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Blocking the AT&T / T-Mobile Merger will Harm Consumers, Communities & the Economy

- Merger Accelerates & Expands Access to High-Speed Wireless Internet
- Narrows the Digital Divide for Rural Areas and Minorities
- Improves Service Quality

Introduction & Executive Summary

The Department of Justice (DoJ) recently filed suit in federal court to block the proposed merger between AT&T and T-Mobile maintaining that consumers would be harmed by the elimination of T-Mobile, the fourth largest wireless carrier. Yet, there is no long-term future for a stand-alone T-Mobile as an effective competitor: it has neither the spectrum nor the capital to create a competitive network utilizing the latest wireless technology (called 4G LTE). In January 2011 the CEO of T-Mobile's parent company, Deutsche Telekom (DT), stated that DT would not provide the capital for T-Mobile's 4G LTE deployment. T-Mobile also is on a downward trajectory suffering from declining revenue, eroding profit margins and increasing customer defections.

This situation will erode further if the deal is blocked. Absent a merger, Deutsche Telekom will respond by cutting labor and other operating expenses at T-Mobile in order to maximize its cash returns from an asset with declining value—a path that will harm consumers as well as T-Mobile workers. Already, T-Mobile has started down this path, cutting employment at its U.S.-based call centers. In an editorial, the *Chicago Tribune* wrote: **"Before filing suit to block the $39 billion merger…the U.S. Department of Justice should have asked a simple question: Now what? …it's hard to imagine why government lawyers think T-Mobile will be an effective competitor in years to come."**[1]

Overall, consumers, workers and communities will be better off with the merger. AT&T has already promised to maintain T-Mobile's existing rate plans; use its spectrum to create a more efficient network with better service quality; keep all T-Mobile call center workers employed; bring back 5,000 jobs from overseas; expend additional capital to expand its 4G-LTE network to 55 million more people and, in the process, create as many as 96,000 jobs; and agree to divestitures in specific markets to maintain more competition IF the deal is approved by the DoJ and the FCC.

It is vitally important to understand that these significant and tangible benefits of the merger would be lost if the DoJ suit is successful. Indeed, the merger affords the United States a special opportunity: it will enable AT&T to build a more efficient next-generation high-speed wireless network more quickly in more places and improve service quality more expeditiously than either AT&T or T-Mobile could do separately. These benefits are unique to this merger because of the complementary character of the technologies utilized by AT&T and T-Mobile.

[1] "Government Static disrupts a phone connection: The FCC and Justice need to help AT&T and T-Mobile merge," Chicago Tribune, September 12, 2011.

These benefits would vanish if the DoJ is successful in blocking the merger. Not only would such action stymie AT&T's planned build-out but it could also adversely affect the 4G expansion by other major wireless carriers. A recent report by Morgan Stanley stated that "The DoJ's recent actions increase Washington's influence on the fate of the industry and could force carriers to reassess and/or delay 4G strategies…In short, the DoJ lawsuit introduces a great deal of uncertainty into the telecom sector: uncertainty for AT&T and T-Mobile, uncertainty for their competitors who may reassess their strategies and of course uncertainty for investors."[2]

Universal, affordable high-speed broadband is an essential component for a vibrant 21st century economy. The benefits of high speed broadband include jobs and economic growth and improved and more efficient health care, education, public safety, civic engagement and rural economic development. Yet, the U.S. faces a national digital divide in the deployment, adoption and use of high-speed broadband. And we face an international digital divide because other countries have higher percentages of broadband adoption and offer broadband at higher speeds.

U.S. consumers and businesses will benefit from more robust wireline and wireless high-speed networks. The latest generation of wireless technologies that is being rolled out, called 4G LTE, can reach speeds of more than 10 megabits per second (Mbps)—faster than the current speeds in 75% of the households having broadband. The next iteration of technology called 4G LTE Advanced will be able to reach speeds of 100 Mbps. Yet, there are significant economic and technological barriers to the deployment of these 4G wireless technologies, including lack of spectrum (the radio spectrum over which radio-based wireless systems function) to provide the necessary capacity, the less efficient use of existing technologies and the need for significant capital.

- **The ability of the U.S. to meet the exponential increases in the demand for wireless services is constrained by the lack of available spectrum.** Demand for wireless Internet access has exploded. Wireless "broadband" has become increasingly important and offers the unique benefit of being able to access data and connect to the Internet while on the move. The limited availability of wireless spectrum represents a constraint on the on-going ability to meet the explosion of demand for higher speed 4G wireless Internet services.

- **AT&T and T-Mobile each have significant capacity problems.** T-Mobile has no clear path or spectrum to offer 4G LTE and its parent company, Deutsche Telekom, has stated that it will not fund any purchase of additional spectrum. AT&T is facing the exhaustion of the spectrum used for its current technologies and is limited in its ability to expand its planned deployment of 4G LTE due to spectrum constraints.

[2] Morgan Stanley, Telecom Services: 2Q Tracker: As the Focus turns to Washington Uncertainties Mount, September 12, 2011, pp. 1 and 7.

[3] Both T-Mobile and AT&T utilize GSM, UMTS and HSPA+ technologies which are part of the same wireless family and directly upgradeable to AT&T's 4G LTE. Both Verizon and Sprint utilize CDMA technologies but Verizon uses LTE for 4G while Sprint uses WiMax. There are technological problems integrating CDMA with GSM/HSPA.

- **The AT&T/T-Mobile merger will expand capacity and improve service for both companies beyond what they could achieve separately.** Significant synergies will result from a combined AT&T and T-Mobile network which enable more available capacity than the sum of the two companies separate networks standing alone. AT&T and T-Mobile will be able to generate such "synergies" because they use similar, complementary technologies.[3] In this case, it is technologically better to have one big network serving 130 million customers than two separate networks: one serving 34 million and the other serving 96 million.

- **The merger creates technological benefits for consumers and communities.** It will accelerate and expand deployment of high-speed wireless Internet to an additional 55 million people that would not have received coverage without this combination. It will narrow the digital divide by expanding wireless access to the Internet in rural areas and among African and Hispanic Americans. The merger also will improve significantly the quality of service for AT&T and T-Mobile consumers. There will be fewer dropped calls, better in-building and in-home coverage, and faster data services.

- **The merger is the best technological alternative available to AT&T and T-Mobile.** AT&T's other options could not remotely approach the merger in terms of increasing capacity, utilizing spectrum more efficiently, improving service and expanding 4G LTE deployment. AT&T cannot use its AWS and 700MHz spectrum to relieve congestion for its 2G and 3G customers because their handsets won't work on that spectrum. Furthermore, those spectrum bands are slotted for AT&T's 4G LTE deployment. Nor can AT&T obtain enough capacity through internal efficiencies or building additional towers to address its needs. For example, it would take AT&T eight years to obtain and activate the number of cell sites it will obtain from T-Mobile. AT&T also could not depend on a possible federal auction to reallocate spectrum because it is a multi-year process that needs Congressional approval, a FCC rule making, the actual auction and then a period for relocation of incumbent licensees and integration of the existing network and equipment with the spectrum—if the bid is successful. The merger also is the best alternative available to T-Mobile. Deutsche Telekom had made the decision to sell its T-Mobile subsidiary. The only real bidders were AT&T and Sprint. A sale to Sprint would have been technologically challenging at best and disastrous at worst.

- **CWA recommends that the Department of Justice and the Federal Communications Commission resolve their issues with AT&T so that the merger can occur and provide benefits to consumers, workers, and communities.** AT&T has stated that the merger would allow the company to expand its 4G LTE high-speed broadband network to cover 97% of the U.S. population within six years. This is an important benefit that should be made a condition for the merger's approval. For example, the FCC should require AT&T to meet deployment timetables, speed and quality benchmarks, with penalties for non-compliance.

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[4] National Center for Health Statistics, *Wireless substitution: Early release of estimates from the National Health Interview Survey, January–June 2010*, December 2010, available at the following address www.cdc.gov/nchs/nhis.htm.

[5] Cisco, Cisco Visual Networking Index: Forecast and Methodology, 2010-2015, June 1, 2011.

The Explosion in Demand for Wireless Services

The demand for wireless services has exploded as wireless technology has evolved to provide more services, speed and applications.

Wireless Speed Matters

Broadband initially developed over fixed wires into the household or business such as copper (from dial up to DSL), coaxial cable and fiber. However, wireless "broadband" has become increasingly important and offers the unique benefit of allowing people to access data and the Internet while on the move. Such remote and mobile access allows people to engage in social networking, use geo-location services and connect to medical, EMS and police personnel and soon will link machines to machines to be able to control such things as home appliances and energy consumption remotely. Wireless broadband has become a critical component in helping address the challenge of expanding access and use of high-speed broadband in the United States. It serves as a vital complement to robust high-speed wired networks.

Wireless has evolved from a first generation of analog technology that provided voice-only communications in the 1980s to a fourth generation (4G) of digital technology that delivers download speeds of up to 10 megabits per second (Mbps). Currently only 25% of the U.S. population has broadband that reaches comparable speeds. The next phase of 4G wireless will be able to reach speeds of 100 mbps.

Wireless Generations, Standards, Speeds and Applications

Generation	Family of Standards/Progression Path		Speeds	Application
	GSM	CDMA		
1G	Analog	Analog		Voice
2G	GSM	CDMA	28 Kbps	Voice, slow data
3G	Edge Evolved Edge UMTS HSPA	CDMA2000 EVDO	384 Kbps 3 Mbps	Audio streaming Video streaming E-mail Web browsing
4G Early	HSPA+ LTE	LTE or WiMax	10 Mbps	Standard-Definition Video on Demand
4G Advanced	LTE Advanced	LTE Advanced or WiMax 2	100 Mbps	Standard-definition broadcast video and some HD-Video

The following chart maps the four generations of wireless technology.

There are a number of important items to note from the evolution of wireless technology—especially in relation to the proposed AT&T/T-Mobile merger.

- **Each new generation of technology offers faster speeds and more efficient use of spectrum.** Thus, 4G LTE carries more information on a given amount of spectrum than 3G HSPA and much more than 2G GSM.

- **Previous, less-efficient generations of technology are still being used and represent a significant drain on capacity.** For example, in order to service its customers, AT&T must divide its spectrum between 2G, 3G and 4G networks. Spectrum among these users is freed only when customers migrate from an older to a newer, more efficient technology.

- **There are two separate technological family trees that are not easily compatible.** GSM based systems have evolved through UMTS, HSPA+, LTE and, the next step, LTE Advanced. CDMA based systems have evolved to EVDO.

  - The merger between AT&T and T-Mobile creates technological synergies because each of these companies utilizes GSM and HPSA based networks.

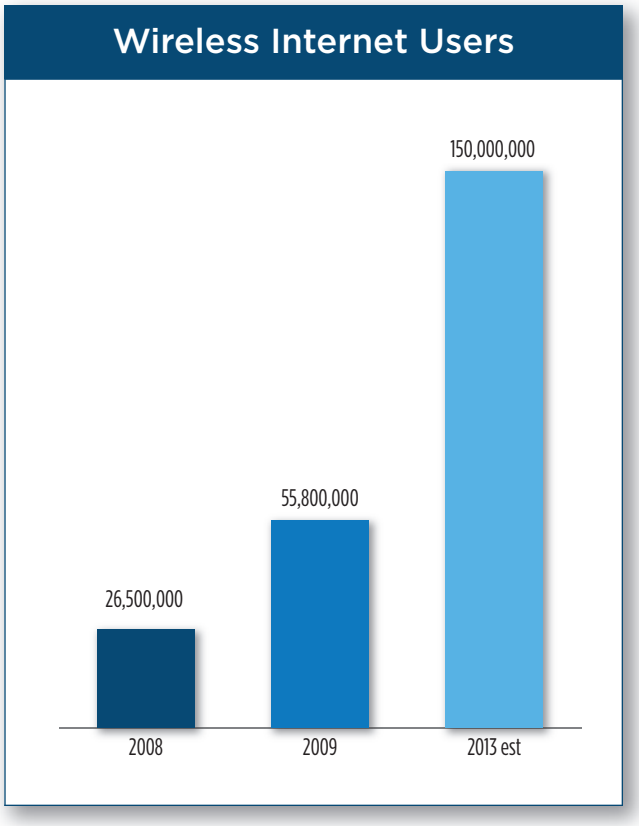
  - A merger between Sprint and T-Mobile (these companies were in merger discussions) would have experienced significant technological challenges because the two companies utilize different and incompatible technologies. T-Mobile's systems are GSM based while Sprint's systems are CDMA based.

Each of these items is critical to understanding some of the technological benefits of the merger and will be explained in later sections.

Significant Increases in Demand for Wireless

The use of wireless—driven by Smartphones and the demand for data—has exploded in terms of the volume of data traffic, the number of wireless internet subscribers and the percentage of households using only wireless connections.

- **Percentage of households that only use wireless.** Today, 27% of our households are wireless only—a figure that analysts predict will rise to 50% by 2015.[4]
- **Wireless data traffic.** In just one year, total wireless data traffic more than doubled from 107.8 billion megabytes in December 2009 to 226.5 billion megabytes in December 2010. Cisco Systems projects that total wireless data traffic will grow 20 times from 2010 to 2015.[5]
- **Wireless internet subscribers.** In just one year from the end of 2008 to the end of 2009 the number of wireless internet subscribers more than doubled from 26.5 million to 55.8 million.[6] Analysts estimate that by 2013, 53% of the population or more than 150 million people will subscribe to wireless broadband services.[7]



Obviously, as wireless demand has exploded, the value and importance of spectrum used by wireless companies has increased. For wireless companies, spectrum means capacity.

[6] Federal Communications Commission, 15th Mobile Wireless Competition Report, WT Docket No. 10-133, Released June 27, 2011, p. 9.

[7] Robert Atkinson, Ivy Schultz, Travis Korte, Timothy Krompinger, Broadband in America—2nd Edition, May 2011, p. 9 and Section 3.

Limited Spectrum Constrains the Ability to Expand 4G Wireless Networks

A national "spectrum crunch" limits the ability to expand 4G networks

FCC Chairman Julius Genachowski responded to the massive increase in demand for wireless spectrum by warning of a capacity crisis that will raise prices and reduce innovation:

> *"The coming spectrum crunch threatens American leadership in mobile and the benefits it can deliver to our country… [I]f we do nothing in the face of the looming spectrum crunch, may consumers will face higher prices—as the market is forced to respond to supply and demand—and frustrating service—connections that drop, apps that run unreliably or too slowly. The result will be downward pressure on consumer use of wireless service and a slowing down of innovation and investment in the space. Emerging markets like mobile medicine, mobile payments, social-network-based services and machine-to-machine connectivity will see their growth stunted. This would hurt our economy broadly. It would also have a disproportionate impact on minority and low-income groups who are more likely than the average American to access the Internet through a mobile device."*[8]

New spectrum cannot be created—it is a limited resource. But there are two ways to increase the amount of spectrum that is available. First, the federal government can reallocate spectrum that is already being used. The process of revisiting or revising spectrum allocations has historically taken 6-12 years. The last auction was in 2008 when the FCC auctioned spectrum in the 700 MHz band that was previously used for analog TV but had become available because of the more efficient use of spectrum due to the switch from analog to digital television. The FCC, in its National Broadband Plan, recommended another auction within five years.[9] However, such an auction is a very complicated political process that involves Congress, the FCC and competing interests between those who currently have the spectrum that is targeted for reallocation (especially broadcast TV) and those who want the spectrum. If and when such an auction takes place, the actual deployment of networks to utilize that spectrum adds still more time.

Second, existing spectrum already being held by wireless companies can be combined resulting in capacity gains and increased spectrum efficiency. This is a much more timely option for expanding capacity and freeing up spectrum for 4G deployment. Indeed, it is one of the primary technological benefits of the AT&T/T-Mobile merger that will be discussed in the next section.

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[8] Remarks of FCC Chairman Julius Genechowski, CTIA Wireless 2011, March 22, 2011.

[9] Federal Communications Commission, *Connecting America: The National Broadband Plan*, Chapter 5: Spectrum, pg. 79.

T-Mobile does not have the spectrum or capital to build a 4G LTE network

- **T-Mobile acknowledges that it "does not have access to the spectrum needed to deploy LTE** in an economically and technically sustained fashion." T-Mobile has already dedicated its existing spectrum resources to its second generation GSM and third generation HSPA+ networks which are less spectrally efficient than 4G LTE.[10] In addition, the company is facing spectrum constraints in a number of important local markets.[11]

- **T-Mobile does not have access to the capital it needs to fund the investments in spectrum and infrastructure** to be able to remain competitive as well as to deploy 4G LTE.[12] Its parent company, Deutsche Telekom, made it clear that it would put no more capital into T-Mobile. Rather, T-Mobile would have to fund all network upgrades from internally generated cash flows, which are not sufficient to build a 4G-LTE network, estimated to cost more than $12 billion.[13] T-Mobile only expended $2.8 billion in capital expenditures in 2010. As the CEO of Deutsche Telekom publicly stated, T-Mobile "has to develop into a self-funding platform that is able to fund its future itself."[14]

AT&T's own "spectrum crunch" limits its 4G LTE build out

Spectrum means wireless capacity. Insufficient spectrum limits a carrier's coverage, service quality and data connection speeds. AT&T faces capacity constraints due to skyrocketing demand—especially fueled by smartphone use—and the necessity of allocating enough spectrum to address three different technological generations simultaneously.

- **Capacity needed to meet increasing demand.** Demand for AT&T's spectrum has skyrocketed—especially due to increased smartphone usage.

  - AT&T mobile volumes increased by 8,000% from 2007 to 2010.

  - AT&T projects that demand will increase by a factor of 8 to 10 by 2015.[15]

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[10] Federal Communications Commission, Application of AT&T and T-Mobile, *Declaration of Thorsten Langheim, Senior Vice President of Mergers and Acquisitions*, Deutsche Telekom, WT Docket No. 11-65, April 2011, paragraph 12.

[11] Federal Communications Commission, Application of AT&T and T-Mobile, *Declaration of Dr. Kim Larsen, Senior Vice President Deutsche Telekom*, WT Docket No. 11-65, April 2011, paragraph 18.

[12] Langheim Testimony, paragraph 14.

[13] Federal Communications Commission, "A Broadband Network Cost Model: A Basis for Public Funding Essential to Bringing Nationwide Interoperable Communications to America's First Responders," OBI Technical Paper No. 2, May 2010. This paper estimates the net present value of capital expenses and 10-year ongoing costs for a stand-alone 4G-LTE network to be $15.7 billion with an additional $34.4 billion in on-going costs. The Congressional Budget Office estimated the cost at $11.5 billion; see Congressional Budget Cost Estimate, S. 911 Public Safety Spectrum and Wireless Innovation Act, July 20, 2011.

[14] Briefing by Deutsche Telekom and T-Mobile to Analysts, January 20, 2011, www.telekom.com/dtag/cms/contentblob/dt/en/979218/blobBinary/transcript_20012011.pdf.

[15] AT&T and T-Mobile, Joint Opposition of AT&T and Deutsche Telecom and T-Mobile to Petitions to Deny and Reply to Comments, FCC WT Docket No. 11-65, June 10, 2011 (AT&T Reply Comments) p. 20.

- AT&T provides service to 31 million smartphone users—a base which is still growing significantly. For example, smartphones accounted for 80% of AT&T's device sales in connection with contract plans in the second quarter 2010. Smartphones account for much of the growth in broadband volumes.

- **Capacity needed simultaneously to support three different generations of technology.** AT&T must simultaneously support tens of millions of customers with embedded handsets using 2G (GSM), 3G (UMTS/HSPA), and early-4G LTE technologies. The handsets for each technology are specifically designed for that technology's particular standards and frequency bands. Thus, a 2G GSM handset cannot be used for either 3G UMTS or 4G LTE services though a 3G UMTS device can fall back to 2G GSM. And neither 2G nor 3G sets can be used for any services in the AWS and 700 MHz bands that AT&T will be using for its 4G LTE services.[16]

  AT&T's ability to efficiently optimize its spectrum is limited by the requirement that it simultaneously support these three generations of technology. Each new generation is much more efficient than the previous technology. For example, 3G UMTS can support much more traffic on a fixed amount of spectrum than GSM. LTE is 40% more efficient than HSPA+ and 860% more efficient than GSM. However, getting customers to migrate from older technologies and handsets is a multi-year process. Thus, AT&T will have to continue to allocate significant amounts of spectrum to support GSM and UMTS—rather than redeploy them to LTE.

Increased demand leading to AT&T's capacity limitations had two major effects on the company. First, AT&T's service suffered from increased blocked and dropped calls and data connections and slower mobile broadband service. Second, AT&T's ability to build out 4G was limited by its need to allocate its existing spectrum to meet current and projected increases in demand and simultaneously support the users of 2G, 3G and 4G technologies.

The Merger: A Technological Home Run

The merger between AT&T and T-Mobile is a technological home run that covers four bases: compatibility, capacity, efficiency and synergy.

Compatible technologies

By combining AT&T's and T-Mobile's spectrum—and given AT&T's greater capital and labor resources—the post-merger AT&T will be able to build and expand a 4G LTE network to more places, more quickly than either company could do separately.

[16] AT&T has four spectrum bands. Its 850 and 1900 MHz spectrum supports 2g GSM and 3g UMTS while its 700 MHz and AWS holdings support LTE. 17 AT&T Reply Comments, pp. 21 and 28.

- **AT&T and T-Mobile technologies are uniquely compatible.** Unlike other major U.S. wireless providers, AT&T and T-Mobile both use GSM and UMTS/HSPA+ technologies. The integration of these common technological platforms, together with complementary spectrum holdings and well-matched cell-sites grids, produce significant synergies.

AT&T and T-Mobile Networks and Spectrum [17]

Spectrum Band	AT&T			T-Mobile		
	GSM	UMTS/HSPA	LTE	GSM	UMTS/HSPA	LTE
700 MHz			UC*			
850 MHz	✗	✗				
1900 MHz	✗	✗		✗		
AWS			UC*		✗	

*UC means Under-Construction

- **AT&T and T-Mobile spectrum holdings are complementary.** In many markets where T-Mobile has spectrum, AT&T is facing significant capacity constraints. Similarly, T-Mobile faces capacity constraints in a number of key markets. The merger will allow the combined company to alleviate these constraints and repurpose spectrum for 4G LTE.

Increased capacity, efficiencies and synergies—it's technologically better to combine compatible networks

A lack of capacity (spectrum), an inadequate number or placement of cell sites, overbooked cell sites, and inefficient channeling will result in poor quality service and dropped calls. The merger will improve service by freeing up spectrum and increasing the efficiency of the networks.

- **Increasing spectrum by using more efficient 4G and 3G technologies.** AT&T's 4G LTE network will allow much more data to be sent over the same amount of spectrum than 3G or 2G networks. For example, experts estimate that early 4G networks will deliver 3.3 times the data over the same amount of spectrum as 3G networks. Thus, a user of a 4G network will be able to download a video in about one-third of the time that it takes on a 3G network.[18] This will open up spectrum as AT&T and T-Mobile customers move from their 2G GSM networks to

[17] AT&T and T-Mobile, *Application of AT&T and T-Mobile, Description of Transaction, Public Interest Showing, and Related Demonstrations, April 2011, Federal Communications Commission*, WT Docket No. 11-65, page 33. (AT&T/T-Mobile Application to FCC)

[18] "4G will deliver three times more capacity than 3g says Ofcom," ComputerWorldUK, May 11, 2011, available at ComputerworldUK.com

the 3G UMTS networks and from 2G and 3G networks to the 4G LTE network. This will allow AT&T to extend its 4G network and improve service to its customers.

- **Creating a denser network by adding cell sites.** Integrating T-Mobile cell sites into AT&T's network will effectively double the amount of traffic that can be covered. This is done by "cell splitting." AT&T will be able effectively to divide, or "split" the geographic area covered by a cell site by adding one or more nearby cell sites. This effectively increases capacity because each cell site will serve a smaller area than the original so that fewer people will have to share the radio channels (frequencies) in each of the cell site splits. The merger allows AT&T to utilize T-Mobile's cell sites for this purpose. According to AT&T, many of the two companies' cell sites are complementary, not duplicative. T-Mobile's cell sites are more concentrated in highly urbanized areas because of the spectrum bands that it uses. These are the areas where AT&T is experiencing much of its spectrum constraints. Thus, AT&T can use T-Mobile's cell sites to fill in gaps in its coverage and/or relieve AT&T's spectrum and capacity constraints. Integrating the two networks is a much cheaper and quicker way of implementing cell site splits because building new cell sites is expensive and prone to costly delays. AT&T estimates that the integration of the two networks will lead to service improvements within nine months in specific markets and 24 months on a national basis.[19]

- **Increasing available spectrum by consolidating redundant GSM network control channels.** Both AT&T and T-Mobile dedicate substantial spectrum to GSM control channels which are used to transmit commands between user handsets and base stations. The combined network will only require a single set of control channels rather than separate sets for AT&T and T-Mobile. This will free up 10 MHz of spectrum in each market where AT&T and T-Mobile provide GSM service. This spectrum can be used to improve GSM service in congested areas or relieve UMTS congestion.[20] No other two major carriers have compatible GSM networks that would produce this synergy.

- **Increasing efficiency of existing spectrum through "channel pooling."** Not all users in a cell site are likely to place calls at the same time. Carriers thus place a large number of users in a "pool" of available radio channels to connect the handsets with the network. Efficiencies are created when a provider can combine spectrum in an area and pool a greater number of channels together. Thus, if a provider doubles the number of radio channels in a pool, it can serve significantly more than double the amount of customer traffic. One illustration is the difference in an airport ticket counter. One airline company has a single queue for four available ticket agents. The next customer will be served whenever a ticket agent is available. Another company has two queues on opposite ends of the airport with two ticket agents each. If there is no one in line for one group of agents, then those agents will not service any customer even if there is a long line of customers for the other two agents. The post-merger AT&T will be able to combine spectrum in an area and "pool" a greater number of wireless channels together.

[19] AT&T/T-Mobile Reply Comments, pp. 45-48.

[20] AT&T/T-Mobile Application to FCC, p. 36.

Thus, any given caller will be significantly more likely to find an open channel when a larger number of channels are pooled together. AT&T estimates that in the short term, such pooling will be able to increase available spectrum by 15% beyond the sum of each network's capacity standing alone.[21] This freed up spectrum can be used to improve GSM service or redeploy it to HSPA services.

- **Increasing the use of under-utilized networks.** The combined company can shift traffic from congested areas to less utilized areas. For example, in areas where AT&T's GSM network is congested and T-Mobile's is underutilized, the combined company can use T-Mobile's spectrum to relieve the congestion. Or in a market where T-Mobile's GSM network is underutilized and AT&T's UMTS network is congested but not its GSM network, the combined company can move T-Mobile's GSM customers to AT&T's GSM network and then redeploy T-Mobile's spectrum to relieve AT&T's UMTS congestion.[22] Such technological strategies will allow the combined company to free up spectrum to provide better quality GSM service or redeploy it to UMTS services.

Benefits to Consumers, Workers and Communities

Consumers and communities will obtain significant benefits from the merger.

4G LTE service will be deployed to an additional 55 million consumers reaching 97 percent of the U.S. population within six years

- AT&T's pre-merger plans would have provided high speed 4G LTE services to only 80 percent of the population.
- Due to the merger, AT&T has committed to increase its infrastructure investment in the U.S. by more than $8 billion over seven years.[23]
- The post-merger AT&T would provide 4G LTE to an additional 55 million people reaching 97 percent of the population including T-Mobile's 34 million customers who were not slated to obtain 4G LTE at all.

[21] AT&T/T-Mobile Application to the FCC, p. 38.

[22] AT&T/T-Mobile Reply Comments, pp. 52-54.

[23] AT&T Press Release, *AT&T to Acquire T-Mobile USA from Deutsche Telecom*, March 20, 2011.

- Currently, only about 20 percent of U.S. broadband subscribers connect at the speed of AT&T's 4G LTE system.

The merger alters AT&T's prior capital allocation calculus, giving AT&T additional spectrum, greater scale economies (such as higher volume discounts on handsets and equipment), a larger customer base over which to spread costs, and the expectation of a higher take-rate for its LTE service to support a business case for expanded 4G LTE wireless build-out. In essence, all these factors significantly alter AT&T's projected return on investment so that it becomes profitable for the company to expand its 4G wireless deployment to an additional 17% of rural America thereby tripling the land mass it will cover. This expansion of 4G LTE deployment is a concrete merger-related benefit.

Critics mistakenly claim that AT&T does not need to pay $39 billion to buy T-Mobile in order to cover the cost of expanded rural 4G LTE deployment. However, the $39 billion price tag includes all of T-Mobile's assets: spectrum, cell towers, equipment, customers, call centers, retail stores, and employees, among other items. The fact remains that absent the merger, AT&T management did not plan to deploy its 4G LTE to large parts of the U.S. population, but as a result of merger-related efficiencies and the ability to spread costs over a larger revenue base, AT&T now commits to do so.

Moreover, in light of the fact that T-Mobile had no path to 4G LTE, the expansion of AT&T's advanced wireless network to T-Mobile's 34 million customers is most certainly a merger-related benefit.

Most important, the merger provides policymakers a way to put private capital in support of the important public objective of universal broadband deployment. Rather than lose this opportunity by blocking the merger, the FCC should follow past precedent and condition merger approval upon AT&T commitment to meet enforceable and verifiable broadband deployment conditions.[24]

It appears that AT&T's strategy goes through a number of stages. If the merger is approved, AT&T will allow roaming between AT&T and T-Mobile 2G and 3G networks. AT&T also will be able to rationalize spectrum between the two companies and free up the acquired 3G AWS spectrum for LTE deployment. As it is currently being deployed, 4G LTE will initially be a data-only network with voice carried over the old 2G and 3G networks. As more customers migrate to UMTS and LTE, 2G can be phased out—thus freeing up even more spectrum and increasing capacity. Multi-mode devices will be added to the market for T-Mobile's HSPA+ subscribers allowing customers to take advantage of the new networks including 4G LTE. AT&T will be deploying 4G LTE services more broadly to cover 97% of the U.S. population.

[24] The FCC conditioned merger approval upon broadband deployment conditions in the NBCU-Comcast merger, CenturyLink/Qwest merger, CenturyTel/Embarq merger, SBC/BellSouth merger, and SBC/Ameritech merger, among others.

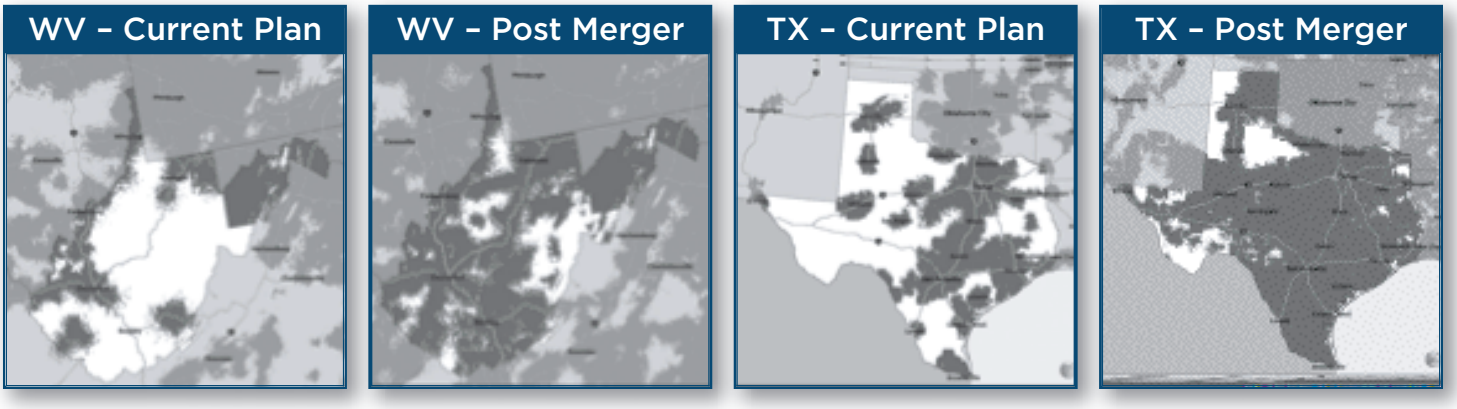
Rural Areas will especially benefit

While 70 percent of Americans in urban areas have broadband in their homes, the figure is only 50 percent for rural Americans.[25] Too many rural Americans live on the wrong side of the digital divide, and need high-speed broadband connections to build sustainable communities with jobs and access to services that will retain young people. The merger will help close the digital divide by providing expanded 4G LTE access to rural areas.

- **The post-merger AT&T would expand access to 4G LTE to an additional 17 percent of the population (55 million people)** who generally live in less populated areas, including rural and smaller communities, where economies of scale and density are very low and per-customer costs are very high. And in some of these areas, AT&T just did not have the spectrum needed to deploy 4G LTE.[26]

- **The post-merger AT&T will expand access to an additional, largely rural 1.2 million square miles**—an area equivalent to 38 percent of the land mass of the 48 contiguous states.

The following maps illustrate how the merger will enable the expanded deployment of 4G LTE wireless to largely rural areas.[27]



[25] Pew Internet and American Life Project, Home Broadband 2010, August 11, 2010 p. 8. www.pewinternet.org/~/media//Files/Reports/2010/Home%20broadband%202010.pdf

[26] AT&T/T-Mobile Application to FCC, page 55.

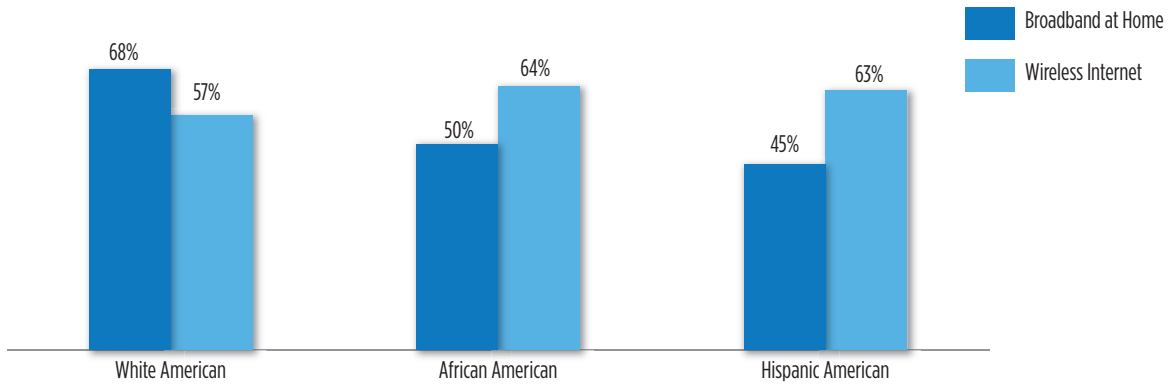
[27] For maps of other states go to http://mobilizeeverything.com/facts/coverage-maps

Minority Groups will especially benefit

There is a significant digital divide in the U.S. Only 49.9% of African-Americans and 45% of Hispanics subscribe to broadband at home compared to 68% of whites. Only 42% of rural African Americans and 29% of rural Hispanic Americans have adopted broadband in part because it is not yet available in their communities.[28]

Conversely, African and Hispanic Americans outpace whites in their adoption of wireless Internet connections. 88% of African and Hispanic Americans own cell phones compared to 80% of whites. And 64% of African Americans and 63% of Hispanic Americans use their mobile devices to connect to the Internet compared to 57% of whites.

Percentage Who Subscribe to Broadband at Home and Wireless Internet



As heavy wireless data users, African and Hispanic Americans have a particular interest in the expansion and upgrading of wireless networks. The AT&T/T-Mobile merger will do this by expanding the availability of 4G LTE to 97% of the U.S. population. These are some of the reasons why the proposed merger is supported by the NAACP, the National Urban League, the Alliance for Digital Equity and the Hispanic Institute among other minority groups.

Improved quality of service for AT&T and T-Mobile customers

Service quality will improve for both AT&T and T-Mobile customers because of a reduction in the number of dropped calls, better in-building and in-home coverage and faster more reliable data services due to the technological synergies previously identified. Without the merger such improvements would not have been as readily forthcoming. AT&T would continue to be strained by a lack of capacity and T-Mobile's expansion into 4G would not occur.

[28] U.S. Department of Commerce, National Telecommunications and Information Administration, Digital Nation: Expanding Internet Usage, February 2011.

The Merger is the Best Available Technological Alternative

The merger with T-Mobile is the best alternative for AT&T and T-Mobile consumers

Unable to readily acquire new spectrum through some undetermined future federal auction, AT&T was left with two basic choices: accept its current spectrum limits and initiate a longer term process of moving customers from 2G and 3G technologies and/or acquire spectrum from a competitor. The most beneficial option for AT&T and its customers was to purchase T-Mobile. AT&T's other alternatives to increase capacity could not have remotely approached the synergies, timeline or scale available through the merger with T-Mobile.

- **Acquiring new spectrum either from the FCC or by lease is not realistic.**
  - FCC Auction. As previously discussed such an auction has not been scheduled, requires the passage of new federal legislation, an FCC rulemaking, the auction itself, and clearance of the spectrum, Even if all these processes took place and AT&T would be a successful bidder—there would still be a multi-year process of deploying the needed equipment and developing the network to take advantage of the newly available spectrum.
  - Leasing Spectrum. Leasing spectrum from Clearwire or LightSquared would not address AT&T's capacity problems. AT&T's capacity limits are largely the result of serving customers using 2G and 3G handsets. These customers cannot be served by the spectrum available from Clearwire and LightSquared. Conversely, AT&T and T-Mobile use compatible GSM spectrum that will not require immediate handset replacements for existing customers.
- **AT&T could not put "idle" AWS and 700 MHz spectrum to use.** AT&T cannot use this spectrum for its 2G GSM and 3G UMTS customers because they have handsets that will not work on these spectrum bands. In addition, the AWS and 700 MHz spectrum is slotted by AT&T for its LTE deployment. AT&T would retard its 4G LTE build out if it used this spectrum for other purposes.[29]
- **AT&T could not realistically expand capacity by splitting its own and other providers' cell sites.** AT&T states that there are not enough cell sites located where AT&T needs them to fill the gaps in its network, have suitable height, orientation and lack of obstruction and have space available for both AT&T the other providers' equipment.[30] Furthermore, it is a relatively long and expensive process to add cell sites: a suitable location must be identified, the property

[29] AT&T/T-Mobile Reply Comments to the FCC, p. 9.

[30] AT&T/T-Mobile Reply Comments to the FCC, p. 6.

must be acquired through lease or purchase, regulatory requirements must be met, building permits and zoning approvals must be obtained, needed equipment must be purchased from third-party vendors, the site and associated back-haul must be constructed and then integrated into the network. The process can take years. According to AT&T, the cell sites acquired from T-Mobile would take AT&T more than 8 years to construct and integrate on its own.[31]

- **The ability of AT&T to free up spectrum by expanding the use of existing technologies is limited.** These technologies take traffic off the wireless radio spectrum and place it on other spectrum or on the wired network. WiFi can be used to move traffic from the licensed spectrum to the unlicensed spectrum. With more than 24,000 hotspots, AT&T already deploys the largest WiFi network of any carrier. But WiFi can only provide relief in highly localized areas with high user density. Distributed antenna systems (DAS) also can be used to help relieve congestion. DAS are collections of small antennas spread over a limited geographic area that are connected usually through fiber to a central location. AT&T also has deployed 1,800 DAS systems. But DAS also only provides relief to even smaller areas.[32] All these options can provide relief in very local areas but cannot individually or jointly address AT&T's broader, system-wide capacity constraints. Ultimately, CWA believes that AT&T and Verizon, among others, will need to build more high-speed wires to homes and businesses in order to move traffic off the wireless networks more quickly to ensure adequate capacity. The wired and wireless networks should be viewed as complementary.

- **AT&T will have difficulty expanding available capacity by moving customers from GSM to LTE.** Many customers may prefer their existing handsets to Smartphones. After all, they pay less for their phones and generally have lower monthly bills. Furthermore, it takes years to transition customers from older to newer technologies—even if they are offered economic incentives to switch. Sprint has been transitioning 800 MHz users of technology for seven years so far—even though there is a clear, public interest for these users to move from that technology because of interference and/or capacity limitations for public safety uses of that spectrum.[33]

These options—neither singly nor together—would obtain the benefits of scope, scale and time resulting from the AT&T/T-Mobile merger.

The merger with AT&T is the best alternative available to T-Mobile

Deutsche Telekom (DT) had already made the decision to sell its T-Mobile USA subsidiary and was actively considering a sale to either Sprint or AT&T. The alternative to the AT&T merger was not a standalone T-Mobile but a merger with Sprint. A T-Mobile merger with Sprint would

[31] AT&T/T-Mobile Application to the FCC, p. 46.

[32] AT&T/T-Mobile Reply Comments to FCC, pp. 8 and 70.

[33] AT&T/T-Mobile Reply Comments to FCC, pp. 33-34.

not have served the interests of consumers and workers.[34] Such a merger also would have created significant technological problems adversely affecting the timing and expansion of 4G LTE high-speed wireless networks.

- **A Sprint/T-Mobile merger would have major interoperability problems.** A Sprint/T-Mobile merger would have required the combination of four different wireless operating systems—with significant interoperability problems. For example, T-Mobile uses GSM for its basic network which has significant interoperability problems with Sprint's CDMA-based system, and still operates the IDEN network it inherited with its Nextel purchase. In terms of the 4G network, Sprint chose WiMAX, which is not interoperable with LTE (the technology that is most compatible with T-Mobile's GSM platform and has been chosen by AT&T).

  As MobileBeat wrote on March 8, 2011, "In practice a union between the companies would likely result in disaster. Sprint and T-Mobile's 3G networks are completely incompatible, and at the moment the companies are also pursuing completely different 4G strategies. T-Mobile is focusing on expanding its 3G network with HSPA+ technology, while Sprint is counting on its majority stake in Clearwire to deliver WiMAX 4G. Having the separate networks coexist under a single company sounds like a major headache, and it would be years before Sprint and T-Mobile subscribers could coexist on the same network."[35]

- **Sprint has a poor track record with merging dissimilar networks.** The Sprint-Nextel merger was a disaster. Sprint has had trouble merging dissimilar networks. Sprint was not able to integrate its iDEN and CDMA networks and has announced plans to phase out the iDEN network beginning in 2013.

- **The last thing Sprint needs is to expose itself to another potentially challenging Nextel-like distraction.** While Sprint is making progress improving the financial and operational problems it has experienced since its 2005 Nextel merger, such progress would stall if faced with the financial, technological, and operational demands of T-Mobile integration.[36] As evidence of financial progress, by the first quarter of 2011 Sprint had added customers, lowered customer churn, turned an operating profit, and reduced losses per share. It was even able to raise average revenue per customer in the face of Verizon Wireless' introduction of the iPhone and AT&T's aggressive pricing on iPhones. Sprint has more spectrum than any competitor, and is pursuing a viable 4G strategy. Wall Street now rates Sprint, according to Capital IQ, in April 2011, as "outperform."[37] In other words, the opinion on the Street is that Sprint is turning the corner and is an attractive stock for investors.

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[34] Communications Workers of America, *Sprint or AT&T? The Real Story Behind the Merger*, April 2011. Available at list URL

[35] Devindra Hardawar, "Worst Idea Ever: Sprint in Talks to Buy T-Mobile," *MobileBeat*, March 8, 2011 http://venturebeat.com/2011/03/08/worst-idea-ever-sprint-in-talks-to-buy-t-mobile-report

[36] Analysts were not excited by the prospect of a Sprint/T-Mobile merger. See Chris Nolter, "Talk of T-Mobile deal brings Sprint integration anxieties," *Daily Deal/The Deal*, March 11, 2011. Bloomberg ranked the Sprint-Nextel merger as among the worst in corporate history for shareholder value. Zachary R. Mider, "M&A Losers in $10 Trillion Deal Binge Led by McClatchy, Sprint," Bloomberg, August 13, 2010. www.bloomberg.com/news/2010-08-13/m-a-losers-in-10-trillion-takeover-binge-led-by-mcclatchy-sprint-nextel.html

[37] This is based on a mix of analyst recommendations ranging from "buy" to "sell."

The DoJ and the FCC Should Resolve Their Issues with AT&T so that the Merger Can Occur and Provide Benefits to Consumers, Workers, and Communities

The merger will have significant benefits for consumers, workers, communities and economic development.

- Consumers would obtain better service and AT&T has promised to maintain T-Mobile's rate plans;
- Communities would benefit because high-speed wireless services would be extended to an additional 55 million people most of whom live in rural areas;
- T-Mobile workers would have greater employment security working for a financially healthy company with a plan for the future and AT&T has promised not to lay off any call center workers due to the merger.
- Communities and the economy would benefit from the creation of 96,000 jobs due to the additional capital to be invested by AT&T and the company's promise to bring back 5,000 jobs from overseas.

None of this will happen if the merger is blocked. Moreover, T-Mobile will have difficulty surviving as an effective competitor regardless of any regulatory decision. Consequently, the CWA urges the DoJ and the FCC to resolve their issues with AT&T so that the benefits of the merger can be realized.

In addition, CWA recommends that regulators condition their approval to make sure that the merger's benefits will actually take place. For example, regulators should make sure that AT&T follows through on its commitment to invest an additional $8 billion to expand its 4G LTE high-speed broadband network to cover 97% of the U.S. population within six years. Such a condition would require AT&T to meet deployment timetables, speed and quality benchmarks, with penalties for non-compliance.