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February 19, 2015

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20054

***Via Electronic Filing***

**Re: GN Docket No. 14-28, *Protecting and Promoting the Open Internet***
**GN Docket No. 10-127, *Framework for Broadband Internet Service***

Dear Ms. Dortch,

Last week, Commissioner Pai cited and praised[1] a recent report by the Internet Innovation Alliance (IIA),[2] an Internet Service Provider-funded trade association.[3] Commissioner Pai cited certain figures from the report, claiming these figures and the report's findings as evidence that Chairman Wheeler's pending proposal – merely to restore the deregulatory application of Title II to mass-market broadband access networks – would somehow diminish investment in the sector.

The thesis of Commissioner Pai's statement and the IIA report is the claim that (1) the regulatory structure used for broadband access networks in the European Union (E.U.) is more onerous than the structure currently applied in the United States, and (2) that this EU structure closely resembles what would result from a return to Title II. Commissioner Pai and IIA then claim that the E.U. regulatory structure has lead to depressed levels of capital investment relative to that in the U.S.

**Commissioner Pai's and IIA's claims are completely bogus.** They are a classic example of misleading with statistics – and with figures that in this case are incomplete, error-ridden, out of date and presented out of context. Worst of all, the author of the IIA report and Commissioner Pai both appear to have ignored data that contradicts their preferred narrative.

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[1] "Statement of FCC Commissioner Ajit Pai on the Latest Evidence that Regulating the Internet Will Reduce Broadband Deployment and Competition," Federal Communications Commission, Feb. 12, 2015 ("Pai Press Release").

[2] Fred B. Campbell Jr., "Impact of 'Title II' Regulation on Communications Investment: A Comparison Between the United States and the European Union," Internet Innovation Alliance, Feb. 2015.

[3] *See, e.g.*, NCTA, "Phone Companies and the Truth: A Bad Connection," at 6 (Mar. 2006) ("AstroTurf Organization #3 – The Internet Innovation Alliance. Co-founded by AT&T, IIA has shifted its policy focus in light of the Bell merger."); *see also* IIA Members list, http://internetinnovation.org/community/members (last visited Feb. 19, 2015).

Free Press reviewed Commissioner Pai's claims, the IIA report, and the source data on which the report appears to be based.[4] This letter details our own analysis, describes the fatal flaws in Commissioner Pai's and IIA's claims, and presents a far more accurate and contextual comparative analysis between the U.S. telecommunications market and the market in various E.U. member states. Key data described herein is also summarized in table format in an appendix to this letter.

As we demonstrate herein (while mindful of the folly in blithely comparing a group of nations with widely varying market and regulatory structures to a single nation), the E.U. and the U.S. are indistinguishable on most metrics. Though per capita capital spending is higher in the U.S., American consumers spend on average twice as much on communications services than those living in the E.U. These diverging observations on investment and revenues ultimately cancel out, as on most outcome metrics (*e.g.* deployment, speed, adoption) the U.S. is almost identical to the E.U. as a whole, with half of the E.U. countries outperforming America, and half underperforming. And while prices are declining in the E.U., they are increasing here at home.

***Investment and Revenues***

- **E.U. investment is remarkably similar to U.S investment.** This fact was hidden by Commissioner Pai's and IIA's use of an incomplete E.U. data set that vastly underestimated E.U. carrier investment, and their use of a grossly inflated industry data set for U.S. investment. IIA's U.S. investment data conflicts both with the data reported by the U.S. Census Bureau and the values reported by publicly traded companies to the Securities and Exchange Commission.

    - The underlying E.U. data used by IIA has large gaps, with investment data missing for countries comprising 35 percent of the E.U. population and nearly 44 percent of the E.U.'s nominal GDP.[5]

    - Because of this omission, IIA reported a combined E.U. fixed and mobile investment level of $31 billion for 2012. However, a separate estimate produced by the European Commission reported a far higher level of investment across the E.U.: $58 billion.[6]

[4] We say "appears" because IIA obscured its sources and calculations. However, our own analysis in this *ex parte* letter draws on the European Commission source cited by IIA, in addition to data published by the U.S. Census Bureau, the National Telecommunications Information Association (NTIA), the Federal Communications Commission, the Securities and Exchange Commission, and other sources as noted.

[5] The E.U. data set relied on by IIA is missing complete fixed line investment figures for the 2011–2012 period from Belgium, Germany, France, Croatia, and The Netherlands. These countries comprise 35.3 percent of the total E.U. population, and 43.5 percent of the E.U.'s nominal GDP.

[6] *See* European Commission, "State of the Telecommunication Sector," at 37 ("State of E.U. Telecom Sector"), *available at* http://ec.europa.eu/digital-agenda/fast-and-ultra-fast-internet-access-analysis-and-data. ("Capital expenditure (CAPEX) in 2012 was estimated at around 45 billion [Euros] in 2012, representing on average 15% of group consolidated figures for the major

- IIA then used industry trade group-supplied data to report $69 billion in U.S. fixed capital investment and $30 billion in U.S. mobile capital investment for 2012. However, the U.S. Census reported $43.7 billion in wired investment for 2012, and $32.9 billion in wireless investment (excluding satellite).

- These U.S. Census values are much more in line with known values for the top publicly traded U.S. fixed and mobile providers.[7]

  - Thus, comparing the Census Bureau estimates to the complete E.U. estimate, we see total fixed and mobile capital spending for 2012 was $58 billion in the E.U. and $76 billion in the U.S. This corresponds to per capita values of $239 for the U.S. and $114 for the E.U. While the U.S. value is twice as high, these values should not be presented without further context:

    - First, the E.U. values are based on an E.U.-wide estimate, and thus each country's value was not first calculated based on purchasing power parity-adjusted values. This is an important caveat for comparability, as the nominal per capita GDP in the U.S. is nearly 50 percent higher than in the E.U. as a whole, and substantially higher than that for several E.U. member nations. [8]

    - Second, because cable deployment is more than twice as widespread in the U.S. than in Europe, one should expect U.S. capital spending to be vastly higher than in the E.U. simply as a consequence of the realities of natural monopoly economics. It is always more costly to support multiple infrastructures than a single network.

    - Third, the U.S.'s large cable TV deployment helps to skew the data further, as nearly 90 percent of capital spending by U.S. cable providers goes to customer premise equipment (CPE) like set top boxes and modems.[9] It is unclear to what extent the European Commission's estimates accounted for CPE.

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European telecom operators, up from the 14% of total revenues in 2011."). Using an exchange rate of $1.286 per Euro, this equates to $57.872 billion. This exchange rate was calculated by averaging the monthly exchange rate during the 12-month period from January 2012 to December 2012, as reported at http://www.x-rates.com/.

[7] In 2012, fixed capital spending for AT&T, Verizon, CenturyLink, Frontier, Fairpoint, Windstream, Cincinnati Bell, and Sprint, plus all capital spending for Comcast, Time Warner Cable, Charter, Cablevision, and Suddenlink, totaled $31.7 billion, with $210.862 billion in revenues. These companies collectively control about 93 percent of all U.S. broadband subscribers. In 2012, mobile segment capital spending at AT&T, Verizon, Sprint, T-Mobile and Cincinnati Bell totaled $26.3 billion, with $194.926 in revenues.

[8] Nominal per capita GDP for 2014 was $36,392 for the E.U. and $53,042 for the United States.

[9] *See* Comments of Free Press, GN Docket Nos. 14-28, 10-127, 09-191, at 109 & Fig. 4 (filed July 18, 2014) ("Free Press Comments").

- Perhaps the most important context for these investment figures is the fact that per-capita revenues are twice as high in the U.S. as in the E.U. For 2011–2012, U.S. total telecommunications sector average annual per capita revenues were $1,710, almost exactly twice that of the E.U. ($850). In other words, the U.S. may invest twice as much per person, but U.S. consumers spend twice as much for what amounts to the same broadband performance outcomes as seen in Europe.

- Given the inherent difficulties in making direct comparisons of raw investment figures between the U.S. and E.U., it is more instructive to use "relative investment" figures, also known as "capital intensity." This figure is calculated by dividing investment by revenues, producing a figure that represents the portion of earnings that are re-invested in new capital assets. Capital intensity figures normalize the variation in revenues earned by the capital assets, and thus eliminate any misleading conclusions arising from the varying economic and market structures across nations.

  - Relative investment ("capital intensity") in the U.S. is nearly identical to that in the E.U. as a whole, with the U.S. falling in the middle of the 28-member body:

    - For 2011–2012, total fixed and mobile capital intensity (capital expenditures as a percentage of revenues) was 12.2 percent in the E.U. countries reporting data, versus 14.1 percent in the U.S.[10] Among the 23 E.U. countries with complete data, 13 reported higher capital intensities than the U.S. did during this two-year period.

      - Put another way, broadband providers in **13 of the 23 E.U. countries** that reported data **invested more of their earnings back into their networks** than did U.S. fixed and mobile ISPs during 2011–2012.

    - Using the European Commission's estimates for *all* of its member countries, E.U. capital intensity was 15 percent in 2012,[11] compared to a value of 14.6 percent for the U.S.[12] For 2011–2012, the European Commission estimated total capital intensity at 14.5 percent, compared to 14.1 percent for the U.S.

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[10] *See* European Commission, "Financial indicators, fixed and mobile telephony, broadcasting and bundled services indicators (xls) (2014)," ("E.U. Financial Indicators"), *available at* http://ec.europa.eu/digital-agenda/fast-and-ultra-fast-internet-access-analysis-and-data; *see also* U.S. Census Bureau, "Annual Capital Expenditures Survey," 2011 and 2012 revised data ("Capital Expenditures Survey"), *available at* http://goo.gl/1ATC0O and http://goo.gl/rKZTTw; *see also* U.S. Census Bureau, "Table 1. Estimated Revenue for Employer and Non-employer Firms: 2007 Through 2013," Annual Services Report (Nov. 19, 2014), *available at* http://goo.gl/fmVa8V. A value of $1.339 U.S. per Euro was used to convert to reported E.U. country investment and revenue data to U.S. currency. This exchange rate was calculated by averaging the monthly exchange rate during the 24-month period from January 2011 to December 2012, as reported at http://www.x-rates.com/.

[11] *See* State of E.U Telecom Sector at 37.

[12] *See* U.S. Census Bureau Capital Expenditures Survey, *supra* note 10.

- Capital intensity for mobile networks in the E.U. member states are in line with or greater than the levels for U.S. operators. In the U.S., the four major carriers had mobile capital intensities in 2012 ranging from 12 percent (Sprint) to 16 percent (AT&T). By comparison, major carriers in the E.U. in 2012 ranged from a low of 12 percent (Italy) to 24 percent (U.K.).[13]

- Capital Intensity is far more instructive than the raw investment figures cited by Commissioner Pai and IIA, for several reasons:

  - First, as stated above, the E.U. data used by IIA omits investment data for countries comprising 35 percent of the E.U. population and nearly 44 percent of the E.U.'s nominal GDP.[14] Using capital intensity values for the 23 E.U. countries with complete data more accurately captures investment as a whole across the E.U.

  - Second, capital intensity normalizes the differences in purchasing power parity (PPP) across each individual nation. As labor comprises the largest portion of network deployment costs, it is highly misleading to cite raw dollar expenditures aggregated across the 28 disparate E.U. economies. For example, a dollar spent in Romania is equivalent to two dollars spent in the U.S., but only $0.64 in the United Kingdom. IIA and Commissioner Pai failed to adjust for these differences in purchasing power parity that are normalized out in capital intensity figures.

  - Third, because purchasing power parity is vastly different both within the E.U. and between the U.S. and the E.U., and because the E.U. broadband market is more competitive with lower prices, E.U. revenues are consequently lower. Capital intensity normalizes out the effect of revenues, producing an investment statistic that is comparable across nations and over time periods where there may be short-term economic disruptions.

  - Fourth, capital intensity normalizes the differences in cable system deployment between the U.S. and the E.U. as a whole, as well as between individual E.U. member nations.

- With this in mind, it is critical to note that when the IIA report finally did purport to discuss capital intensity figures, it butchered the analysis, claiming a result that flies in the face of reality:

  - IIA bizarrely chose to divide severely inflated industry-reported figures for U.S. fixed network capital spending by the revenues for traditional fixed line local and long

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[13] *See* European Commission, "Broadband Indicators (2012)" ("E.U. Indicators 2012"); *available at* http://ec.europa.eu/digital-agenda/fast-and-ultra-fast-internet-access-analysis-and-data.

[14] *See supra* note 5.

distance toll telephone service, as those revenues are reported to the Commission. By only using a fraction of the revenue generated by the network, IIA produced a wildly inflated fixed capital intensity figure of 46 percent for the U.S., when the actual value is 15 percent.[15] The author then used fixed investment data reported by the E.U. that excluded data from countries comprising more than 35 percent of the total E.U. population and 44 percent of total E.U. GDP, and divided this incomplete investment total by the complete revenue figures for all 28 E.U. member nations. This error produced a depressed fixed capital intensity value of 10 percent, when a corrected data set (which excludes incomplete data) shows a value of 16 percent – slightly higher than that observed in the U.S.[16]

***The Most Important Metrics: Deployment, Adoption and Price***

- What's more important, investment is a means to an end: the outcomes in terms of broadband availability, adoption, competition and price are the metrics that matter most. And here too the U.S. is a middling performer compared to the E.U. member countries. Put another way, we spend twice as much per person in the U.S. on communications networks and services than is spent in the E.U., where broadband quality and adoption is virtually identical to what we see here at home.

  - Broadband availability is similar in the E.U. and U.S., both in terms of current generation speeds as well as next-generation speeds. This is true for fixed as well as mobile services. As we explain below, the gaps that do exist have nothing to do with regulation, and are simply consequences of decades-old differences in technology deployment choices.

  - Adoption levels are similar as well:

    - At the end of 2013, 76 percent of E.U. homes subscribed to fixed broadband access service.[17] According to the October 2013 American Community Survey, 68 percent of U.S. households had fixed broadband.[18]

    - At the end of 2013, 66.4 percent of fixed-line subscriptions in the E.U. exceeded 10 megabits per second (Mbps) downstream,[19] compared to 67.2 percent of all U.S. fixed

[15] *See supra* note 6. Because the U.S. Census Bureau Annual Services Report does not separate out mobile from fixed revenues, we collected this data for publicly traded providers, which represent more than 93 percent of the fixed broadband market and the near entirety of the mobile market.

[16] *Id.*

[17] *See* European Commission, "Trends in European Broadband Markets 2014 "("E.U. Trends"), *available at* http://ec.europa.eu/digital-agenda/fast-and-ultra-fast-internet-access-analysis-and-data..

[18] *See* 2013 American Community Survey, Table B28002.

subscriptions.[20] Adoption of services at this level exceeded adoption in the U.S. at this level in 12 of the 28 member E.U. countries.[21]

- At the end of 2013, 21.2 percent of fixed-line subscriptions in the E.U. exceeded 30 Mbps downstream,[22] compared to 33.1 percent of all U.S. fixed subscriptions that exceeded 25 Mbps downstream.[23] The slight U.S. advantage, as we detail below, is entirely due to greater deployment of legacy cable TV systems, a historical anomaly that has nothing to do with telecom regulation. However, looking at individual E.U. members we see that adoption of services at this level exceeded the U.S. in 11 of the 28 member E.U. countries.[24]

- At the end of 2013, 5.3 percent of fixed-line subscriptions in the E.U. exceeded 100 Mbps downstream,[25] compared to 0.8 percent of all U.S. fixed subscriptions.[26] Adoption of services at this level exceeded the U.S. in 24 of the 28 member E.U. countries.[27]

- Fiber-to-the-Home/Building ("FTTH/B" or "FTTP") comprised 6.1 percent of E.U. fixed broadband subscriptions in Jan 2014.[28] This is comparable to the values reported by the Commission for the end of December 2013, showing FTTP comprising 8.1 percent of all U.S. fixed broadband subscriptions.[29]

- However, while prices for standalone and bundled services continue to decline across the E.U., they are increasing here in America:

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[19] *See* European Commission, "Broadband Indicators (2014)" ("E.U. Indicators 2014"), *available at* http://ec.europa.eu/digital-agenda/fast-and-ultra-fast-internet-access-analysis-and-data.

[20] *See* "Internet Access Services: Status as of December 31, 2013," Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission, October 2014 ("FCC December 2013 Form 477 Data").

[21] These countries were The Netherlands, Latvia, Sweden, Hungary, Romania, Malta, United Kingdom, Denmark, Belgium, Portugal, France, and Bulgaria.

[22] *See* E.U. Indicators 2014.

[23] *See* FCC December 2013 Form 477 Data.

[24] Hungary, Ireland, Germany, Poland, Portugal, The Netherlands, Bulgaria, Lithuania, Latvia, Romania, and Belgium.

[25] *See* E.U. Indicators 2014.

[26] *See* FCC December 2013 Form 477 Data.

[27] Only Greece, Italy, Cyprus and Malta had lower levels of >100 Mbps broadband service adoption than the U.S.

[28] *See* E.U. Indicators 2014.

[29] *See* FCC December 2013 Form 477 Data.

- While comparison of price offerings are inherently complex, the E.U. does report (based on a very thorough review of published offerings) that prices (PPP-adjusted) for standalone services above 30 Mbps have steadily declined 21 percent since 2009.[30] This applies to triple-play offerings as well, which declined 33 percent since 2009. The E.U. data corresponds to about $44 U.S. for standalone broadband and $80 for triple play, far lower than the prices charged by U.S. ISPs. Most important, while prices are dropping sharply in the E.U., they are increasing in the U.S.[31]

**The Data Underlying the IIA Report Contradicts Commissioner Pai's Misleading Narrative: The U.S. and the E.U. Have Similar Broadband Market Investment and Outcomes, Despite Vastly Different Economies, Histories, Technologies and Regulatory Structures.**

The comparative data presented in our analysis are at best an interesting starting point for a rational discussion of telecommunications market structure and policy. But these data are not suitable for the purposes Commissioner Pai and IIA invoked: a prediction of the impact of Title II on U.S. telecommunications industry investment and deployment. This is because in contrast to the deeply simplistic and misleading presentation made by Commissioner Pai and IIA, there is no such thing as a single E.U. telecommunications regulatory structure.

The impetus of IIA's industry-funded missive is that somehow the proper classification of mass-market broadband access services as telecommunications services under the Communications Act will lead to price regulation as well as Commission-mandated resale, unbundling and other wholesale open access policies. Commissioner Pai and IIA incorrectly intimate that such policies are uniformly in place across the E.U. However, whatever their status in the E.U., claiming that these policies will follow restoration of Title II is simply false. By claiming otherwise Commissioner Pai, IIA, and other industry apologists are engaging in a farce, not an honest policy debate. Their statements ignore the law, the Commission's regulatory history, and its existing application of Title II.

What Commissioner Pai and IIA fail to grasp (or willfully ignore) is the fact that the telecommunications regulatory structure differs vastly across the E.U. member nations. The IIA report paints the E.U. with a broad brush, producing a patently inaccurate portrait to buttress the trade group's inaccurate and misleading investment and market data. IIA then uses this bogus analysis as a propaganda tool to fight an imagined U.S. regulatory structure.

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[30] *See* E.U. Trends ("The median price of standalone offers of 30 to 100Mbps decreased from €43 in 2009 to €34 in 2014. . . . Prices [for triple play services] decrease over time, with the median going down from €92 in 2009 to €62 in 2014 (sic).").

[31] *See, e.g.*, Ian Olgerison, "Mid-2013 pricing and packaging sample shows HSD speed, price increases," SNL Kagan, Sept. 25, 2013 (showing price hikes by Comcast in some markets between 2009 and 2013 of as much as 52 percent, and hikes by Verizon for FiOS Internet services in the 40 percent range).

In sum, Commissioner Pai and IIA have produced nothing more than sloppy and misleading information that cannot be relied upon by the Commission for any purpose. The Commission should ignore this data, as well as advocates who cite its findings to support their prior opposition to Title II oversight.[32]

Commissioner Pai's claims, based on the slipshod IIA report, are thus wrong on every point:

- For example, Commissioner Pai's statement committed the cardinal sin of comparing apples to oranges by:
    - Contrasting a grossly inflated total for all U.S. capital expenditures (fixed, mobile and consumer premise equipment) with a vastly-understated E.U. total for only fixed-network capital expenditures for the 2011–2012 period.
    - Contrasting U.S. mobile industry investment with figures for the E.U. that are incomplete and missing data from countries that comprise more than 35 percent of the E.U. population.
- Commissioner Pai made a false claim that a whopping 76 percent of U.S. households are in "areas" served by three or more fixed broadband providers. Not only does this figure vastly exceed that reported by the NTIA's National Broadband Map, it also exceeds the true value

[32] *See, e.g.*, Letter from Kim Keenan, President, Multicultural Media, Telecom and Internet Council, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-28 (filed Feb. 18, 2015). MMTC strangely cites the IIA study to support its belief that "Title II presupposes a heavy-handed approach to Internet regulation that is contrary to the policies that have contributed to the increased supply and demand for broadband services." MMTC appears to be unaware of the basic fact that from 1998 to 2006, while DSL service was subject to Title II regulations including line-sharing, bitstream access and full local loop unbundling, incumbents increased DSL service deployment from zero to 4 out of every five residential lines. MMTC claims to be concerned about Title II's impact on "adoption by people of color, disabled, the economically disadvantaged, rural residents and seniors," yet it fails to mention that the number one barrier to adoption by those who would like to adopt is price; and that prices are falling in Europe while rising in the U.S. MMTC also neglects to note that the only legally sustainable basis for extending the USF Low-income program to broadband is through Title II. It neglects to note that over 1,000 rural LECs voluntarily provision DSL and Fiber-to-the-Home services under Title II, in order to reap regulatory benefits, and that the Connect America Fund's authority to subsidize the construction of rural networks is derived from Title II. Nor does MMTC, in this or any of its filings in this proceeding, attempt to reconcile its alleged concern with the existing state of broadband adoption with the fact that whatever adoption gaps we see today persist after more than a decade of experiment with the so-called Title I approach.

once the NTIA data is corrected to remove non-facilities-based CLECs.[33] In reality, the average U.S. household has access to just two providers of fixed broadband service.

- Compounding his error, Commissioner Pai incorrectly stated that "[i]n Europe, by contrast, most households do not have access to any facilities-based broadband alternative to the incumbent network operator." Though it is true that there never was widespread cable television system deployment across Europe like there was in the U.S. (deployment that occurred at a time when telecom providers and cable MSOs did not compete in any product markets), 43 percent of E.U. residents have access to cable modem services in addition to incumbent telecom-provisioned broadband, and countries like the Netherlands are seeing appreciable levels of fiber overbuilding.[34]

- Commissioner Pai used out-of-date information to misleadingly portray the U.S. as vastly superior to the E.U. in terms of access to next-generation fixed broadband technologies.[35] He failed to note the role that the U.S.'s legacy cable system deployment played in creating this

[33] NTIA reports that 16 percent of the rural population and 64 percent of the urban population, or 55 percent of the total U.S. population, live in areas served by three or more wired broadband providers. *See* "Broadband Statistics Report: Broadband Availability in Urban vs. Rural Areas, Data as of December 2013," National Broadband Map, National Telecommunications Information Association, July 2014 ("NTIA Dec. 2013 Broadband Urban vs. Rural Statistics Report"), *available at* http://goo.gl/8PIihG). However, as Free Press has detailed in prior filings, the NTIA data fails to correct for systemic CLEC over-reporting. When adjusted for this and non-overlapping incumbent MSOs, the average U.S. household lives in a census tract served by just over two wired broadband providers at any speed. *See, e.g.*, Reply to Opposition, Free Press, MB Docket No. 14-57, at note 50 ("The NTIA data vastly overstates the availability of non- ILEC offerings, as it includes several CLECs that do not actually serve large portions of the areas they claim to serve, but instead report areas where they are willing potentially to serve business customers using leased ILEC facilities if such service is requested. For example Platinum Equity Inc., the parent company of MegaPath and Covad, is shown in NTIA data as serving a whopping 44 percent of the country, when this is plainly not the case. Indeed, according to the NTIA's data, Platinum Equity is allegedly the largest wired ISP in the country as measured by availability, ahead of Comcast, AT&T, Verizon, Time Warner Cable and every other incumbent cable or telco provider!"); *see also, e.g.*, Petition to Deny of Netflix, MB Docket No. 14-57, Evans Declaration at Table 2 (explaining an analysis of the NTIA data showing the average number of fixed providers at any speed in the Comcast/TWC service area is 2.29 (2.42 in the Comcast territory, 2.09 in the TWC territory). If this figure is representative of the served areas of the country, then the number of fixed providers available to the average U.S. household would be 2.01).

[34] *See* E.U. Trends.

[35] The European Commission refers to those services with downstream speeds exceeding 30 megabits per second (Mbps) as "next-generation." These include VDSL, Fiber-to-the-Home (FTTH), Fiber-to-the-Building (FTTB), and cable modem services. Because the NTIA and FCC's demarcation is at 25 Mbps, we consider the term "next-generation" to refer to those above this threshold. There is little practical difference in doing so, as the typical peak speed of non-VDSL services are below 25 Mbps.

gap, which is rapidly shrinking. More importantly, he also failed to note that E.U. telecom providers are vastly outperforming U.S. telcos in deploying next-generation fiber-to-the-node VDSL services.[36]

- The gap in next-generation deployment is smaller than Mr. Pai states (see below), and is solely the function of the near-universal cable system deployment in the U.S. (broadband-enabled cable systems pass 87 percent of the U.S. housing units),[37] versus the partial cable system deployment in Europe (broadband-enabled cable systems pass 43 percent of E.U. households). This reality has little to do with regulation (certainly not telecom regulation), and more to do with historical factors such as the American demand for video entertainment during the late 1970s/early 1980s, greater funding of public broadcasting in Europe, the vastly different media landscapes of the Eastern Bloc E.U. member nations, geology, and ultimately the far higher adoption of satellite as the pay-TV mode of choice in Europe.[38]

- At the end of 2013, 83 percent of American households were located in an area where 25 Mbps or higher-level fixed broadband service was available.[39] During this same time, 62 percent of E.U. households were located in areas where 30 Mbps or higher-level fixed broadband service was available.[40] Between the end of 2012 and the end of 2013, the U.S. figure increased from 82 to 83 percent, while next-generation availability increased from 54 to 62 percent in the E.U., indicating a closing gap.[41]

  - As stated above, this gap is largely a function of widespread cable system deployment in the U.S. that took place more than 30 years ago, prior to the home computing and Internet and broadband eras. However, deployment of next-generation cable broadband technologies onto these systems is higher in the E.U. than in the U.S. At the end of 2013, 94 percent of U.S. broadband-enabled cable lines were upgraded to DOCSIS 3.x, versus 97 percent of those lines in the E.U.[42]

  - The more instructive, apple-to-apples comparison is how incumbent telecom providers are deploying next-generation upgrades. At the end of 2013, 24 percent of

[36] *See* Pai Press Release, bullet no. 3 ("In 2011 and 2012, 82% of United States households had access to broadband speeds of 25 Mbps or higher, including 48% of rural households. During those same years, only 54% of European households did, including just 12% of rural households.").

[37] NTIA National Broadband Map, "Broadband Statistics Report, Access to Broadband Technology by Speed, Dec. 2013 data," July 2014 ("NTIA Dec. 2013 Broadband Technology Statistics Report"), *available at* http://goo.gl/AxaYxg.

[38] For example, there are no cable services in Greece and Italy, and only minimal deployment in several other countries such as France, Lithuania and Latvia. *See* E.U. Indicators 2014.

[39] NTIA Dec. 2013 Broadband Technology Statistics Report.

[40] E.U. Trends.

[41] NTIA Dec. 2013 Broadband Technology Statistics Report and E.U. Trends.

[42] *See* NTIA Dec. 2013 Broadband Technology Statistics Report and E.U. Trends.

U.S. housing units (which includes business premises) were located in an area served by fiber-to-the-home broadband. The E.U. trailed, with 15 percent FTTH/FTTB coverage.[43] However, next generation VDSL coverage was 31 percent in the E.U., whereas such service was only available to 11 percent of U.S. housing units.[44]

- Commissioner Pai used out-of-date information to misleadingly portray the U.S. as vastly superior to the E.U. in terms of access to advanced mobile broadband technologies.[45] He failed to note the role of the U.S.'s unique deployment of both CDMA and GSM-based mobile standards, and how the end-of-life of the CDMA-based EVDO data protocol spurred Verizon Wireless to deploy LTE, while GSM carriers in the E.U. were able to offer similar speeds using the GSM-based HSPA+ 4G technology standard.[46]

    - Commissioner Pai and IIA curiously cited 2012 LTE deployment data, when more recent data is presented on the same web page. As stated above, Europe has lagged in LTE deployment because carriers there were able to meet demand for higher-speeds using 4G HSPA technologies. E.U. coverage of 4G HSPA LTE has always and continues to exceed that in the U.S. (95 percent coverage in the U.S. and 96.3 percent coverage in the E.U. as of the end of 2013).[47]

    - Furthermore, LTE availability jumped EU-wide from 10 percent at the end of 2011 to 60 percent at the end of 2013.[48]

    - As we show below, average and peak mobile connection speeds are greater on average in the E.U. than in the U.S. In addition, according to the European Commission, "the price of mobile data in the EU is amongst the lowest in the world," with the average price per GB reported at €15.60 in North American versus €10.10 in the E.U.[49]

- Commissioner Pai's contention that the difference in mobile deployment between the E.U. and the U.S. is somehow related to "Title II-style" regulation is bizarre, as mobile broadband

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[43] *See* NTIA Dec. 2013 Broadband Technology Statistics Report and E.U. Trends.

[44] *See* NTIA Dec. 2013 Broadband Technology Statistics Report and E.U. Trends. U.S. values are for DSL services exceeding 25Mbps downstream, a category primarily comprised of VDSL services (though it may include some very-short loop ADSL2+ services).

[45] *See* Pai Press Release, bullet no. 5 ("In 2012, 4G LTE deployments covered 86% of Americans. During that same time period, only 27% of Europeans had access to LTE.").

[46] *See, e.g.*, Sara Zaske, "EMEA: Europe takes the long road to LTE," *RCR Wireless News*, August 25, 2014 ("Oddly enough, the strength of Europe's 3G networks has been one of the factors hindering the move to the next generation. 'Each region is unique, and Europe is unique in that its 3G networks were of high quality,' said Ovum's Lambert. 'For the most part, 3G networks were doing a great job and because of that operators haven't seen a need to invest in very fast 4G.'").

[47] *See* State of E.U; *see also* E.U. Trends.

[48] *See* E.U. Trends.

[49] *See* E.U. Indicators 2012.

is essentially deregulated throughout most of Europe, with the most stringent form of regulation being data roaming (a policy also applied to U.S. mobile carriers).[50]

- Furthermore, Verizon Wireless – the early and current leader in U.S. LTE deployment – is subject to open access conditions, imposed by the FCC on the 700 MHz C-Block spectrum. The C-Block conditions imposed on Verizon – the worlds' LTE leader – are arguably more stringent than any imposed on mobile broadband services by any E.U. member. Neither Commissioner Pai nor IIA bothered to mention this information that doesn't fit their narrative.

- Commissioner Pai's press release incorrectly asserted (with no citation) that U.S. average mobile connection speeds are superior to those in Europe, stating "In 2013, average mobile connection speeds in the United States were 30% faster than those in Europe." But the most recent data from Akamai indicates just the opposite. Both average and peak mobile connection speeds are higher in Europe than in the U.S.[51]

  - Subscription weighted data for the 18 E.U. countries cited by Akamai indicates that average mobile connection speeds were 6.1 Mbps as of the third quarter of 2014, compared to 5.8 Mbps for the United States.

  - Subscriber-weighted peak mobile connection speeds were 39.9 Mbps in the 18 E.U. countries in Akamai's sample, compared to 16.9 Mbps for the U.S.

  - Though 59 percent of the weighted E.U. sample's mobile connections had speeds greater than 4 Mbps, only 26 percent of the U.S. mobile connections exceeded this level.

  - In terms of fixed connection speeds, subscription weighted data for the 18 E.U. countries cited by Akamai indicates that average fixed speeds were 9 Mbps as of the third quarter of 2014, compared to 11.5 Mbps for the United States. Subscriber-weighted peak speeds were 39.2 Mbps for the E.U. sample countries, and 48.8 Mbps for the U.S. Ten of the 18 sampled E.U. nations had average fixed connection speeds greater than 10 Mbps, while 11 had peak speeds exceeding 40 Mbps.

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[50] *See, e.g.*, "Broadband Networks and Open Access," Digital Economy Papers, No. 218, OECD Publishing, at 26-27 (2013) ("OECD Open Access Report"), *available at* http://dx.doi.org/10.1787/5k49qgz7crmr-en ("In most countries with [Mobile Virtual Network Operators (MVNOs)], regulators have refrained from mandating that [incumbent Mobile Network Operators (MNOs)] give MVNOs open access to their networks." Indeed, since 2007 most E.U. countries have turned away from the basic access requirements for mobile voice services, requirements that remain in place in the U.S. *See id.* at 28 ("In its most recent update of the Recommendation on relevant markets (December 2007), the European Commission removed the mobile access and call origination market from the recommendation, suggesting that these markets were generally competitive in the European Union, unless national regulatory authorities considered otherwise.").

[51] *See* "Akamai's [State of the Internet]: Q3 2014 Report," Akamai (2015). Subscription data for weighting from *E.U. Indicators*.

- Thus in terms of performance capability, we see once again that the U.S. and the E.U. are remarkably similar.

**In sum, Commissioner Pai's various claims couldn't be more wrong.** His eagerness to leap to conclusions not grounded in evidence and reality speaks quite poorly for the hopes of any return to rational bipartisan policymaking at the Commission.

Much of the campaign exemplified by Mr. Pai's and IIA's fact-free crusade is the result of industry's fear of mandated network sharing through unbundling, line sharing and other open access policies. Though these policies could bring much needed competition to monopoly and duopoly markets,[52] they're simply not on the table at the Commission, as Chairman Wheeler has indicated the pending reclassification order will specifically forbear from the provisions of the Communications Act that require incumbents to permit resale or offer wholesale access to the last mile.

Indeed highlighting how unmoored this discussion is from reality, what Commissioner Pai and those waging this fear-based disinformation campaign seem to forget is that the Commission ended most open access policies (including those for fiber-to-the node subloop and full fiber-to-the-home loops) in its *2003 Triennial Review Order* – while these DSL and fiber optic services were still classified as Title II services. This is still governing policy, and nothing about reclassification will nullify the prior decisions to largely end open access for advanced services. And despite their slamming of Europe for maintaining such policies, it's not just several E.U. countries but the U.S. too that still requires full-unbundled local loop access (for other services not covered by the *2003 Triennial Review Order* decision). This unbundling policy – which has always remained in effect in the U.S. – is the primary form of unbundling used in the E.U. in the countries where it is imposed, a fact that shreds the basis for Commissioner Pai and IIA's general assertions about the differences between E.U. and U.S. policy.[53]

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[52] As the OECD noted in it most recent report on open access policies, "The importance of open access policies, mostly in the form of regulated access should not be underestimated. The role of local loop unbundling in developing competition in numerous OECD countries has been significant. Success stories such as France or the United Kingdom in Europe or Japan and Korea in Asia are partly, if not mostly, the outcome of well implemented open access policies." *See* OECD Open Access Report at 39. OECD also noted, "very few incumbent telecommunication operators had announced the introduction of DSL prior to regulatory authorities signaling their intention to apply unbundling policies." *Id.* at 12. This is certainly the experience observed in the U.S., where there was very little ILEC DSL deployment prior to the *1998 Advanced Services Order* imposing line sharing policies, which was followed by massive ILEC DSL deployment to nearly 80 percent of lines by the time the policy sunset in August 2006.

[53] *See* E.U. Indicators 2014 (noting that of new entrant DSL lines (which include VDSL), 77 percent are full unbundled local loops (which, as noted above is a policy that remains in place for the U.S. ILECs' copper networks), six percent are line-shared (*i.e.*, where the incumbent offers voice while the competitor offers data over the same incumbent line), 11 percent are bitstream access (this includes wholesale DSL services that hand off the traffic to the competitive carrier at the central office), and 4 percent are resale (resale is a fully furnished end-to-end product where the incumbent also provides backhaul transport beyond the central office).

Nevertheless, it is important to note that some of very same voices currently decrying the mere possibility of restoring open access once advocated for these policies, characterizing such requirements as pro-competitive and pro-investment. Before he became a cable lobbyist and a vocal opponent of open access policies, former FCC Chairman Michael Powell said:

> Line sharing has given birth to facilities-based competitive broadband telecommunications carriers and has provided a valuable source of inputs for broadband ISPs. The result has been lower prices for broadband users and, as a result, increased demand. I fear that the majority's elimination of line sharing strikes a blow to facilities-based competition. In addition, I fear that a result of this action will cause higher prices for broadband Internet access subscribers. Furthermore, I do not accept the argument that the elimination of line sharing provides an affirmative incentive for ILEC deployment of new broadband infrastructure.[54]

In sum, this effort by Commissioner Pai and industry allies is designed to conflate basic Title II nondiscrimination requirements here with unbundling in Europe; but the comparison is not only irrelevant to the current (and future) U.S. debate, it's simply not an accurate reflection of the myriad of policies used by individual member E.U. nations. Commissioner Pai and the IIA study misleadingly equate the modernized application of Title II with the practice of unbundling. The fact is that Chairman Wheeler is not proposing any mandatory resale or unbundling, and the Commission ended such requirements for fiber-optic based networks in 2003, when DSL and other telco company services were still classified under Title II.

Furthermore, lost completely in Commissioner Pai's statement and IIA's propaganda is the fact that most E.U. countries do not impose open access policies on mobile data networks, and in this respect they are no different than the U.S.

Moreover, while the Commission is not even contemplating a return to open access, IIA misleadingly claims it was a failure in Europe. The fact is that in many EU countries, like the Netherlands and France, there is facilities-based competition and unbundling too (in some cases imposed via merger conditions). In these and other countries, consumers have access to better quality and better-priced services than are available here in the U.S. Many carriers in the E.U. countries maligned by IIA deployed advanced wired technologies like VDSL years before U.S. carriers did, and did so under a range of access policies.

[54] *See* "Oral Statement of FCC Chairman Michael K. Powell, Before the Subcommittee on Telecommunications and the Internet, Committee on Energy and Commerce, U.S. House of Representatives," Feb. 26, 2003.

**Conclusion**

Free Press respectfully submits that, in the future, Commissioner Pai should not be so quick to spread information he obviously did not take the time to verify. The IIA study is full of laughable errors, omissions and other methodological sins in what is ultimately another sloppy and misleading piece of industry propaganda, something that should be expected from a group that once described itself as "an AT&T front group."[55] IIA's report is not a credible or serious research effort, and policymakers who want to rely on facts should steer clear of the study's deeply inaccurate findings as well as and Commissioner Pai's repetition of those flawed claims.

A proper analysis of the data reveals that the E.U. has similar or better broadband market outcomes, despite its lower average standard of living than the U.S. Adoption of fixed broadband is higher in the E.U. than the U.S. Adoption of 10 Mbps and higher-level services are similar, and the E.U. leads in adoption of very high speed (> 100 Mbps) connections. While the U.S. has a slight advantage in FTTH/B availability, the E.U.s incumbents have greatly outpaced U.S. carrier deployment of fiber-to-the-node VDSL services. Actual connection speeds for both fixed and mobile networks are very close. Relative investment levels are nearly identical, with ISPs in the U.S. and the E.U. as a whole re-investing about 13 to 16 percent of their revenues. But in the metric that matters most to everyday consumers, prices for broadband and bundled services are dropping sharply in the E.U. as they continue to increase here in America.

The topic of the impact of light-Title II oversight on network investment has received much attention, and the facts are there for all to see. Not only do the historical data confirm that a return to Title II will have no impact on investment, but numerous carriers like Sprint, Sonic.net, Frontier, and even Verizon itself have made it clear that the market, not regulation, drives their capital spending.

As Free Press meticulously detailed in our initial comments in this proceeding, the historical U.S. data shows that the period of time following the implementation of the 1996 Act produced the greatest level of investment in the telecom industry that this country has ever seen. And most of that investment came from the companies subjected to the full slate of Title II requirements including unbundling, something the FCC is decidedly not going to require in this order, or in the future.

If Title II were bad for investment or business, that would show up in the data during this period. It doesn't. Indeed, the facts are quite amazing. Average annual investment by telecom carriers was 55 percent higher under the period of Title II's application to their broadband offerings than it has been in the years since the FCC removed broadband from Title II. The cable industry's average annual network investments were 250 percent higher in the years before the FCC declared cable modem service not subject to Title II than it has been in the subsequent years. The highest investment year in history for cable networks followed the 9th Circuit's ruling that cable modem service contained a Title II common carrier offering.[56]

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[55] *See* NCTA report, *supra* note 3.

[56] *See* Free Press Comments at 90–111.

These are the facts. We hope that each and every member of the Commission will study them carefully, consult the primary sources, and reach the only rational conclusion possible: the pending item will not impact U.S. investment one iota, and will in fact promote increased demand and adoption of broadband, feeding the virtuous cycle. Chairman Wheeler's general proposal appears to do nothing more than affirm that the status quo beloved by incumbents will continue, while consumers finally have some basic legal protections against the most pernicious unjust and unreasonably discriminatory practices.

Respectfully submitted,

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# APPENDIX – SELECTED DATA

## Table 1: Investment is a Means to an End: E.U. vs. U.S. Investment, Revenues and Broadband Market Outcomes

| Region/Country | Investments and Revenues | | | Deployment | | Adoption | | | Quality | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2011-2012 Annual Per Capita Expenditures (U.S. $, non-PPP adjusted) | 2011-2012 Annual Per Capita Revenues (U.S. $, non-PPP adjusted) | 2011-2012 Capital Intensity (Capital Expenditures /Revenues) | Fixed Broadband Coverage (end-2013) | 4G Wireless Coverage (end-2013) | Home Fixed Broadband Adoption (end-2013) | Percent of Fixed Lines >10 Mbps (end-2013) | Percent of Fixed Subscriptions that are FTTH (end-2013) | Average Mobile Speed (3Q 2014) | Average Fixed Speed (3Q 2014) |
| European Union | $126 | $870 | 14.5% | 97% | 96% | 76% | 66% | 6% | 6.1 Mbps | 9 Mbps |
| United States | $241 | $1,711 | 14.1% | 95% | 96% | 68% | 67% | 8% | 5.8 Mbps | 11.5 Mbps |

*Source: E.U. Trends, E.U. Financial Indicators 2014, E.U. Broadband Indicators, State of the E.U. Telecom Sector, U.S. Census Bureau, FCC Form 477, National Broadband Map, Akamai State of the Internet.*

## Table 2: Fixed, Mobile and Total Communications Capital Intensity: European Union Countries & The United States (2012)

| Country | Mobile Capital Intensity (2012) | Fixed Capital Intensity (2012) | Total Capital Intensity (2012, incl. pay TV and other revenues) |
|---|---|---|---|
| Romania | 20.7% | 52.7% | 27.2% |
| Luxembourg | 7.4% | 43.9% | 23.2% |
| Ireland | 27.2% | 14.0% | 19.6% |
| Croatia | Incomplete Data | Incomplete Data | 17.6% |
| Hungary | 13.6% | 31.3% | 17.1% |
| Bulgaria | 13.6% | 37.1% | 16.9% |
| Estonia | 10.3% | 38.9% | 16.4% |
| Latvia | 22.0% | 15.1% | 16.2% |
| Netherlands | 9.8% | 24.3% | 14.9% |
| Italy | 13.8% | 17.8% | 14.6% |
| France | 9.8% | Incomplete Data | 14.5% |
| Belgium | Incomplete Data | Incomplete Data | 14.4% |
| Slovakia | 13.1% | 27.5% | 14.1% |
| Malta | 12.0% | 22.7% | 14.0% |
| Slovenia | 6.2% | 23.6% | 13.8% |
| Czech Republic | 12.5% | 14.2% | 12.4% |
| Greece | 10.1% | 13.8% | 11.9% |
| Lithuania | 8.8% | 18.3% | 11.7% |
| Portugal | 10.1% | 20.5% | 11.7% |
| Denmark | 5.7% | 30.4% | 11.3% |
| Germany | Incomplete Data | Incomplete Data | 11.0% |
| Finland | 11.9% | 17.0% | 10.2% |
| Sweeden | 10.6% | 12.1% | 9.9% |
| Cyprus | 8.0% | 14.8% | 9.3% |
| Poland | 8.2% | 16.4% | 9.2% |
| United Kingdom | 8.1% | 12.2% | 9.1% |
| Spain | 5.6% | 14.4% | 7.2% |
| Austria | 4.6% | 5.2% | 4.8% |
| E.U. (Countries with Complete Data Only) | 10.1% | 16.4% | 13.0% |
| E.U. Total (European Commission Estimate) | | | 15.0% |
| United States (Census Bureau Estimate) | | | 14.6% |

*Source: E.U. Trends, E.U. Financial Indicators 2014, State of the E.U. Telecom Sector, U.S. Census Bureau.*

**Table 3: Total Communications Revenues, Capital Investment & Capital Intensity: European Union Countries & The United States (2011–2012)**

| Country | Investment (US $ mil., non-PPP adjusted) | Revenues (US $ mil., non-PPP adjusted) | Capital Intensity (Inv./Rev.) |
|---|---|---|---|
| AT | $1,398 | $11,952 | 11.7% |
| BE^ | No Data | $23,100 | No Data |
| BG | $870 | $3,923 | 22.2% |
| CY | $225 | $1,520 | 14.8% |
| CZ* | $1,524 | $12,349 | 12.3% |
| DE^ | No Data | $155,033 | No Data |
| DK | $2,356 | $13,812 | 17.1% |
| EE | $290 | $1,953 | 14.8% |
| EL | $2,246 | $16,741 | 13.4% |
| ES | $9,836 | $92,083 | 10.7% |
| FI | $1,769 | $13,118 | 13.5% |
| FR** | Incomplete Data | $137,542 | Incomplete Data |
| HR^ | No Data | $4,566 | No Data |
| HU* | $1,140 | $7,496 | 15.2% |
| IE*** | $1,617 | $11,165 | 14.5% |
| IT*** | $16,047 | $113,452 | 14.1% |
| LT* | $244 | $1,812 | 13.5% |
| LU*** | $334 | $1,468 | 22.8% |
| LV | $162 | $1,014 | 16.0% |
| MT*** | $98 | $633 | 15.5% |
| NL^^ | No Data | $34,451 | No Data |
| PL | $3,577 | $26,754 | 13.4% |
| PT | $2,242 | $15,164 | 14.8% |
| RO | $2,612 | $9,706 | 26.9% |
| SE*** | $2,329 | $22,239 | 10.5% |
| SI*** | $398 | $3,372 | 11.8% |
| SK* | $776 | $5,841 | 13.3% |
| UK*** | $13,365 | $144,337 | 9.3% |
| EU (sum of totals reported) | $75,171 | $884,439 | Incomplete Data |
| EU (sum of totals with both data only) | $75,171 | $615,614 | 12.2% |
| EU Commission Estimate*** | $128,067 | $883,807 | 14.5% |
| U.S. (NAICS 517, inc. sat. & resellers) | $154,569 | $1,096,198 | 14.1% |

^ No Fixed, Mobile or Other Investment data reported for 2011-2012

^^ No Fixed, Mobile or Other Investment data reported for 2011

* No data for Other Investment, revenues for Other excluded to maintain comparability

** No Data for Fixed or Other Investment

*** No data for Other Investment, but reporting zero Other revenues

**** Investment amounts for entire E.C. communications sector, derived from EC's estimate of 2011 capital intensity of 14%, 2012 capital intensity of 15%.

*Source: E.U. Financial Indicators 2014, State of the E.U. Telecom Sector, U.S. Census Bureau.*

## Table 4: Revenue, Capital Investment & Capital Intensity for Top U.S. Providers (2012)

| U.S. Company | Mobile Capital Intensity (2012) | Fixed Capital Intensity (2012) | Total Capital Intensity (2012) | Mobile Capital Investment (2012) | Fixed Capital Investment (2012) | Total Capital Investment (2012) | Mobile Revenues (2012) | Fixed Revenues (2012) | Total Revenues (2012) |
|---|---|---|---|---|---|---|---|---|---|
| AT&T | 16.2% | 15.0% | 15.6% | $10,795,000,000 | $8,914,000,000 | $19,709,000,000 | $66,763,000,000 | $59,573,000,000 | $126,336,000,000 |
| Verizon | 11.7% | 15.9% | 13.1% | $8,857,000,000 | $6,342,000,000 | $15,199,000,000 | $75,868,000,000 | $39,780,000,000 | $115,648,000,000 |
| CenturyLink | N/A | 15.9% | 15.9% | $0 | $2,919,000,000 | $2,919,000,000 | $0 | $18,376,000,000 | $18,376,000,000 |
| Frontier | N/A | 16.0% | 16.0% | $0 | $802,504,000 | $802,504,000 | $0 | $5,011,853,000 | $5,011,853,000 |
| Fairpoint | N/A | 14.9% | 14.9% | $0 | $145,066,000 | $145,066,000 | | $973,649,000 | $973,649,000 |
| Windstream | N/A | 17.9% | 17.9% | $0 | $1,101,200,000 | $1,101,200,000 | | $6,139,500,000 | $6,139,500,000 |
| Cincinnati Bell | 6.5% | 15.6% | 13.4% | $15,800,000 | $114,200,000 | $130,000,000 | $241,800,000 | $730,500,000 | $972,300,000 |
| Comcast | N/A | 12.4% | 12.4% | $0 | $4,921,000,000 | $4,921,000,000 | $0 | $39,604,000,000 | $39,604,000,000 |
| Time Warner Cable | N/A | 14.5% | 14.5% | $0 | $3,095,000,000 | $3,095,000,000 | $0 | $21,386,000,000 | $21,386,000,000 |
| Charter | N/A | 23.1% | 23.1% | $0 | $1,732,000,000 | $1,732,000,000 | $0 | $7,504,000,000 | $7,504,000,000 |
| Cablevision | N/A | 17.0% | 17.0% | $0 | $991,586,000 | $991,586,000 | $0 | $5,847,758,000 | $5,847,758,000 |
| Suddenlink | N/A | 17.3% | 17.3% | $0 | $354,964,000 | $354,964,000 | $0 | $2,054,784,000 | $2,054,784,000 |
| Sprint | 11.6% | 6.2% | 11.0% | $3,753,000,000 | $240,000,000 | $3,993,000,000 | $32,334,000,000 | $3,881,000,000 | $36,215,000,000 |
| T-Mobile US | 14.7% | N/A | 14.7% | $2,901,000,000 | $0 | $2,901,000,000 | $19,719,000,000 | $0 | $19,719,000,000 |
| DISH | 7.2% | N/A | 7.2% | $945,334,000 | N/A | $945,334,000 | $13,181,334,000 | N/A | $13,181,334,000 |
| DirecTV | 11.3% | N/A | 11.3% | $3,349,000,000 | N/A | $3,349,000,000 | $29,740,000,000 | N/A | $29,740,000,000 |
| Total (excluding sat.) | 13.5% | 15.0% | 14.3% | $26,321,800,000 | $31,672,520,000 | $57,994,320,000 | $194,925,800,000 | $210,862,044,000 | $405,787,844,000 |
| Total | 12.9% | 15.0% | 13.9% | $30,616,134,000 | $31,672,520,000 | $62,288,654,000 | $237,847,134,000 | $210,862,044,000 | $448,709,178,000 |

*Source: Company 10-K SEC filings.*