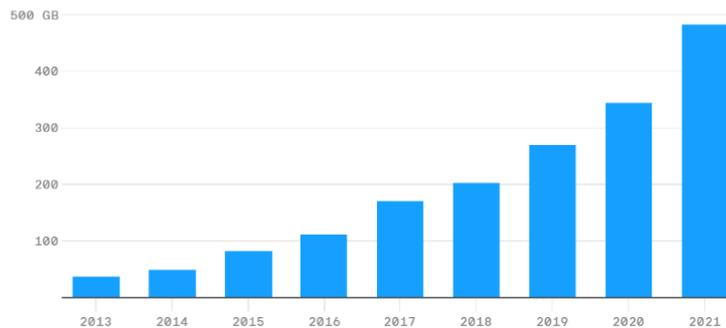
Data: OpenVault; Chart: Will Chase/Axios

Given that we have seen a significant shift of work and educational needs to homes; that Americans expect robust connectivity no matter their location; that the average American household now has 25 connected devices, ranging from laptops, smartphones and smart TVs to gaming consoles, smart home devices and connected fitness machines;[7] and that industries across the economy are becoming more reliant on broadband connectivity, it is time for us as a nation to recognize that our public sector investment should be made in broadband infrastructure that can meet our needs today and in the future.[8]

State and local officials have been working with INCOMPAS members to improve broadband access and affordability, and Treasury should allow state and local officials to prioritize the areas that need immediate investment from the Funds. In addition, policymakers should encourage speedy deployment of these networks, including, where feasible, by promoting the utilization of shared infrastructure, and incentivizing local jurisdictions to speed franchise and/or permitting requirements through the adoption of efficient, simplified processes and cost-based access to the

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[7] *See* Deloitte's "2021 Connectivity and Mobile Trends Survey," June 9, 2021 *available at* https://www2.deloitte.com/content/dam/insights/articles/6978_TMT-Connectivity-and-mobile-trends/DI_TMT-Connectivity-and-mobile-trends.pdf.

[8] Letter from Lisa R. Youngers, President and CEO of Fiber Broadband Association to FCC, WC Docket No. 19-126 (filed Jan. 3, 2020) (explaining that that the "burgeoning upstream demand is being driven by widespread consumer adoption of such 'producer' apps/content as social media, gaming, video sharing, video conferencing, and other applications."); *see also* Bennett Cyphers, *The Case for Fiber to the Home, Today: Why Fiber is a Superior Medium for 21st Century Broadband*, Electronic Frontier Foundation (Oct. 16, 2019); *available at* https://www.eff.org/wp/case-fiber-home-today-why-fiber-superior-medium-21st-century-broadband.

rights of way.[9] Deploying broadband infrastructure is needed now and more importantly, should be expedited to ensure availability to all consumers and businesses in the United States. Thus, efforts to help incentivize local jurisdictions and provide them with necessary funding assistance to hire, train, and/or expand their capability as needed to process permitting and franchise agreements would go a long way for improving broadband infrastructure permitting and approval processes.

In terms of identifying those factors that may impact the types of technology that can be deployed, they can vary—including population of the area, topography, size of the geographic area, among others. INCOMPAS believes that states and localities should be provided the flexibility to assess on the ground factors and choose the provider(s) that can best meet the areas' needs as is consistent with Treasury's other parameters. We also urge the federal agencies to defer to the state and local officials concerning *where* infrastructure is needed to support broadband availability. As Treasury is undoubtedly aware, the FCC's broadband availability maps are undergoing a major overhaul that is still in process pursuant to the Broadband DATA Act passed by Congress last year as the maps currently overstate broadband availability. Thus, it is important to allow state and local officials to rely on the on-the-ground information they have to determine where broadband infrastructure is needed.

Question 24: What are the advantages and disadvantages of setting a minimum level of service at 100 Mbps download and 20 Mbps upload in projects where it is impracticable to set minimum symmetrical download and upload speeds of 100 Mbps? What are the advantages and disadvantages of setting a scalability requirement in these cases? What other minimum standards would be appropriate and why?

The advantage is that some areas may receive at least that level of service that otherwise may not have received broadband if only 100/100 Mbps were supported. In other words, a standard of 100/20 Mbps may help accommodate more technology options to the extent that they reach locations that otherwise would not be reached. However, the disadvantages are that (1) it potentially allows for limited upload use today (which is challenging for residences and businesses that need more upload and is common today given data capacity needs for simultaneous video calls, data uploads, etc.); and (2) it is possible that the investment required to upgrade the 100/20 Mbps connection to meet the needs of consumers may be significant or may not be forthcoming. Another disadvantage is that it potentially limits greater investment in communities now, and that may have lasting (negative) impact on the local economy over the long-term.

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[9] For example, the recently reintroduced bipartisan BRIDGE Act calls for reasonable permitting fees in those areas that receive additional funding for broadband infrastructure investment. *See* BRIDGE Act, at 36 *available at* https://www.bennet.senate.gov/public/_cache/files/a/c/ac028ab4-8eab-4126-a778-33c1255c0d6f/A3EF3EDA61FDF3008237DFAD0266A622.bridge-act-final-.pdf. INCOMPAS members support reasonable, cost-based fees to access rights-of-way. Time and again, INCOMPAS members report that towns and cities that have such policies see more competitive options that positively impact the wholesale and retail broadband options in those communities.

Ookla finds that the average U.S. fixed internet download speed is now 191.97 Mbps and upload speed is 67.80 Mbps, and more consumers are moving to higher speeds and broadband services that offer symmetrical upload because of the shift to uses that are based on creation rather than consumption.[10] With two-way video needs for work, education, and healthcare increasing significantly, and uploading data related to these endeavors, this should not be a surprising result. Accordingly, it is important that U.S. broadband policy encourages this robust and reliable new network availability across the nation. No community should be left off or expected to thrive if it only has a network that does not meet today's current average usage.

INCOMPAS believes that in addition to minimum speed requirements, state and local officials should work with those providers who offer wholesale services to other broadband providers in order to enable more competitive options to an area. For example, those providers who sell capacity to other providers, such as connecting additional mobile and fixed providers, will help deploy these competitive networks faster in the community and support the local economy with job creation and revenue gains. We believe this will be key to enabling 5G deployment, as well as other technologies. NTIA's BIP program recognizes the benefit of wholesale obligations,[11] and we support Treasury also acknowledging this in its guidance to states and localities for the Funds.

Question 25: What are the advantages and disadvantages of focusing these investments on those without access to a wireline connection that reliably delivers 25 Mbps download by 3 Mbps upload? Would another threshold be appropriate and why?

A significant disadvantage to limiting this funding to areas without wired 25/3 Mbps service is the fact that demand is driving up usage in homes and in businesses. 25/3 Mbps cannot meet the demands of today, and it certainly will not do so in the future. Assessing where providers are not upgrading their networks and funding a competitor who will build the network and provide the service needed will incentivize the incumbent to upgrade its service—bringing better, more capable service to their customers. INCOMPAS members have seen this repeatedly. When they enter a market with their newer technology that offers faster speeds and better prices, the incumbent(s) always respond. This is why we encourage any new funding process to permit competitors to participate. Moreover, policymakers should consider prioritizing funds to incentivize local governments to move more efficiently and identify more cost-effective solutions to provide broadband in their communities. Combined with federal funding for deployment in unserved and underserved areas, this incentive program would complete the deployment puzzle, facilitating broadband deployment in communities around the country.

A 25/3 Mbps wired service also indicates that the needed fiber investment in the community may not be there. Fiber is used for all technologies, so if the community does not have it, it is in real danger of falling even further behind in terms of technological and economic progress.

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[10] *See* Ookla Speedtest, *United States's Mobile and Fixed Broadband Internet Speeds*, *available at*: https://www.speedtest.net/global-index/united-states (last visited June 7, 2021).

[11] NTIA Notice of Funding Opportunity, at 38.

With American Rescue Plan funding, there is no greater opportunity than the present to move the needle and push the envelope further on investing in the network capability that will offer speed and innovation. In order to accomplish this goal, we cannot continue to settle for the status quo and a minimum of 25/3 Mbps as a measure of whether an area is unserved or underserved as the solution for making these investments. Rather, the American Rescue Plan's funds should be used wisely and stretched even further to expand on the number of fundable areas so nobody is left behind and to help promote greater competition amongst all providers so those individuals and families without access can ultimately benefit the most in the long-run with having faster, more affordable broadband service options.

INCOMPAS supports raising the eligibility of areas for funding to those communities that are receiving less than 100/20 Mbps via a wired connection. In doing so, we anticipate that more communities will receive faster, more robust broadband investment that will help them progress more in line with other parts of the nation and parts of Europe and Asia (see Appendix A) that have set gigabit and/or fiber broadband goals.

Question 26: What are the advantages and disadvantages of setting any particular threshold for identifying unserved or underserved areas, minimum speed standards or scalability minimum? Are there other standards that should be set (e.g., latency)? If so, why and how? How can such threshold, standards, or minimum be set in a way that balances the public's interest in making sure that reliable broadband services meeting the daily needs of all Americans are available throughout the country with the providing recipients' flexibility to meet the varied needs of their communities?

First, states and localities should be charged with determining where broadband service is not adequate to meet the needs of their communities. Such needs should include residential, business and anchor institution needs. For this assessment purpose, states and localities should be permitted to rely upon the input of their communities. Because current FCC broadband maps overstate availability, Treasury should not require those maps to be used for assessments. It is well known that the FCC's maps need an overhaul. Congress passed the Broadband DATA Act specifically for the purpose of correcting the FCC's maps, and the agency is still in process of implementing those changes.[12] In testimony before Congress, a majority of the FCC Commissioners has criticized the agency's maps;[13] thus, until the agency has complied with the

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[12] *See Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, WC Docket Nos. 19-195 & 11-10; *see also* Broadband Deployment Accuracy and Technological Availability Act, 47 U.S.C. §§ 641—646 (2020).

[13] In December 2019, all five Commissioners agreed in an oversight hearing before the House Subcommittee on Communications and Technology that the Commission should not be relying upon the inaccurate information produced by the current Form 477 data. *See* Accountability and Oversight Hearing of the Federal Communications Commission, Subcommittee on Communications and Technology (Dec. 5, 2019), *available at* https://energycommerce.house.gov/committee-activity/hearings/hearing-on-accountability-and-oversight-of-the-federal-communications-0.

Broadband DATA Act, they should not be relied upon for purposes of determining what geographic areas are unserved or underserved and where funding is needed.

State and local officials should be permitted to identify those areas that need high-speed broadband of at least 100/100 Mbps. Incumbent broadband providers should only be permitted to challenge these assessments in limited circumstances—where they can show each location is served by 100/20 Mbps wired service. Also, as discussed above, to ensure investments in future proof technology, Treasury should encourage or require states and localities to set minimum criteria establishing the specific circumstances or thresholds under which 100/100 Mbps projects are deemed impracticable, and therefore eligible to be built to the lower 100/20 Mbps standard. This will ensure that 100/100 Mbps projects receive adequate consideration under established criteria and that 100/20 Mbps projects are not selected simply because they are lower cost.

We offer these comments in support of ensuring that the American Rescue Plan and the State and Local Fiscal Recovery Fund and Capital Projects Fund lead to investment in broadband infrastructure in areas that are unserved or underserved and that will meet the needs of the communities in the long-term. INCOMPAS looks forward to working together with the Treasury Department on this guidance moving forward, and if any other opportunity to help contribute and provide your staff with feedback, please let us know. Thank you for your consideration of our comments.

Sincerely,

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Appendix A—Broadband Goals in Other Nations

Austria- Broadband Strategy 2030
Austria's broadband strategy focuses on the nationwide supply of Gigabit connections by 2030. Was adopted in August 2019. It aims at full coverage of symmetric Gigabit connections throughout the country by 2030. In addition to the long-term objective, the 2030 strategy also includes five concrete interim goals:
- Phase 1: Full-coverage of ultra-fast broadband connections (100 Mbps) by the end of 2020
- Phase 2: Market launch of 5G in all capital cities by the end of 2020
- Phase 3: Austria as 5G pilot country until the beginning of 2021
- Phase 4: 5G services on major traffic connections by the end of 2023
- Phase 5: Nationwide Gigabit connections, including nationwide coverage of 5G, by the end of 2025

Belgium- Digital Belgium
Belgium's broadband strategy is incorporated into a broader policy strategy "Digital Belgium – Plan for Ultrafast Internet in Belgium 2015-2020". The aim is to provide speeds of up to 1 Gbps to half of the country by 2020, to ensure a 4G and LTE Advanced roll-out throughout Belgium and to facilitate a proactive 5G roll-out.

Canada- 2019 Connectivity Strategy
The minimum target speed for all Canadians is 50 Mbps download and 10 Mbps upload. But connectivity demands are expected to continue to increase beyond the 50/10 Mbps target. New applications and uses will continue to be developed and introduced into the market. Recognizing this, the 50/10 Mbps target is a minimum, and investments will make every effort to be scalable to higher speeds in the future, including up to speeds of 1 gigabit per second (Gbps; 1 Gbps is equivalent to 1,000 Mbps).

Finland- Digital Infrastructure Strategy
Published in October 2018 by the Ministry of Transport and Communications, determines objectives for the development of the digital infrastructure in Finland by 2025 as well as the methods for achieving this objective. By 2025 all households should have access to at least 100 Mbps connections. It should be possible to increase the speed of the connection to 1 Gbps.

France- France commits to covering its entire territory with high-speed broadband (30 Mbps) by 2022. Furthermore, the National Broadband Plan, France Très Haut Débit, foresees extending optical fiber to subscribers throughout the country by 2025.

- **News Article**- https://www.reuters.com/article/instant-article/idINKCN1C220U?edition-redirect=in

Germany- Gigabit Initiative by 2025
The 2018 coalition agreement of the German Federal Government identifies the priority goal of a nationwide expansion of gigabit networks by 2025.

- **News Article**- https://www.dw.com/en/germany-to-invest-100-billion-into-national-gigabit-internet-network/a-37846238

Greece- The national next generation broadband access plan 2014-2020 sets a roadmap for achieving these conditions. The national targets of availability and use of broadband connections of high and ultra-high-speed act as a catalyst for digital development. The action Superfast Broadband (SFBB) aims at supporting citizens through vouchers to acquire an Internet connection of at least 100 Mbps, upgradable to 1 Gbps.

Luxembourg- Broadband coverage already reaches almost 100% and Luxembourg is among the European leaders in terms of broadband coverage and penetration. The national broadband plan aims for networks with ultra-high-speed rates of 1 Gbps download and 500 Mbps upload for 100% of the population in 2020.

Netherlands- Dutch Digitalisation Strategy
The Dutch government supports the Gigabit Society targets. All households should have the opportunity to access broadband networks of at least 100 Mbps and a vast majority should be taking advantage of 1 Gbps by 2023.

Sweden- Completely Connected Sweden by 2025
The objective of the strategy is that 95% of all households and businesses should have access to broadband at a minimum capacity of 100 Mbps by 2020. The strategy goes beyond 2020 and states that by 2025 all of Sweden should have access to high-speed broadband. That implies that 98% of all households and businesses should have access to broadband at a minimum capacity of 1 Gbps.

UK- The National Infrastructure Strategy
Outlines how the Government is working with industry to target a minimum of 85% gigabit-capable coverage by 2025.

- **News Article**- https://advanced-television.com/2020/12/17/report-gigabit-broadband-reaches-1-in-4-uk-homes/
- **News Article**- https://www.bbc.com/news/technology-55071349

EU- Connectivity for a European Gigabit Society
The EU set ambitious connectivity objectives for 2025:
- 100 Mbps networks reaching all European households by 2025, with the possibility to upgrade those networks to reach much higher speeds
- Gigabit connectivity connecting all main socio-economic drivers - such as schools, universities, research centers, transport hubs, hospitals, public administrations, and enterprises relying on digital technologies - should have access to gigabit connectivity

- **News Article**- https://www.capacitymedia.com/articles/3824361/eus-new-telecom-regulatory-framework-promotes-fiber-network-investment

South Korea- South Korea is [leading the way](#) in regard to upgrading its networks to next-generation fiber-optic technology. In 2012, the Korean Communications Commission (KCC) revealed it would spend approximately $24.6 billion on improvements in the nation's broadband infrastructure towards the goal of increasing speeds for fixed line broadband services to 1 Gbps, and now the country aims to offer 10 Gbps speeds to approximately 50 percent of subscribers by the end of 2022.

- **News article**- https://www.nytimes.com/2011/02/22/technology/22iht-broadband22.html
- **News article**- https://www.zdnet.com/article/south-korea-to-fund-10gb-internet-push/