REDACTED – FOR PUBLIC INSPECTION

June 20, 2011

Via Electronic Filing

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations*
WT Docket No. 11-65; DA 11-799; ULS File No. 0004669383
REPLY COMMENTS of Sprint Nextel Corporation

Dear Ms. Dortch:

On behalf of Sprint Nextel Corporation, we submit a fully redacted version of its Reply Comments in the above-cited proceeding along with its redacted attachments. This filing does not contain confidential information subject to the Protective Order, highly confidential NRUF/LNP information subject to the NRUF/LNP Protective Order, or highly confidential information subject to the Second Protective Order each in WT Docket No. 11-65 before the Federal Communications Commission.[1]

Pursuant to instructions provided by the Deputy Chief, Mobility Division, of the Wireless Telecommunications Bureau, we are filing this redacted version of the Reply Comments for public inspection in addition to an unredacted version. Versions with

[1] *Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations*, WT Docket No. 11-65, Protective Order, DA 11-674 (rel. Apr. 14, 2011) ("Protective Order"); NRUF/LNP Protective Order, DA 11-711 (rel. Apr. 18, 2011) ("NRUF/LNP Protective Order"); Second Protective Order, DA 11-753 (rel. Apr. 27, 2011) ("Second Protective Order").

selected redactions will be supplied upon request to other parties pursuant to the protective orders in this proceeding.

Sincerely,

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Before the
FEDERAL COMMUNICATIONS COMMISSION
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REPLY COMMENTS

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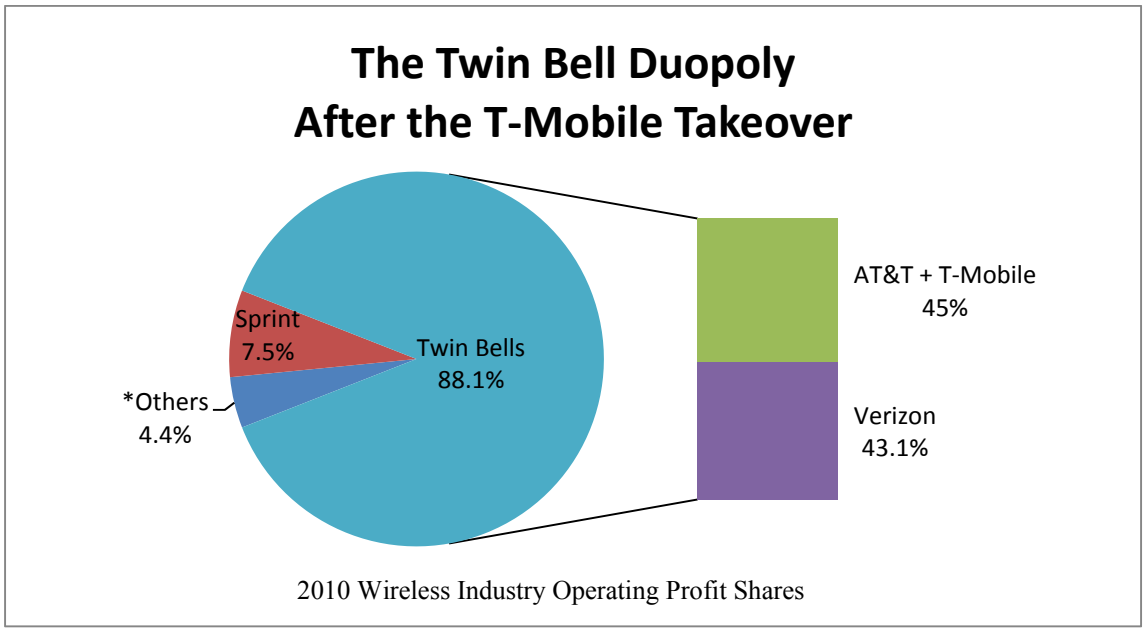
June 20, 2011

SUMMARY

For years AT&T has a pursued a "growth by acquisition" strategy, acquiring numerous wireless carriers to expand its spectrum holdings and market share. In the right circumstances, mergers can produce merger-specific efficiencies and economies of scale that promote, rather than impede, competition in the wireless marketplace. Such mergers promote the public interest by creating better service and innovation for customers. AT&T's proposed takeover of T-Mobile, however, is a very different kind of merger.

AT&T proposes to eliminate the nation's fourth largest carrier and capture a market share that would drive the industry toward an anti-competitive duopoly that would damage the competitive positions of all but the Twin Bells – AT&T and Verizon. AT&T seeks to justify the proposed takeover by pointing to purported benefits it hopes to gain by combining T-Mobile's network with its own, but AT&T is mistaking its private gain with the public interest. Far from benefitting from this merger, consumers would see fewer choices, higher prices, and less innovation. It is no surprise that the proposed transaction has sparked opposition from members of Congress, the wireless industry, a wide range of consumer groups and public interest advocates, and tens of thousands of individuals who have asked the Commission to stop this takeover.

With their Joint Opposition to the petitions to deny in this proceeding, AT&T, Deutsche Telekom, and T-Mobile have filed a tome that is long on rhetoric but fails to meet the merger proponents' burden of proof. The Opposition denies the transaction would create a duopoly, but the simple facts speak for themselves. "Duopoly" accurately describes the lopsided marketplace dominance the Twin Bells would gain post-transaction as demonstrated by the relative post-merger shares of operating profits in the wireless industry:



*US Cellular 1.3%, MetroPCS 1.9%, Leap 0.8%, Cincinnati Bell 0.2%, and NTELOS 0.2%
Source of Data: "U.S. Wireless 411," UBS Investment Services, March 30, 2011

The Commission has first-hand experience with a wireless industry dominated by two providers. In the past fifteen years, strong competition among wireless carriers has greatly lowered prices, created jobs, and fostered a vibrant mobile broadband world. But the cellular duopoly era prior to the growth of wireless competition presented a very different story. If approved, AT&T's takeover of T-Mobile would send us back to that era along with its supra-competitive prices, poor service, and stifled innovation.

The Applicants argue that the Commission should review the proposed transaction on a local rather than national geographic market basis. But the Opposition fails to cite a single economic expert, including the Applicants' own experts, to support this proposition. The ability to offer nationwide service is now a critical dimension of competition, with wireless services priced and advertised nationally and handsets developed and sold at a national level. Moreover, even when analyzed locally, the proposed transaction will harm competition in regions covering the vast majority of Americans.

Contrary to the Applicants' claims, fringe providers *cannot* fill the competitive gap AT&T's proposed takeover of T-Mobile would cause. MetroPCS, Leap, and the handful of other regional carriers have in the aggregate less than three percent of postpaid subscribers and less than eight percent of all wireless subscribers. Wireless competition is today taking place on a national level and these fringe providers do not have the network reach, cutting-edge handset offerings, strong retail brand, or economic scale to compete at that level. In addition, they have business models geared to their niche areas that would not be successful at the national level. Despite the Applicants' efforts to diminish T-Mobile's competitive position, T-Mobile *is* a strong competitor today as a low-price leader that helps discipline AT&T's and Verizon's prices and introduces innovative products and services.

The proposed takeover would give AT&T the unilateral incentive and ability to raise prices, as a number of economic metrics confirm. The transaction would also significantly increase the risk of coordination between the Twin Bells given their large post-transaction market share and the elimination of T-Mobile as a low-price maverick competitor. In addition, AT&T's takeover of T-Mobile would lead to exclusionary effects, raising smaller carriers' costs in purchasing roaming, backhaul, handsets, and network infrastructure equipment.

It is difficult to conceive of merger benefits that would outweigh the serious competitive harms that would result from AT&T's proposed takeover of T-Mobile, but the Applicants fail to demonstrate *any* cognizable, merger-specific public interest benefits. The Opposition asserts that the proposed takeover is necessary because AT&T faces unique spectrum and data service demands and because it confronts the unusual challenge of supporting three generations of technology. These assertions are patently false. First, all carriers face increasing demand for mobile data service. Verizon and AT&T, in fact, have nearly the same network usage today, and

Verizon's network usage is expected to significantly *exceed* AT&T's network usage by the end of this year. Second, it is common in the industry to support multiple generations of technology. Many carriers, including Verizon and Sprint, effectively handle the challenge of transitioning to newer generations of technology while continuing to serve an embedded subscriber base. Finally, AT&T can hardly claim spectrum poverty given that it is the largest holder of licensed spectrum in the country and has a national average of *40 MHz* of unused or underused spectrum. AT&T has kept this fallow spectrum in its warehouse for years while other carriers, such as Verizon, MetroPCS, and Clearwire, deployed cutting-edge 4G mobile services.

AT&T would like to throw T-Mobile's spectrum at its purported network capacity problem, but there are far more efficient means to meet the rising demand for broadband data services without creating a duopoly. AT&T can start by putting its unused spectrum to use by expediting its LTE deployment and taking common industry steps to accelerate subscriber migration to this far more spectrally efficient technology. AT&T can also supplement its macro cell network with a heterogeneous network topology using small cell network enhancements, such as picocells, femtocells, and WiFi hotspots. The Opposition quibbles with these alternatives, but cannot contradict the fact that they reflect the latest technology for squeezing the most capacity out of a fixed amount of spectrum and are being deployed by wireless operators worldwide for exactly this purpose. As demonstrated herein, these network management techniques should more than support AT&T's self-projected capacity needs until the Commission makes additional spectrum available for mobile broadband services later this decade. AT&T's unstated objection to these alternatives is that it does not want to make the investments in its network infrastructure that many other carriers make. That, however, provides no justification for its anti-competitive takeover of T-Mobile.

AT&T's LTE deployment plans are an even weaker rationale for the proposed takeover. Unless the takeover is approved, AT&T insists that it will deny 17 percent of the U.S. population access to 4G services and cede these consumers and businesses to Verizon, which has already embarked on a plan to provide 4G service to nearly the entire U.S. population. Even in the absence of the proposed transaction, AT&T is likely to follow suit given its large resources and extensive, nationwide spectrum holdings. AT&T's LTE "promise" is in reality an empty threat to withhold its LTE deployment to rural and exurban areas if it does not get its way in this proceeding.

No package of divestitures or behavioral conditions could remedy the serious public interest harms that would arise from AT&T's takeover of T-Mobile. In the face of a Twin Bell duopoly, divestitures and conditions would be entirely insufficient to replace the nationwide competition and innovation that T-Mobile provides today. If approved, the proposed transaction would turn the clock back to the lack of competition that characterized the 1980s cellular duopoly and force the Commission to retreat from its salutary efforts over the past two decades to promote the public interest through competition.

The Applicants have the burden of proving by a preponderance of the evidence that the public interest harms of their proposed transaction are outweighed by public interest benefits. They have fallen far short of carrying this burden, leaving the Commission no choice but to deny its consent to the transfer of T-Mobile's licenses to AT&T.

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APPENDIX AND ATTACHMENTS

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REPLY COMMENTS

Sprint Nextel Corporation ("Sprint") hereby replies to the Joint Opposition filed by AT&T Inc. ("AT&T"), Deutsche Telekom AG ("DT"), and T-Mobile USA, Inc. ("T-Mobile") (collectively, the "Applicants") in this proceeding.[1]

In its Petition to Deny, Sprint explained how AT&T's proposed takeover of T-Mobile would harm competition and consumers and turn back the clock to a 1980s-style duopoly with higher prices and less innovation.[2] Members of Congress have also expressed their strong concerns about the proposed transaction. Congressman Markey compared the proposed merger

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[1] Joint Opposition of AT&T Inc., Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments (June 10, 2011) ("Opposition" or "Opp."). Unless otherwise indicated, all comments and petitions to deny cited herein are contained in the record of the above-captioned proceeding. Appendix A lists these comments and petitions, as well as the shorthand references to them that are used in these reply comments. On June 10, 2011, the Applicants filed a voluminous amount of information and documents in response to the Commission's requests for additional information, but did not make a complete set of the unredacted version of their responses available to Sprint's counsel until June 17, 2011. The Commission has also requested that various wireless carriers submit certain information and data by June 20, 2011. Once it has the opportunity to review these responses to Commission information requests, Sprint will supplement the record with additional analysis regarding the public interest harms that would result from AT&T's proposed acquisition of T-Mobile.

[2] Sprint Petition.

to "a telecommunications time machine that would send consumers back to a bygone era of high prices and limited choice."[3] Senator Klobuchar cautions "that the merger will lead to fewer choices, higher prices, and reduced services for wireless consumers."[4]

A broad range of parties filed formal petitions and comments in this proceeding pointing out how the proposed takeover would harm competition and consumers. Wireless carriers, from regional to rural providers, are alarmed by the dominant market share AT&T would gain from the proposed transaction and the post-transaction "Twin Bell" duopoly's ability to squeeze out current and future competition through their control over spectrum, backhaul facilities, roaming, handset exclusives, and the digital ecosystem.[5] Even a wireless carrier that is 54 percent owned by DT and T-Mobile filed a petition that expressed significant concerns about the proposed transaction.[6] New entrants seeking to introduce new wireless competition warned that the takeover would create insuperable barriers to entry.[7] Numerous public interest groups provided comprehensive evidence that consumers would pay higher prices, have less choice, and enjoy less innovation if the Commission approves the proposed takeover.[8] The American Antitrust Institute ("AAI") unequivocally stated "it is evident that the Applicants have not met their heavy

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[3] Press Release, Congressman Ed Markey, *Markey, Conyers Raise Concerns Surrounding AT&T/T-Mobile Merger's Impact on Consumers*, (May 25, 2011), *available at*: <http://markey.house.gov/index.php?option=com_content&task=view&id= 4363&Itemid=141>.

[4] Press Release, Senator Amy Klobuchar, *Klobuchar Presses AT&T, T-Mobile on Consumer Issues: Senator calls on the heads of AT&T, T-Mobile to address adverse impacts of a possible merger before Senate hearings* (May 6, 2011), *available at*: <http://klobuchar.senate.gov/newsreleases_detail.cfm?id=332740&>.

[5] *See, e.g.,* MetroPCS – NTELOS Petition; Leap – Cricket Petition; RCA Petition; RTG Petition.

[6] Iowa Wireless Petition.

[7] DISH Petition; Cablevision Comments.

[8] *See* MAP, *et al.* Petition; Public Knowledge Petition; Free Press Petition.

burden of demonstrating that the proposed merger is in the public interest. On the contrary, the merger is highly likely to be anticompetitive and not necessary to achieve AT&T's claimed public interest benefits."[9]

Approximately 35,000 individual citizens across the country have taken the time to file their views with the Commission, and the overwhelming majority oppose AT&T's takeover of T-Mobile.[10] Reflecting this groundswell of opposition, numerous editorials have come out firmly against the proposed transaction.[11] The public has good reason to be concerned. A recent FCC study found that the "fastest growing platform for accessing news and information is the mobile device" and that the "high usage of mobile phones among minority populations positions wireless broadband to surpass efforts by other media to reach historically underserved communities with news and information."[12] Duopoly control over this critical mobile platform would consequently not only be bad for consumers, but harmful to our democracy as well.

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9 AAI Comments at 1.

10 James Temple, *AT&T Deal for T-Mobile Deserves Close Scrutiny*, THE SAN FRANCISCO CHRONICLE (June 5, 2011), *available at*: <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/06/05/ BUO21JPB1E.DTL>.

11 *See, e.g., America's Mobile Phone Merger: Not So Fast, Ma Bell*, ECONOMIST, March 24, 2011, *available at:* <http://www.economist.com/node/18440809>; *Consumers May be Losers in an AT&T Merger with T-Mobile*, CHRISTIAN SCIENCE MONITOR (Mar. 28, 2011), *available at*: <http://www.csmonitor.com/Commentary/the-monitors-view/2011/0328/Consumers-may-be-losers-in-an-AT-T-merger-with-T-Mobile>; *Our View: AT&T, T-Mobile Pose Problems*, USA TODAY (May 19, 2011), *available at*: <http://www.usatoday.com/news/opinion/editorials/2011-05-19-ATampT-T-mobile-merger-would-hurt-you_n.htm>.

12 Steven Waldman and the Working Group on the Information Needs of Communities, FCC, *Information Needs of Communities: The Changing Media Landscape in a Broadband Age*, at 17, 21 (June 9, 2011).

I. THE OVERWHELMING EVIDENCE IN THE RECORD DEMONSTRATES THAT AT&T'S TAKEOVER OF T-MOBILE WOULD CAUSE SERIOUS HARM TO COMPETITION AND CONSUMERS

The Opposition fails to rebut the record evidence that AT&T's takeover of T-Mobile would cause substantial anti-competitive harms and "would cement[,] once and for all, the consolidation of the wireless industry into a true and unequivocal duopoly."[13] The wireless industry began as a duopoly,[14] and the Commission knows firsthand the harms caused by duopoly.[15] If AT&T were allowed to assimilate T-Mobile, no carrier would be in a position to threaten the national dominance of the Twin Bells.[16] Consumers would see an end to the price reductions and innovation that have characterized the wireless marketplace in recent years.[17]

In these reply comments, Sprint responds to the Applicants' various assertions concerning the relevant geographic and product markets, the inability of fringe carriers to constrain AT&T's post-merger anti-competitive conduct, the significant risks of anti-competitive

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[13] MetroPCS – NTELOS Petition at 3, 6, 62-63; *see also* Joint Reply Declaration of Steven C. Salop, Stanley M. Besen, Stephen D. Kletter, Serge X. Moresi, and John R. Woodbury, Charles River Associates, Attachment A ¶ 150("CRA Reply Decl.") (explaining that the market may "revert to the 'bad old days' of a wireless duopoly, albeit one even more deeply entrenched at the national level with the same two carriers everywhere"); *see also, e.g.*, *How Will the Proposed Merger Between AT&T and T-Mobile Affect Wireless Telecommunications Competition?*: *Hearing Before the Subcomm. on Intellectual Property, Competition, and the Internet of the H. Comm. on the Judiciary*, 112th Cong., at 6 (2011) (testimony of Andrew I. Gavil, Professor, Howard University School of Law), *available at*: <http://judiciary.house.gov/hearings/pdf/Gavil05262011.pdf> ("Gavil Testimony"); Public Knowledge Petition at 36; Credo Mobile Petition at 1; MAP, *et al.* Petition at 28; RCA Petition at 3, 6-7; AAI Comments at 2.

[14] CRA Reply Decl. ¶ 142.

[15] *See, e.g., Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, First Report, 10 FCC Rcd 8844 (1995). *See also* CRA Reply Decl. ¶ 150.

[16] CRA Reply Decl. ¶ 152.

[17] *See id*. ¶ 152-54.

unilateral and coordinated effects, and other harms that would arise from the proposed transaction. As the discussion of issues shows, AT&T's takeover of T-Mobile would cause serious public interest harms.[18]

A. The Relevant Geographic Markets for Evaluating the Effects of the Proposed Takeover Are National and Local

The record in this proceeding demonstrates that there is a national geographic market for wireless service, as well as separate local markets. Specifically, the expert testimony submitted by Charles River Associates ("CRA") showed that: (1) the four national carriers generally set uniform, national prices (with limited local promotions); (2) handset competition occurs at the national level; and (3) decisions involving innovation and advertising are largely made on a national basis.[19]

Although the Applicants maintain their new-found belief that the Commission should define the relevant geographic market as local, none of the expert economic testimony filed with

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[18] Given the nature of these harms, there is no plausible set of merger conditions that would cure the anti-competitive consequences of AT&T's proposed takeover of T-Mobile. Traditionally, the Department of Justice ("DoJ") has moved to block transactions that were likely to substantially lessen competition when the merging parties were unable to offer a remedy that cured the transaction's anti-competitive effects. *See, e.g.*, Complaint, *United States v. Verifone Systems, Inc.*, Case No. 1:11-cv-00887, ¶ 10 (D.D.C. May 12, 2011) (challenging a transaction where the divestiture proposed by the merging parties had "two fundamental flaws as a remedy for the anticompetitive effects of the . . . transaction"); Complaint, *United States v. UPM-Kymmene, Oyj*, Civil No. 03C2528 (N.D. Ill. Apr. 15, 2003) (challenging the combination of two large manufacturers of pressure sensitive labelstock).

[19] CRA Reply Decl. ¶ 19; Joint Declaration of Steven C. Salop, Stanley M. Besen, Stephen D. Kletter, Serge X. Moresi, and John R. Woodbury, Charles River Associates ¶¶ 54-68, attached to Sprint Petition (May 31, 2011) ("CRA Decl."). In its Petition to Deny, Sprint also noted that, although analysis of the likely effects in the national market should be given priority, the merger may also cause narrowly targeted local effects that may warrant an evaluation of local markets as well.

the Opposition defines the relevant market(s) for evaluating this transaction.[20] As CRA observes, this omission is "somewhat surprising because market definition is a central issue."[21] In prior proceedings, the Applicants' experts have addressed this central issue and indicated that the Commission should review wireless mergers on a national level. Professor Willig, for example, highlighted the national dimension of the wireless marketplace in his 2008 Declaration in support of AT&T's acquisition of Centennial, telling the Commission that "AT&T and Centennial generally set U.S. prices for wireless service on a nationwide basis."[22]

In defending their new view on the relevant geographic market, the Applicants cite the Commission's review of transactions involving local or regional providers. As the record in this proceeding demonstrates, however, in the five years since the Commission last reviewed a merger between two national wireless carriers, the all-wireless retail market has become increasingly national.[23] As MetroPCS explains:

> [T]he Big-4 make all their network technology and handset choices and purchases nationally, have nationwide management structures run from a single location, and deploy capital, financing, human and other resources on a national basis. . . . [A]lthough the Big-4 may give modest latitude to their local management teams . . . , they all offer national service and pricing plans that include service throughout their entire footprint. This hardly bespeaks a local market.[24]

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20 CRA Reply Decl. ¶ 16.

21 *Id*.

22 *Id*. ¶ 20. *See also* Public Interest Statement, attached to Applications of AT&T Inc. and Dobson Communications Corp. for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 07-153 (July 13, 2007) (arguing that the Commission should evaluate competitive effects on the national level).

23 *See, e.g.*, Sprint Petition at 19-20; RTG Petition at 46.

24 MetroPCS – NTELOS Petition at 18-19. *See also* CCIA Petition at 7.

Despite the Applicants' thin reasoning that AT&T and T-Mobile are "organized to provide and market its services locally,"[25] over **[begin confidential information]** [redacted] **[end confidential information]** percent of AT&T's advertising in 2010 was national, as was over **[begin confidential information]** [redacted] **[end confidential information]** percent of T-Mobile's advertising.[26] And, although the Applicants now claim that local pricing and handset promotions are significant,[27] AT&T previously emphasized to the Commission that "[o]ne of [its] objectives is to develop its rate plans, features and prices in response to competitive conditions and offerings at the national level – primarily the plans offered by the other national carriers."[28] Furthermore, although AT&T's Chief Marketing Officer asserts in his declaration that AT&T has run some local handset promotions or discounts, he acknowledged that "AT&T makes many important competitive decisions at the national level" and that "AT&T generally goes to market with rate plans that are uniform nationally to ensure the consistency of AT&T's offerings (such as national advertising and marketing collateral) and to keep our training and customer care operations simple and consistent."[29]

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25 Opp. at 109-12.

26 *See also* RTG Petition at 48 (noting that "Nielsen data shows that the vast majority of dollars spent on advertising by the four national carriers is on a national basis"); CCIA Petition at 6-7; Leap – Cricket Petition at 9.

27 Opp. at 110-12.

28 Public Interest Statement, Applications of AT&T Inc. and Centennial Communications Corp. for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Leasing Agreements, WT Docket No. 08-246, at 28-29 (Nov. 21, 2008).

29 Declaration of David A. Christopher, attached to Joint Opposition of AT&T Inc. Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments, WT Docket No. 11-65, ¶¶ 6, 8, 11 (June 10, 2011) ("Christopher Opp. Decl.").

In any case, as CRA explains, "the fact that competition is not exclusively national in scope does not mean that a national market is irrelevant in evaluating the effects of this merger."[30] Given the demonstrated national nature of the carriers and services at issue, "exclusive reliance on local market analysis would ignore too many dimensions of the merger that could impact competition."[31] An AT&T economist also agreed with this conclusion, asserting in a 2009 declaration that "conducting a competitive analysis solely at a local level would be misleading."[32] Ignoring the national market in this instance would prevent the Commission from adequately examining the effect of the proposed takeover on markets and inputs that have no local or regional component. For example, commenters in the record have expressed valid concerns about the transaction's impact on wholesale wireless services,[33] mobile applications,[34] wireless broadband,[35] the pay-TV market,[36] mobile DTV,[37] handsets and

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30 CRA Reply Decl. ¶ 22, n.12.

31 Gavil Testimony at 3, 11. *See also* MetroPCS – NTELOS Petition at 16 ("[F]ocusing on local markets only may lead to inaccurate predictions about the likely effects of the merger."); AAI Comments at 7.

32 Declaration of Michael L. Katz, Exh. A, Comments of AT&T, WT Docket No. 09-66, at n.12 (July 13, 2009).

33 *See, e.g.,* Cincinnati Bell Wireless Comments at 8; Clearwire Comments at 5; CERC Comments at 27; Japan Communications Comments at 12-13. *See also* CRA Decl. ¶ 49.

34 *See, e.g.,* CERC Comments at 26-27.

35 *See, e.g.,* DISH Comments at 2 ("The proposed merger of AT&T and T-Mobile would impact competition within the wireless broadband and other relevant product markets on a nationwide level.").

36 *See, e.g.,* DISH Comments at 10-12.

37 *See, e.g.,* Mobile500 Alliance Comments at 3.

smartphone devices,[38] and machine-to-machine offerings,[39] all of which must be analyzed on a national basis.[40]

In sum, as the CRA Reply Declaration demonstrates, "[t]here should be no controversy over the existence of a relevant national geographic market, even if there are also local markets."[41]

B. The Commission Should Review the Competitive Effects of the Proposed Transaction in All Relevant Product Markets

The Opposition has not rebutted the record evidence that the Commission should, at a minimum, evaluate the significant reduction in competition that the proposed takeover would cause in three distinct product markets: (1) the combined market of all retail wireless services; (2) the market for postpaid wireless retail services; and (3) the market for corporate and government accounts. The Applicants do not dispute the existence of an "all retail wireless" market, but do dispute the existence of the other two product markets. Their arguments have no merit.

There are significant differences between postpaid and prepaid wireless services, including pricing, the subsidization of handsets, the average revenue per unit, and customer demographics. Moreover, using Commission-provided porting data, CRA conducted the

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38 *See, e.g.,* RTG Petition at 47-48; Free Press Petition at 18.

39 Japan Communications Comments at 15; RTG Petition at 31. *See also* Katie Fehrenbacher, *AT&T Links Up Next-Gen Energy Tech*, GIGAOM (Sept. 26, 2010), *available at*: <http://gigaom.com/cleantech/att-links-up-next-gen-energy-tech/>.

40 The Commission need not rely exclusively on an analysis of the effects of the transaction on a national level. The proposed transaction would result in a high degree of concentration and cause significant anti-competitive harms in local geographic markets as well as the national market.

41 CRA Reply Decl. ¶ 19.

"hypothetical monopolist" test to analyze whether the postpaid services of the four national carriers constitute a relevant product market. Several versions of the test were implemented using different types of critical loss analysis that "identify a set of products that are reasonably interchangeable with a product sold by one of the merging firms."[42] In addition, CRA performed the same tests for a "hypothetical cartel" that owns and controls both prepaid and postpaid services of the four national carriers. As explained in the accompanying CRA Reply Declaration, those tests establish that "the postpaid services of the four national carriers comprise a relevant product market."[43]

The record also supports Sprint's position that unique features of sales to corporate and government agencies render corporate and government accounts a separate relevant market.[44] As explained in the CRA Reply Declaration, carriers bid for corporate and government accounts, often through individually negotiated contracts.[45] Prices for these customers are not typically tied to generally available retail prices.[46] The Commission should thus analyze the impact the proposed transaction on *all* relevant product markets.

C. Contrary to the Applicants' Claims, Fringe Providers Do Not Constrain the Pricing Strategies of National Providers and Cannot "Fill Any Competitive Gap" Post-Transaction

Throughout the Application and the Opposition, the Applicants assert that "other providers already fill – or could easily move to fill – the competitive role T-Mobile USA

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42 *Id.* ¶ 32.

43 *Id.* ¶ 33.

44 *See id.* ¶¶ 2, 15, 83.

45 *Id.* ¶ 83.

46 *Id.*

occupies today."[47] In making these claims, the Applicants substantially overstate the competitive significance of MetroPCS, Leap, and other fringe carriers. The fringe providers do not constrain AT&T's prices today and would be incapable of replacing T-Mobile as a pro-competitive influence post-transaction.

The CRA Reply Declaration succinctly summarizes the characteristics of the fringe regional carriers that make them very different from the four national carriers:

> Individually and collectively they have small shares of the all-wireless national market and the largest fringe postpaid carrier (U.S. Cellular) is losing share. They have limited geographic footprints. They have weak brand names. They have limited access to the leading-edge handsets. Two of the largest fringe carriers – MetroPCS and Leap – offer only prepaid wireless service. They lack national footprints and their services to their subscribers who roam may be more expensive or degraded. Because of its product features, prepaid service appeals disproportionately to low-income subscribers who place less emphasis on the latest devices and features and roam less. These subscribers are lower income, less credit-worthy, and younger. They also have higher churn rates and lower ARPUs.[48]

These characteristics create substantial impediments to the ability of the fringe carriers to compete effectively in the postpaid market against AT&T and Verizon.[49] For example, the aggregate share of all the fringe carriers is less than T-Mobile's current share, and the fringe carriers' share of all wireless services has remained relatively stable. Thus, it appears highly improbable that the fringe carriers would be able to increase their shares of the market

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47 Public Interest Statement, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, at 70 (Apr. 21, 2011) ("Application").

48 CRA Reply Decl. ¶ 39 (footnotes omitted).

49 For purposes of the reply comments, "Verizon" is used to refer to Verizon or Verizon Wireless.

significantly and rapidly enough to offset the elimination of T-Mobile as an independent national competitor to the Twin Bells.

The FCC's porting data indicate just how daunting a challenge these fringe carriers would face in attempting to grow their subscriber bases quickly. Specifically, these data suggest that only **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** percent of AT&T's subscribers that ported out of AT&T switched to MetroPCS, Leap, and U.S. Cellular combined and only **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** percent switched to the entire fringe.[50] In contrast, more than **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** percent switched to another national carrier, including **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** percent to T-Mobile."[51]

The fact that the three largest fringe carriers lack a national footprint presents a similarly imposing obstacle to their efforts to reposition their services. The CRA Reply Declaration notes that "[t]he network footprints of each of the fringe carriers are substantially less than the footprint of AT&T and the other national carriers. In effect, each of these carriers is not currently an option for most consumers nationwide."[52] To overcome this impediment, the fringe carriers would have to undertake the costly and time-consuming process of acquiring both

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50 CRA Reply Decl. ¶ 44.

51 *Id*.

52 *Id*. ¶ 46.

substantial additional spectrum as well as a national infrastructure (*e.g.*, cell sites, mobile switching offices, and backhaul facilities).[53]

If, instead, the fringe carriers chose to limit their investment in new infrastructure and rely on roaming arrangements to serve other areas, they likely would find themselves at a significant cost disadvantage in competing with AT&T and Verizon. Leap, for example, noted in a recent filing with the Securities Exchange Commission ("SEC") that "in connection with the offering of our nationwide voice and data roaming service, we have encountered problems with certain large wireless carriers in negotiating terms for roaming arrangements that we believe are reasonable, and we believe that consolidation [in the wireless industry] has contributed significantly to some carriers' control over the terms and conditions of wholesale roaming services."[54] In other words, as the CRA Reply Declaration points out, "roaming costs may be substantially higher than (the appropriately amortized) infrastructure deployment costs."[55]

AT&T's claims in this proceeding regarding the effectiveness of the fringe carriers with limited infrastructure in competing with national carriers contrast sharply with the arguments it advanced when it sought to acquire Cingular. At the time, the AT&T Wireless network covered

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53 *Id*. ¶ 47.

54 Leap Wireless International, Inc., Annual Report (Form 10-K), at 10 (Feb. 25, 2011). *See also* United States Cellular Corporation, Annual Report (Form 10-K), at 8 (Feb. 25, 2011) ("[T]he national wireless companies operate in a wider geographic area and are able to offer no- or low-cost roaming and long-distance calling packages over a wider area on their own networks than U.S. Cellular can offer on its network. When U.S. Cellular offers the same calling area as one of these competitors, U.S. Cellular incurs roaming charges for calls made in portions of the calling area which are not part of its network, thereby increasing its cost of operations."); CRA Reply Decl. ¶ 46, n.64.

55 CRA Reply Decl. ¶ 48.

about 226 million POPs.[56] The Chief Marketing Officer of AT&T Wireless contended that it needed a "true nationwide network, offering consistently high quality service with consistent features, to market its national plans effectively."[57] Now, however, AT&T asks the Commission to believe that these fringe carriers can compete with the Twin Bells despite the fact that the carriers have substantially smaller coverage footprints today than AT&T Wireless had when it complained that it was unable to compete effectively.

In short, the fringe providers are poor substitutes for a national carrier such as T-Mobile. The key characteristics of their service offerings, handsets, and customer demographics differ substantially from those of the national carriers. Further, they face numerous, considerable impediments to any effort to reposition their offerings to compete with the national carriers.[58] Collectively, all of these obstacles undermine the ability of the fringe carriers to constrain the pricing and other practices of the post-transaction AT&T. Rather than providing a competitive check on a merged entity, the fringe providers are more likely to be weakened by the proposed takeover.[59]

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56 *Id.* ¶ 51.

57 *Id.* ¶ 50.

58 *See* supra at 11; CRA Reply Decl. ¶¶ 42-68 (describing the various disadvantages forced by the fringe carriers, including impediments to competing in a 4G environment). The Applicants also suggest that new entry by LightSquared, Clearwire, and Cox Communications would prevent the combined AT&T from acting in an anti-competitive manner. However, LightSquared does not currently serve a single customer and its entry has been delayed pending resolution of concerns regarding interference with GPS transmissions, Clearwire's EBS/BRS spectrum labors under complicated regulatory restrictions and operational challenges, and Cox Communications is decommissioning its existing wireless facilities and moving its service to Sprint's network. CRA Reply Decl. ¶ 69.

59 As the U.S. Government Accountability Office recently found, "[i]ndustry consolidation has created some challenges for small and regional carriers to remain competitive[.]" US Gov't Accountability Office, GAO-10-779, *Telecommunications: Enhanced Data Collection Could*

D. The Record Demonstrates That AT&T's Proposed Takeover of T-Mobile Would Create a Significant Risk of Anti-Competitive Unilateral and Coordinated Effects

The Applicants insist that AT&T's takeover of T-Mobile would not have any anti-competitive effects.[60] To the contrary, the record shows the takeover "poses a significant risk of unilateral, coordinated and exclusionary anticompetitive effects"[61] and would "create an entrenched duopoly in the market for mobile service[.]"[62]

The takeover would produce an increase in concentration in the postpaid services product market that would be presumptively classified as anti-competitive under the Merger Guidelines.[63] AT&T would control 43 percent of all postpaid subscribers nationwide and Verizon and AT&T collectively would control 82 percent.[64] Even using the broadest possible product market definition – one that includes all retail wireless services – the transaction would give AT&T and Verizon 76 percent of wireless subscribers nationwide and increase concentration significantly.[65] These high levels of concentration would result in precisely the type of anti-competitive harms that have led the government to block other four-to-three

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Help Better Competition in the Wireless Industry, at 10 (2010). *See also* Leap – Cricket Petition at 13.

60 Opp. at 125.

61 AAI Comments at 13.

62 Free Press Petition at 6; *see also* Leap – Cricket Petition at 10-11 ("The telecommunications industry already faces a rapidly accelerating trend in which capital, cash flow, spectrum, and subscribers are concentrated in two massive wireless companies: AT&T and Verizon."); *see also* Leap – Cricket Petition at 13 ("[T]he merger would result in AT&T and Verizon together enjoying a staggering 89 percent of industry [EBITDA].").

63 CRA Decl. ¶ 76, Table 4. Specifically, the subscriber-based post-merger HHI would be 3595 and the increase in the HHI would be 724. *Id.*

64 *Id.*

65 *Id.* at Table 2.

mergers.[66] Moreover, "if the Commission focuses on competition at the local level, this transaction would lead to striking increases in concentration in numerous markets around the country."[67] This increase in concentration would result in a range of serious anti-competitive effects.

1. The Transaction Would Increase AT&T's Incentive and Ability to Raise Prices Unilaterally

The record demonstrates that allowing AT&T to acquire T-Mobile would increase AT&T's ability to raise its rates without sacrificing profits. AAI, for example, notes that there can be "little dispute that unilateral price increases will occur, as AT&T moves T-Mobile subscribers to its more expensive, and more profitable, rate plans. Some of the synergy benefits of the deal depend on that occurring."[68] Indeed, the economic literature shows a clear relationship between price and concentration, with prices increasing as concentration increases or the number of sellers decreases.[69] AT&T's assertion that its takeover of T-Mobile would not

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66 AAI Comments at 12, n.29. *See also* William E. Kovacic, *Assessing the Quality of Competition Policy: The Case of Horizontal Merger Enforcement*, at 143 (explaining that in the 1990s and 2000s, the "threshold at which the federal agencies could be counted on to apply strict scrutiny" – and be most likely to challenge – was a reduction in the number of significant competitors from 4 to 3), *available at*: <http://www.ftc.gov/speeches/kovacic/2009 horizontalmerger.pdf>.

67 Leap – Cricket Petition at 12; Sprint Petition at 26. *See also* Free Press Petition at 25 ("The extent of the transformation of this merger at both the national and local level cannot be overstated.")

68 AAI Comments at 14; *see also* N. Landell-Mills, *AT&T Investment Profile*, INDIGO EQUITY RESEARCH, at 1 (Apr. 27, 2011) ("The real value of T-Mobile to AT&T is likely to be higher margins (and prices) generated due to its improved market position and industry consolidation."). In a similar vein, Professor Gavil has voiced "deep[] concern[]" about the anti-competitive effects the merger will have "across multiple dimensions of competition." Gavil Testimony at 3 (noting that the competition issues raised by the transaction are "obvious, substantial and wide-ranging").

lessen competition in the wireless industry is, in a word, incredible.[70]

If the takeover is permitted and T-Mobile no longer provides a constraint on AT&T's retail rates, AT&T would be able to increase prices profitably above what they would have been absent the transaction, for at least three reasons.[71] First, T-Mobile is a close competitor to AT&T.[72] Second, as discussed above, the small "fringe" of regional providers would not be able to constrain post-merger price increases by AT&T.[73] Third, potential new entrants would face

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69 *See* Paul A. Pautler, *Evidence on Mergers and Acquisitions*, 48 ANTITRUST BULLETIN 119 (2003) (citing studies indicating that "prices are higher where concentration is higher or the number of sellers is lower."); Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. II, Richard Schmalensee and Robert D. Willig, eds. (1989) ("seller concentration is positively related to the level of prices"); Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. II, op. cit. (citing studies confirming a relationship between price and concentration); John C. Coates and R. Glenn Hubbard, *Competition in the Mutual Fund Industry: Evidence and Implications for Policy*, Harvard Law and Economics Discussion Paper No. 592; John Sutton, *Market Structure: Theory and Evidence*, HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. III, Mark Armstrong and Robert Porter, eds. (2007).

70 *See, e.g., AT&T Wireless: Less competition means...lower prices?*, CONSUMER REPORTS (June 13, 2011), *available at*: <http://news.consumerreports.org/electronics/2011/06/att-wireless-less-competition-means-lower-prices.html> ("AT&T Wireless, which is attempting to buy T-Mobile, the smallest of the big four carriers that own national cellular networks, is advancing a novel new economic market theory: *Less* competition produces *lower* prices for consumers.").

71 *See, e.g.*, Sprint Petition at 28; CCIA Petition at 17 (explaining that the eliminating T-Mobile as a competitor will quickly lead to increased prices); Free Press Petition at 32-33 (explaining AT&T's "unilateral output suppression strategy" and describing the various factors that would allow AT&T to successfully and profitably raise prices to supracompetitive levels); AAI Comments at 14.

72 CRA Decl. ¶¶ 125-32 (explaining the important role T-Mobile plays in driving prices down and its competitive targeting of AT&T).

73 *See* Section I.C.; CRA Decl. ¶¶ 134-40. As CRA explained, fringe providers, such as MetroPCS and Leap, focus on the prepaid product market and would face "significant impediments" to offering the postpaid service that is the focus of AT&T and T-Mobile. CRA Decl. ¶ 135. In addition, the fringe collectively is very small, lacks national brand recognition, and is heavily dependent on other providers for roaming. CRA Decl. ¶¶ 136-40.

impediments in trying to launch services in competition with AT&T.[74] These conclusions are further buttressed by the upward pricing pressure ("UPP") analysis conducted by CRA, which showed that the merger would likely result in significantly higher prices than those charged by AT&T and T-Mobile today.[75]

The Opposition largely ignores many of the arguments in the record. The Applicants respond by generally asserting that the transaction presents "no risk of anticompetitive unilateral effects."[76] This blanket assertion, which flies in the face of both common sense and the evidence in the record, is anchored in two basic premises: (1) T-Mobile "is not a close substitute for AT&T";[77] and (2) the UPP analysis conducted by Sprint is "meritless."[78] As shown below, neither premise is accurate. Thus, the Applicants have not refuted – and cannot refute, as is their burden – the fact that the merger would create a significant risk of anti-competitive unilateral effects.

a. T-Mobile is a Close Substitute for AT&T and Plays an Important Role in the Wireless Marketplace

Despite the fact that AT&T and T-Mobile are the only two national GSM-based wireless carriers in the country, the Applicants persist in their claims that T-Mobile "is not a close

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74 CRA Decl. ¶¶ 142-44 (explaining that the merger would raise barriers to entry and noting the impediments new entrants already face). CRA also explained why Sprint and Verizon would be unlikely to prevent AT&T from exercising market power. *Id.* ¶¶ 133, 141.

75 Sprint Petition at 29; CRA Decl. ¶¶ 145-65.

76 Opp. at 133.

77 *Id*. at 134.

78 *Id*. at 133.

substitute for AT&T."[79] Still more implausibly, the Applicants make this assertion even as they try to convince the Commission that fringe providers of regional, prepaid services, with a fraction of T-Mobile's market share, can be relied on to constrain the ability of the combined entity to raise prices and engage in other anti-competitive actions.[80] These arguments not only strain credulity, but also are belied by the evidence in the record.

The record shows that T-Mobile is a strong competitor to AT&T and acts as a constraint on AT&T's pricing.[81] T-Mobile has also been the "upstart 'maverick' of the U.S. wireless retail marketplace,"[82] acting as a leader in pricing and innovation and aggressively engaging in both price and non-price competition with AT&T.[83] Consequently, "a pre-merger effort to raise price

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79 *Id*. at 134; Christopher Opp. Decl. ¶¶ 33-38; Reply Declaration of Dennis W. Carlton, Allan Shampine and Hal Sider, attached to Joint Opposition of AT&T Inc. Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments, WT Docket No. 11-65, ¶¶ 93-106 (June 10, 2011) ("Carlton Opp. Decl.").

80 Opp. at 134-137. As the New Jersey Division of Rate Counsel delicately puts it, "these two positions seem incompatible." N.J. Div. of Rate Counsel Petition at 33 (noting the inconsistency between the Applicants' argument that T-Mobile's service is not a close substitute for AT&T's service and their claims that small fringe carriers with "widely divergent strategies" are reasonable substitutes for AT&T).

81 *See, e.g.*, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fourteenth Report, 25 FCC Rcd 11407, ¶ 92 (2010) ("*14th CMRS Competition Report*") (finding that T-Mobile apparently was the impetus for driving AT&T (and Verizon) to lower their retail rates.). AT&T itself has admitted in prior FCC filings that "T-Mobile introduced significant reductions to its unlimited voice plans . . . and that AT&T and Verizon both responded shortly thereafter with their own 'significant price cuts.'" Cox Petition at 4 (quoting Comments of AT&T, WT Docket No. 10-133, at 43 (July 30, 2010)).

82 Clearwire Comments at 13 (noting that T-Mobile has "the lowest priced consumer rate plans, the most imaginative branding and marketing, and [] broad appeal to families and particularly to younger adults").

83 *See, e.g.*, Public Knowledge Petition at 35-36; MetroPCS – NTELOS Petition at 48 (explaining the important role T-Mobile plays as a potential substitute for AT&T); Sprint Petition at 48 (noting, *inter alia,* that T-Mobile outperforms AT&T on customer service, has

that might not have been profitable could become profitable post-merger, because AT&T could recapture the customers that it likely would have lost to T-Mobile prior to the merger."[84] Contrary to the Applicants' claims, allowing AT&T to acquire T-Mobile would "remove an innovative, price leading competitor for the market . . . [and t]he loss would be keenly felt."[85]

The Applicants attempt to marginalize T-Mobile's impact by noting that T-Mobile has lost market share recently.[86] The fact that T-Mobile may have suffered some losses recently does not mean that the company will not rebound, however, much like the currently "resurgent Sprint" that the Applicants rely on to stave off concerns about duopoly.[87] In fact, just two months before the merger was announced, T-Mobile "convincingly presented its new 'challenger' strategy pursuant to which it planned to challenge [AT&T and Verizon,] the market leaders[.]"[88]

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upgraded more of its network for high-speed data services than AT&T, has helped launch innovative handsets, and engages in aggressive advertising against AT&T); Free Press Petition at 33-34 (explaining that T-Mobile has a "track record of product innovation . . . . [and] of offering its customers innovative service packages," as well as a history of upgrading its network before AT&T begins making similar upgrades).

84 Gavil Testimony at 7.

85 Cox Petition at 2 (noting that AT&T's portrayal of T-Mobile is "at odds with T-Mobile's history of bringing innovative new technologies, services and pricing plans to the market.").

86 *See, e.g.*, Opp. at 141.

87 Opp. at 10. Despite its current resurgence, it was not very long ago that people were bemoaning Sprint's demise. *See, e.g.*, Brad Reed, *Sprint Posts $1.6 Billion Q4 Loss, Wireless Customers Fleeing: Carrier Lost $2.8 Billion during 2008*, NETWORK WORLD (Feb. 19, 2009), *available at*: <http://www.networkworld.com/news/2009/021909-sprint-loss.html>; Zachary A. Goldfarb, *Struggling Sprint Reports Huge Loss: Insolvent Subscribers Partly to Blame for Nearly $30 Billion Hit*, WASHINGTON POST (Feb. 29, 2008), *available at*: <http://www.washingtonpost.com/wp-dyn/content/article/2008/02/28/AR2008022803926.html>.

88 AAI Comments at 4 (discussing T-Mobile's plan to combine "its high quality 4G network features and value pricing to capitalize on the growing demand for affordable and easy to use smartphones."); *see also* Cablevision Comments at 15 (AT&T's "attempt to denigrate

As a last resort, the Applicants attempt to minimize the role T-Mobile has played in wireless innovation.[89] Yet, objective observers have noted that several key innovations were driven by T-Mobile, including the introduction of Android phones and the integration of voice, text, and data services.[90] The Applicants' attempts to dismiss these important innovations miss the point. For example, even if the Applicants are correct in claiming that the first Android devices that T-Mobile introduced were not immediate successes,[91] those early phones laid the groundwork for future handsets that created the first effective challenge to AT&T's exclusive iPhone devices and helped "push other smart phone operating systems to operate in a more open manner."[92] This is precisely the role that a maverick plays in the marketplace. Thus, the proposed transaction would eliminate a "significant and innovative wireless competitor[.]"[93]

T-Mobile is contradicted by T-Mobile's own description of its commitment to build an advanced network – one it could offer in partnership with providers like Cablevision . . . . Thus, contrary to AT&T's claims, T-Mobile appears poised to compete aggressively against its larger nationwide rivals.") (citations omitted).

89 Opp. at 142.

90 *See, e.g.*, AAI Comments at 18 (explaining that T-Mobile has been "an innovator" as well as "the 'value leader' among the four national carriers"); Public Knowledge Petition at 35-36 ("T-Mobile has acted as both a price leader and an innovation leader . . . T-Mobile's aggressive 'all you can eat' price for voice and text forced the dominant firms AT&T and Verizon to moderate the premium they exacted from the market . . . T- Mobile also engaged in aggressive non-price competition, becoming the first to deploy devices with the Android operating system and one of the first to deploy a '4G' network technology in the form of HSPA+. These aggressive actions have benefitted consumers and prompted innovation otherwise resisted by the dominant firms. . . . Elimination of this maverick firm will therefore have a disproportionately negative impact on the market and on consumers.").

91 Opp. at 142, n.235 (claiming that "[m]ore than six months after the release of the G1, Android's worldwide market share among smartphones was less than 3%, far behind iOS, Windows, and other operating systems").

92 Public Knowledge Petition at 36.

93 Cox Petition at 2. Contrary to Applicants' claims, T-Mobile is also a significant competitor in the product market for corporate and government contracts. *See* CRA Reply

b. The Objections to Sprint's UPP Analysis are Unfounded

The CRA Declaration submitted with Sprint's Petition included a quantitative analysis of upward pricing pressure attributable to the proposed transaction.[94] That analysis showed that three different metrics of UPP produced results that raise serious unilateral effects concerns. Subsequently, the Commission made available the NRUF/LNP porting data that permitted more precise estimates of the diversion ratios. Using these new data, CRA shows that the proposed transaction raises even more serious concerns about unilateral effects.[95]

The Applicants raise a variety of meritless objections to CRA's UPP analysis. They contend, for example, that the analysis fails to take into account the efficiencies the Applicants allege they will realize from the takeover.[96] In fact, CRA did consider the possibility that the transaction would result in efficiencies, but found that "[t]he cognizable efficiencies (if any) likely are relatively small and the benefits are temporary at best."[97] Moreover, as CRA explained, in conducting its UPP analysis, CRA addressed the possibility that efficiencies could create downward pressure on the combined entity's prices by measuring "the marginal cost reductions for each of the two merging firms that would have to occur simultaneously for the net

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Decl. ¶ 86; AAI Comments at 16-17. As explained in the CRA Reply Declaration, "the loss of T-Mobile as an independent bidder for these contracts likely would generate significant anticompetitive concerns." CRA Reply Decl. ¶ 86.

94 *See* CRA Decl. ¶¶ 160-69.

95 CRA Reply Decl. ¶¶ 71-73 and Table 4.

96 Opp. at 133.

97 CRA Decl. ¶ 19.

pricing pressure to be zero for each of the merging firms' products post-merger."[98] Thus, the Applicants are simply wrong.

Professor Carlton criticized several different aspects of the UPP analysis.[99] The CRA Reply Declaration refutes each of these objections.[100] Two of the challenges warrant brief mention. First, Professor Carlton assumes that AT&T would have to expand capacity before it could raise its prices unilaterally to current T-Mobile customers. As CRA points out, in fact, such a price increase would "reduce the number of subscribers served by the two merging companies, relative to the number of subscribers that they would serve in the absence of the merger. Thus, the merged firm would have additional capacity if it raised the price of one (or both) wireless services."[101] In other words, the merged company would not have to expand capacity in order to raise prices.

Second, Professor Carlton computed his own GUPPI estimates, using diversion ratios based on subscriber "gross adds." His estimates are lower than those computed by CRA because "the diversion ratios between AT&T and T-Mobile are lower when they are based on 'gross adds' than when they are based on the porting data or subscriber shares."[102] The use of "gross adds," however, is an inferior method of estimating diversion ratios because they do not identify the carrier a subscriber is leaving when it moves to, for example, AT&T. The porting data, in contrast, identify both the carrier a subscriber is leaving as well as the new carrier. For this and

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98 *Id*. ¶ 150(c).

99 Carlton Opp. Decl. ¶¶ 75-89.

100 *See* CRA Reply Decl. ¶¶ 75-82.

101 *Id*. ¶ 78.

102 *Id*. ¶ 79.

other reasons explained by CRA, "[t]he porting data are therefore more informative of consumers' switching patterns than the gross adds data."[103]

2. AT&T's Proposed Acquisition of T-Mobile Presents a Substantial Risk of Anti-Competitive Coordinated Effects

Sprint and other parties have stressed that AT&T's proposed takeover of T-Mobile would create a substantial risk of anti-competitive coordinated effects by consolidating market power in the hands of two carriers: AT&T and Verizon.[104] The CRA Declaration, for example, identified several factors that would increase the likelihood of coordinated activity post-transaction, including the large market share that AT&T and Verizon would control post-merger, the elimination of T-Mobile as a low-price, maverick competitor to the Twin Bells, and the barriers to entry and expansion that rivals of AT&T and Verizon would face.

Professor Carlton argues that AT&T's acquisition of T-Mobile would not increase the risk of coordinated effects. As CRA explains in detail, Professor Carlton's analysis is flawed and does not support the conclusion he reaches.[105] For example, Professor Carlton claims that there is significant asymmetry among the pricing plans offered by wireless carriers. His analysis, however, "does not focus primarily on AT&T and Verizon, the two firms that [CRA] anticipate[s] would attempt to coordinate."[106] As CRA notes, it is unlikely that AT&T and Verizon "would rely on coordination with Sprint and the regional players. However, those

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103 *Id*. ¶ 80.

104 *See, e.g.*, Sprint Petition at 30-34; MetroPCS – NTELOS Petition at 49-50; Cincinnati Bell Wireless Petition at 34-35; Free Press Petition at 35-37; RTG Petition at 48-49.

105 CRA Reply Decl. ¶¶ 90-97.

106 *Id*. ¶ 92.

carriers would be limited in their ability to disrupt the coordination between AT&T and Verizon by their various disadvantages and the exclusionary effects of the merger."[107]

Professor Carlton also contends that MetroPCS and Leap would have the ability to disrupt coordination between AT&T and Verizon based on his analysis of the porting by subscribers between AT&T's postpaid service and the prepaid offerings of the two regional carriers. Specifically, he asserts that the percentage of AT&T postpaid customers that port to MetroPCS and Leap and the percentage of the latter's customers that port to AT&T have grown over time, porting between AT&T postpaid subscribers and MetroPCS and Leap is roughly proportional to their shares, and more AT&T postpaid customers port to MetroPCS and Leap than port from the latter to AT&T. As CRA explains, none of these statements supports a conclusion that MetroPCS and Leap would have the incentive and ability to disrupt coordinated activity between AT&T and Verizon.

First, because postpaid and prepaid wireless services are distinctly different products, the ability and incentives of the fringe carriers "to disrupt coordination in a postpaid market is very limited."[108] Second, CRA's analysis of the NRUF/LNP porting data shows that AT&T **[begin NRUF/LNP confidential information]** [redacted]

107 *Id*.

108 *Id*. ¶ 94(a).

[redacted] **[end NRUF/LNP confidential information]**[109] Third, MetroPCS, Leap, and other fringe carriers collectively serve a very small share of wireless customers.[110] Fourth, the total market share of MetroPCS *et al*. "has not increased significantly in the last year."[111]

Finally, Professor Carlton contends that information provided by Mr. Christopher regarding AT&T's local handset promotions indicates that AT&T responds to competition from MetroPCS and other regional carriers at the local level.[112] Putting aside the contradictions with Mr. Christopher's previous testimony,[113] the fact that AT&T sponsored 300 local handset promotions over a period of **[begin highly confidential information]** [redacted] **[end highly confidential information]** shows only that "there is relatively little variation in AT&T's prices across local markets."[114]

The CRA Reply Declaration includes a Coordination Price Pressure Index ("CPPI") that estimates the impact of the proposed acquisition on the likelihood of parallel accommodating conduct ("PAC") between AT&T and Verizon. The CPPI captures the effect of the increased share of a merged firm on its incentives to engage in coordinated pricing. "If firms have stronger incentives to engage in PAC pricing, that will be reflected in a higher CPPI."[115] The CRA

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109 *Id*. ¶ 94(b).

110 *Id*. ¶ 94(c).

111 *Id*. ¶ 94(d).

112 Carlton Opp. Decl. ¶ 96.

113 *See* Declaration of David A. Christopher, attached to Applications of AT&T Inc. and Centennial Communications Corporation for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 08-246, ¶ 6 (Nov. 21, 2008) (noting that regional promotions were very infrequent and that none had been approved that year.).

114 CRA Reply Decl. ¶ 30.

115 *Id*. ¶ 99.

analysis shows that the post-merger CPPI is higher than the pre-merger CPPI under all of the parameter values listed in the CRA Reply Declaration.[116]

Mr. Christopher also cites pricing changes by the four national carriers in 2008 as evidence that AT&T, Verizon, Sprint, and T-Mobile respond to pricing initiatives by the fringe carriers. As CRA's analysis of that event shows, the price cuts implemented by the four national carriers more likely reflected responses to each other, which is the same conclusion the FCC reached.[117]

E. AT&T's Proposed Takeover of T-Mobile Would Enable AT&T to Raise its Rivals' Costs

As demonstrated by Sprint's Petition to Deny and the submissions of other parties, AT&T's proposed takeover of T-Mobile would have exclusionary effects on Sprint and the regional carriers and on competition in wireless markets. Specifically, Sprint identified various input markets that would be impacted by those exclusionary effects. For example, the merger would impair Sprint's and other smaller providers' ability to obtain the types of handsets that drive consumers to select a wireless provider. The takeover would also restrict other providers' ability to obtain roaming at reasonable rates, result in an increase in backhaul prices, and ultimately lead to higher rates for wireless services.

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116 *Id*. ¶¶ 103 and Table 7.

117 *Id*. ¶¶ 27-29, 95.

1. The Proposed Transaction Would Impair Competitors' Access to Innovative Handsets to the Detriment of Consumers

Sprint and others pointed out in their submissions that the proposed transaction would exacerbate the asymmetric, exclusive access that AT&T and Verizon enjoy to innovative handsets and other consumer devices. Professors Carlton and Willig raise a variety of challenges to this exclusionary effect of AT&T's acquisition of T-Mobile. As CRA explains in its Reply Declaration, none of these objections is well-founded.[118]

AT&T's takeover of T-Mobile would allow AT&T to become the sole national provider of GSM-based services, increase the control of AT&T and Verizon over the postpaid market to 82 percent, and widen the disparity in size between the Twin Bells and other carriers.[119] Each of these developments would strengthen AT&T's ability to command early and exclusive access to innovative new handsets and other consumer devices in the United States. As the FCC has recognized, carriers with larger subscriber bases are better positioned to obtain exclusive rights to handsets.[120] A bigger subscriber base translates into a larger source of potential sales for

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118 *Id*. ¶¶ 129-36

119 Sprint Petition at 14-15; CRA Decl. ¶ 16.

120 *14th CMRS Competition Report* ¶ 317 ("[H]andset manufacturers generally employ [exclusive handset arrangements] with providers that have larger customer bases and extensive network penetration."). Similarly, the U.S. International Trade Commission has concluded that "[l]arger [wireless] carriers with greater scope and more market power have additional bargaining power with handset manufacturers and can negotiate better deals." *Wireless Handsets: Industry & Trade Summary*, U.S. International Trade Comm'n, Office of Industries, Publication ITS-05, at 41 (March 2010), *available at:* <http://www.usitc.gov/publications/332/ITS_5.pdf> ("*ITC Wireless Handsets*"); *see also id.* ("Carrier consolidation poses a challenge for [handset manufacturers] because it reduces the number of [carrier] customers in the marketplace and increases their bargaining power over manufacturers.").

equipment manufacturers[121] and a greater incentive for manufacturers to agree to the exclusivity demands of either of the two most dominant providers in order to gain access to a sizeable portion of the highly attractive U.S. market.[122] By contrast, the potential consequences of a manufacturer's refusal to bow to the exclusivity demands of a Twin Bell would be stark: the refusal could foreclose a manufacturer's access to the vast majority of the U.S. market and instantly slash the potential revenues that could be generated by the device.[123] Accordingly, AT&T's attempt to minimize the important role a carrier's subscriber base plays in attracting exclusive handset arrangements is entirely unconvincing.

Professor Carlton asserts that exclusionary practices that raise the marginal costs of a rival are more problematic than practices that increase fixed costs.[124] That argument, however,

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121 *See* Declaration of Fared Adib, attached to Petition to Deny of Sprint Nextel Corporation, WT Docket No. 11-65, ¶¶ 6-9, 12-13 (May 31, 2011). The Applicants attempt to refute this seemingly obvious point by claiming that the carrier's willingness to promote the device may be as important to manufacturers as the carrier's subscriber base. Opp. at 148; Reply Declaration of Robert D. Willig, Jonathan M. Orszag, and Jay Ezrielev, attached to Joint Opposition of AT&T Inc. Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments, WT Docket No. 11-65, ¶ 58 (June 10, 2011) ("Willig Opp. Decl."). Even if AT&T were correct about the relative importance of promotion – which it is not – that would provide little comfort given AT&T's considerable promotional capabilities. The U.S. International Trade Commission's report on wireless handsets states that "Procter & Gamble is the only domestic corporation with a marketing budget larger than those of AT&T Mobility and Verizon Wireless." *ITC Wireless Handsets* at 42.

122 MetroPCS – NTELOS Petition at 58 (Even "standing alone[,] AT&T or Verizon will be big enough to make a market for the manufacturer.").

123 Although there is no certainty that exclusivity with AT&T would translate into financial success for a device, the opportunity to compete for that sizeable subscriber base would be foreclosed entirely were AT&T to refuse to carry a manufacturer's handset.

124 Carlton Opp. Decl. ¶ 130.

ignores the fact that exclusive arrangements that lead to "larger handset subsidies would raise the incremental cost of adding subscribers."[125]

Professor Willig claims that AT&T would not attempt to "corner the market" on the most desirable handsets through exclusive handset arrangements.[126] Even if true – and given AT&T's history with the iPhone, that claim appears questionable – that argument is beside the point. First, as CRA explains, the exclusionary effects of AT&T's increased dominance in the handset market could occur even if AT&T and Verizon did not "lock up" every handset.[127] Competition could be harmed by AT&T "slightly lengthening its period of exclusivity for innovative new devices or gaining short-term exclusives for more devices."[128] Second, as the Reply Declaration of Steven Stravitz discusses, absorbing T-Mobile essentially would allow "AT&T to deny any competitor or group of competitors from achieving the scale necessary to develop an ecosystem of product support sufficient to interest the large global manufacturers without incurring an inordinately large per-user cost or encountering material manufacturing and provisioning delays."[129]

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125 CRA Reply Decl. ¶ 131.

126 Willig Opp. Decl. ¶ 12.

127 CRA Reply Decl. ¶ 132.

128 *Id*. AT&T claims that it would lack the ability to harm the innovation process because the handset market is global and post-merger AT&T would serve "only" 3 percent of the world's wireless subscribers. Willig Opp. Decl. ¶ 12. The U.S. market, however, is "the world's largest market for wireless devices and services, with more than 630 choices of handsets made for U.S. buyers by 32 different companies." Advocacy, *Innovation & Competition,* CTIA, *available at*: <http://www.ctia.org/advocacy/ policy_topics/ topic.cfm/TID/64>; *see also id.* ("Since Americans demand the latest in wireless technologies, more new products – and frequently the 'hottest' selling devices – are first launched in the U.S."). As the largest carrier in the world's largest and "hottest" market for new devices, AT&T exerts considerable influence on the global handset ecosystem.

129 Declaration of Steven Stravitz, Attachment B ¶ 116 ("Stravitz Reply Decl.").

Moreover, these harms are not merely theoretical. The record shows that AT&T already uses its influence to restrict the handset options of other carriers – an ability that would be enhanced greatly by an increase in subscribers post-merger. For example, Cincinnati Bell Wireless explains that "[s]everal manufacturers have refused to sell some product lines to CBW, citing . . . pressure from AT&T. Others facing such pressure have simply refused to sell any of their products *at all* to CBW."[130] In addition, Leap and Cricket placed in the record examples of AT&T demanding from manufacturers devices that are not interoperable with other networks and using its influence in standards-setting bodies to establish carrier-specific band classes that exclude specifications for other carriers' handsets.[131]

AT&T's increased number of subscribers post-merger would enhance its incentive and ability to keep innovative handsets from smaller providers. This, in turn, would allow AT&T to maintain or further raise its prices without losing customers, as customers would be reluctant to switch to carriers that cannot offer the trendiest or most advanced handsets available only from AT&T.[132] In short, if it succeeded in acquiring T-Mobile, AT&T would be in an even more advantageous position to exploit exclusive handset arrangements and other exclusionary tactics as a way to enhance its market power.

More generally, many parties present evidence that AT&T's and Verizon's actions during the development of standards for certain 700 MHz spectrum blocks presage the manner in which the Twin Bell duopoly is likely to exercise its considerable influence over standards-setting

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130 Cincinnati Bell Wireless Petition at 32, n.54.

131 Leap – Cricket Petition at 26.

132 CRA Reply Decl. ¶¶ 63-65, 129, 133.

bodies and device manufacturers in the future.[133] The record demonstrates the risk that a post-merger AT&T would use its increased buying power and influence to restrict the interoperability of its subscriber devices with other carriers' networks as a means of limiting competition, including by denying subscriber unit and infrastructure scale purchasing leverage to other carriers in the same spectrum band for the first time in U.S. wireless history.[134]

2. The Proposed Transaction Would Harm the Market for Roaming Services

AT&T's acquisition of T-Mobile would eliminate the only other national provider of wholesale roaming services to GSM carriers. AT&T, consequently, would have the incentive

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[133] The Twin Bells, through proposals to and influence with the 3GPP standards-setting process, oversaw the creation of carrier-specific band classes for 700 MHz LTE device technical specifications. AT&T and Verizon, in turn, instructed device manufacturers to build 700 MHz handsets to operate only within their carrier-specific band classes. In the past and in different spectrum bands such as the cellular band, the PCS band, and the AWS band, smaller operators enjoyed many of the scale economies that the Twin Bells enjoyed because the development work required to create devices and equipment necessarily applied to the entire band. AT&T and Verizon have used their spectral segregation and dominance in the band in conjunction with their influence over the standards-setting bodies to create a gated community that excludes the much smaller, often rural, competitors in the 700 MHz band (*i.e.* those holding Lower 700 MHz A Block licenses). Because smaller operators are excluded from sharing the cost benefits of scale economies and speed-to-market that otherwise accompanies equipment development for a band, their handsets will be more expensive for consumers, will be slower to market (manufacturers will focus first on developing handsets for the duopoly's larger subscriber base), and may not be capable of roaming on Verizon's and AT&T's 4G networks without incorporating additional, band-class specific chip sets for those networks at additional cost. *See, e.g.,* 700 MHz Block A Good Faith Purchasers Alliance, *Petition for Rulemaking Regarding the Need for 700 MHz Mobile Equipment to be Capable of Operating on All Paired Commercial 700 MHz Frequency Blocks*, RM-11592 (filed Sept. 29, 2009).

[134] *See, e.g.*, RCA Petition at 20-21 (explaining that the merger would strengthen AT&T's ability to manipulate standards-setting bodies and insist on handsets that are not interoperable on other networks); Leap – Cricket Petition at 26 (AT&T has "demanded devices that are not compatible with other networks in order to limit their availability to other carriers"); MetroPCS –NTELOS Petition at 60-61 ("[B]y engaging in monopsony buying practices, [AT&T and Verizon] can (and will) refuse to encourage manufacturers to produce handsets that are interoperable across all bands.").

and ability to raise its roaming charges to other GSM carriers because it would no longer face competition for that service from T-Mobile. This merger-specific effect is due in part to the fact that AT&T over the past several years has acquired a number of other GSM carriers.[135] Moreover, although Sprint as a CDMA carrier does not purchase GSM roaming from AT&T, the unilateral and coordinated (including parallel accommodating conduct) effects of the proposed transaction would increase Verizon's incentives to raise its roaming rates to Sprint and other CDMA carriers.[136]

AT&T's Professor Willig suggests that AT&T and T-Mobile do not compete in the provision of wholesale roaming service because their GSM networks operate in different spectrum bands.[137] The existence of different spectrum bands, however, does not mean that roaming is not possible. Carriers today roam on different spectrum bands and enter into roaming agreements with carriers that are licensed to operate on spectrum different from their own network. Indeed, as AT&T's Professor Carlton states, "AT&T and T-Mobile USA are each other's largest roaming customers."[138] In addition, Cincinnati Bell Wireless's submission in this proceeding clearly indicates that it regards T-Mobile as a competing provider of GSM roaming service.[139]

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135 CRA Reply Decl. ¶ 109.

136 *Id*. ¶¶ 111-12.

137 Willig Opp. Decl. ¶ 63.

138 Carlton Opp. Decl. ¶ 143.

139 Cincinnati Bell Wireless Petition at 10-11. As CRA notes, Cincinnati Bell Wireless also described other exclusionary practices that AT&T has employed in advance of its proposed acquisition of T-Mobile. CRA Reply Decl. ¶ 115.

Professor Willig also claims that any impact of the proposed transaction on the wholesale roaming market would be *de minimis.*[140] As CRA notes, however, there are several problems with this assertion. Professor Willig, for example, posits a 10 percent increase in roaming costs, but there is no reason to assume that the increase would be limited to 10 percent if it would be profitable for AT&T to raise its roaming charges even more.[141] T-Mobile previously complained that after the Cingular-AT&T merger, Cingular raised its roaming rates by approximately 50 percent in areas previously served by AT&T.[142] In addition, AT&T could raise the costs of roaming carriers by changing the non-price terms of a roaming agreement.

Professor Willig also asserts that AT&T would prefer to lower roaming rates because its roaming agreements frequently provide for identical rates in both directions and AT&T is often a net buyer.[143] Even if this claim were true, AT&T's needs would likely change in a post-merger world. AT&T has stated that T-Mobile is its largest supplier of roaming services and this takeover would eliminate that roaming expense. At the same time, all roaming traffic currently destined for the T-Mobile network would create new revenue for AT&T. Moreover, even today, AT&T maintains higher roaming rates than T-Mobile. Cincinnati Bell Wireless states that AT&T's roaming rates are nearly double those of T-Mobile and that AT&T's data roaming rates are more than 50 times greater than what AT&T charges its retail customers for data service at

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140 Willig Opp. Decl. ¶ 75.

141 CRA Reply Decl. ¶ 117.

142 *Id*.

143 Willig Opp. Decl. ¶¶ 66-67; *see also* Declaration of William W. Hague, attached to Joint Opposition of AT&T Inc. Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments, WT Docket No. 11-65, ¶¶ 3, 5 (June 10, 2011) ("Hague Opp. Decl.").

full usage.[144] Cincinnati Bell Wireless also indicates that AT&T's non-rate terms and conditions are asymmetric.[145] Further, AT&T's acquisition of T-Mobile would eliminate a competing GSM provider and enable AT&T to insist on asymmetric rates in contracts that are currently reciprocal when those agreements must be renewed.[146]

Finally, Professor Willig suggests that any anti-competitive effects on roaming rates can be alleviated by regulating them.[147] As the CRA Reply Declaration points out, competition is superior to regulation, particularly where, as here, the difficulties inherent in attempting to determine "commercially reasonable" or "competitively reasonable" roaming rates would be substantial.[148]

3. The Takeover Would Harm Backhaul Customers and Competitive Providers of Backhaul Services

The Applicants contend that the proposed takeover "poses no backhaul or special access concerns,"[149] claiming that the backhaul marketplace is competitive, that T-Mobile's status as a backhaul purchaser is too limited for its exit to harm alternative backhaul suppliers, and that the merger itself fails to increase AT&T's incentives to raise its rivals' costs.[150] In fact, however, the backhaul marketplace, like the more general special access marketplace, is far from

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144 Cincinnati Bell Wireless Petition at 16, 18, 22.

145 *See, e.g., id.* at 17-18 (asserting that AT&T prohibits the use of its roaming services to provide service to enterprise customers (in competition with AT&T) outside Cincinnati Bell Wireless's home market).

146 *See* CRA Reply Decl. ¶ 119.

147 Willig Opp. Decl. ¶ 68.

148 CRA Reply Decl. ¶ 120.

149 Opp. at 162.

150 *Id.* at 163-69, 173-78.

competitive. Removing T-Mobile as a national wireless carrier and potential purchaser of alternative backhaul services would increase AT&T's (and Verizon's) incentive and ability to raise their rivals' costs by increasing backhaul rates.[151]

The Applicants strive unconvincingly to describe the backhaul marketplace as competitive.[152] The record evidence, however, leads inexorably to the conclusion that there is little effective competition in the provision of backhaul service[153] – a conclusion that is strongly supported by filings in this proceeding[154] and in an extensive data-rich record compiled in the FCC's proceeding on special access pricing.[155]

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151 *See* CRA Reply Decl. ¶¶ 121-24.

152 *See* Opp. at 168-69 (quoting Verizon's CTO to support the proposition that backhaul is competitive).

153 The Applicants seek to support their claim of "stiff competition," in part, through misplaced reliance on the existence of Ethernet and other alternative forms of backhaul. Opp. at 165-66; Willig Opp. Decl. ¶¶ 89-90. Contrary to their claims, however, the incumbent LECs' wireline advantage extends to Ethernet, which relies on the same fiber – albeit different electronics – as more traditional TDM-based services. *See, e.g.*, Comments of Sprint Nextel Corporation, GN Docket No. 09-47, at 12-13 (Nov. 4, 2009) ("Sprint NBP #11 Comments"); *cf.* Reply Comments of Sprint Nextel Corporation, WC Docket No. 05-25, at 24-25 (Feb. 24, 2010). In addition, microwave and other "intermodal" alternatives, such as cable-provided wireline facilities, often are either unavailable or technically infeasible. *See, e.g.*, Comments of Sprint Nextel Corporation, WC Docket No. 05-25, at 19-21 (Jan. 19, 2010) (explaining why neither cable nor fixed wireless are usable substitutes for incumbent LEC special access services in a vast majority of locations); Sprint NBP #11 Comments at 9-10, 29-30.

154 *See, e.g.,* Leap – Cricket Petition at 24 ("AT&T already has sufficient market power in backhaul services that it can charge 'many multiples of cost' for access to its network."); U.S. Cellular Comments at 2-3 ("AT&T . . . has increased special access prices to its wireless competitors above the level which would be found in a competitive market, as well as pursuing other types of exclusionary conduct."); NoChokePoints Coalition Petition at 2 ("The absence of effective special access regulation has allowed AT&T to use its market power over critical wireline backhaul facilities to set high prices for unaffiliated competitors like T-Mobile, while AT&T's wireless affiliate effectively obtained cost-based prices.").

155 *See, e.g.,* Letter from Kathleen Ham, V.P. Federal Regulatory, T-Mobile USA, Inc. to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, at 1 (May 6, 2010) (explaining that T-Mobile – an ardent customer of alternative suppliers – was able to contract with alternative

The markets in which the proposed transaction may have exclusionary effects are those in which there is the potential for competition to develop between AT&T as the incumbent local exchange carrier and new entrants. In those markets, the removal of T-Mobile as a potential purchaser of backhaul service from a new entrant could entrench AT&T's dominant position and facilitate its ability to raise retail wireless prices.[156] As CRA explains, "if AT&T unilaterally raises its retail prices to consumers and enterprises as a result of the merger, it also would have the incentive to raise its backhaul rates as well, in order to limit the ability of its backhaul customers [to gain] market share."[157] Furthermore, as explained in the discussion of the merger's impact on wholesale roaming service, a unilateral retail wireless price increase by AT&T would give Verizon an incentive to raise its retail rates and its backhaul rates.

As CRA notes, a third mechanism that would lead to higher backhaul rates is "customer foreclosure."[158] Specifically, the elimination of T-Mobile as one of the two principal potential purchasers from independent backhaul providers would reduce the already limited market for their services, thus deterring entry. That result would increase the incentive and ability of AT&T to raise backhaul prices.

Professors Willig and Carlton contend that the proposed transaction would not have any adverse exclusionary effects on backhaul service. Professor Willig suggests that T-Mobile's demand represents such a small share of total backhaul purchases that its elimination as a

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backhaul suppliers at only 20 percent of its cell sites in 2010); Comments of T-Mobile USA, Inc., WC Docket No. 05-25, at 5 (Aug. 8, 2007) ("ILECs have both the ability and the incentive to discriminate against competitors in favor of their wireless affiliates.").

156 CRA Reply Decl. ¶¶ 121-23.

157 *Id*. ¶ 122.

158 *Id.* ¶ 123.

potential customer would not have significant adverse effects.[159] Even if that were true along routes with very high traffic volumes, it would not be true along routes that can only support a very limited number of backhaul providers.[160] Professor Willig further suggests that backhaul costs represent a small portion of a wireless carrier's costs and hence a modest increase would not have a material impact.[161] In fact, as the FCC recently found, "backhaul costs currently constitute a significant portion of a mobile wireless operator's network operating expense, and the demand for backhaul capacity is increasing. Cost-efficient access to adequate backhaul thus will be a key factor in promoting robust competition in the wireless marketplace."[162] Indeed, even the Applicants' experts concede that reducing backhaul costs could result in significant savings in operating expenses.[163] Moreover, the loss of T-Mobile as a potential purchaser might

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159 This argument is misleading. First, the purchasing power for alternative backhaul is the relevant measure, not all of special access and not all Bell and non-Bell special access or backhaul. Further, the Applicants fail to indicate what portion of backhaul revenues go to non-incumbent LEC suppliers or what the average annual backhaul revenue is per alternative supplier. They also fail to indicate whether there are alternative backhaul suppliers for which T-Mobile is a significant source of revenue (and which therefore would be damaged by T-Mobile's disappearance as a purchaser).

160 Willig Opp. Decl. ¶¶ 99-102; CRA Reply Decl. ¶ 124.

161 Opp. at 176-77.

162 *Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees*, Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd 11246, ¶ 2 (2010) (citing *14th CMRS Competition Report* ¶ 296); *see also* Declaration of Paul Schieber, attached to Petition to Deny of Sprint Nextel Corporation, WT Docket No. 11-65, ¶ 11(May 31, 2011); CRA Reply Decl. ¶ 123; Comments of T-Mobile USA, Inc., WC Docket No. 05-25, at 8 (Aug. 8, 2007) (explaining that "[c]onsumers ultimately suffer from the high cost of special access").

163 Jeffrey H. Reed and Nishith D. Tripathi, *Analysis of Network Efficiencies Associated with the Proposed Acquisition by AT&T, Inc. of T-Mobile USA, Inc.*, attached to Joint Declaration of Jeffrey H. Reed and Nishith D. Tripathi, attached to Joint Opposition of AT&T Inc. Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments, WT Docket No. 11-65, at 30, n.18 (June 10, 2011) ("Reed – Tripathi White Paper").

deprive independent providers of the scale required to offer service.[164] Further, as CRA points out, given the magnitude of Sprint's annual expenditures for special access, it might regard a "modest" 20% increase as *de minimis.*[165]

In sum, the transaction would increase AT&T's incentive and ability to raise backhaul prices either unilaterally or in coordination with Verizon, in order to protect its customer base when it raises consumer wireless rates above competitive levels. Thus, although wireless carriers and other customers already suffer harm due to the incumbent LECs' dominance of the backhaul marketplace, "approving the transaction would make a bad situation even worse."[166]

F. The Applicants Fail to Rebut the Substantial Record Evidence that AT&T's Unprecedented Concentration of Spectrum Would Cause Serious Competitive Harm

In their Opposition, the Applicants fail to rebut the showing by Sprint and others that, following the proposed takeover, AT&T would hold an unprecedented concentration of spectrum ideally suited for mobile telephony/broadband services. Nor do the Applicants refute arguments from Sprint and others that this immense aggregation of spectrum resources would cause

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164 As the Applicants admit, the loss of a single backhaul customer is "significant" even to a company as large as AT&T. Willig Opp. Decl. ¶ 102 (explaining that "the loss of the margin on backhaul services when a customer switches to a competing provider (or reduces its purchases) is significant"). *See also* Opp. at 176 ("Because the facilities used to provide backhaul present very high fixed costs and low marginal costs, a backhaul provider saves little in the way of costs when it loses business from a customer, yet it forgoes all associated revenues.").

165 CRA Reply Decl. ¶ 125.

166 NoChokePoints Coalition Petition at 7. One other exclusionary effect of the proposed takeover of T-Mobile warrants brief mention. Sprint pointed out in its Petition that AT&T's acquisition of T-Mobile would likely cause Sprint's cost of raising new capital to rise, placing it at an additional competitive disadvantage. CRA Decl. ¶¶ 114-23. Professor Willig incorrectly interpreted this argument to be a challenge to AT&T's ability to attract new capital at lower costs than Sprint. In fact, the merger-specific harm that CRA identified was the adverse upward pressure on Sprint's capital costs, not AT&T's ability to obtain external capital on more favorable terms. CRA Reply Decl. ¶¶ 139-40.

significant competitive harm in the wireless marketplace. Given the Applicants' failure to meet their burden and the overwhelming evidence in the record, the Commission should quash this anti-competitive spectrum grab.

As the record demonstrates, the addition of T-Mobile's spectrum would "cement AT&T's dominant spectrum position at the expense of the rest of the industry."[167] Following the transaction, AT&T's nationwide, population-weighted average of 144 MHz of spectrum for mobile telephony/broadband services would be approximately 50 percent more than Verizon's current holdings and almost three times Sprint's holdings.[168] As the Rural Telecommunications Group points out, "[i]n over 120 counties in 17 different states, AT&T stands to control over half of the available spectrum in the marketplace."[169] "Throughout the country and particularly in prime spectrum bands, a merged AT&T and T-Mobile would maintain problematically dominant spectrum positions."[170]

The Applicants' predictable answer to these spectrum aggregation concerns is, once again, to seek cover behind Clearwire's holdings at 2.5 GHz. The Commission should reject this knee-jerk, specious response.[171] While Clearwire holds rights to more than 100 MHz of 2.5 GHz spectrum, those rights are not comparable to AT&T's existing and proposed spectrum inventory throughout the core wireless bands (the 700 MHz, 850 MHz cellular, PCS (1.9 GHz), and AWS

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167 RCA Petition at 14.

168 Sprint Petition at 60.

169 RTG Petition at 17. *See also* Leap – Cricket Petition at 18 (In the nation's top ten markets, AT&T would have spectrum holdings "in the range of 122 MHz to 171 MHz.").

170 Free Press Petition at 52.

171 The Applicants also defend AT&T's enormous aggregation of spectrum by reiterating AT&T's alleged need for more capacity to deal with customers' increasing bandwidth demands. Opp. at 180-81. This erroneous claim is addressed in the following section of this Reply.

(1.7/2.1 GHz) bands). As Sprint described in its Petition, not all spectrum is created equal, and Clearwire's spectrum at 2.5 GHz not only has below-average propagation characteristics, but also suffers from other considerable technical, operational, and regulatory burdens that make it less favorable for the provision of mobile broadband service.[172] AT&T is well aware of these disadvantages, given that it received only $0.17 per MHz Pop in return for selling its 2.5 GHz holdings in 2007, less than *one-eighteenth* the price that it paid for Lower 700 MHz B and C Block spectrum at auction one year later.[173] The Commission should see the Applicants' reliance on Clearwire's 2.5 GHz spectrum for what it is: an irrelevant and weak attempt to justify its anti-competitive absorption of T-Mobile's spectrum.

The emptiness of the Applicants' argument here is betrayed by the sparseness of their analysis. Rather than contest the real-world factors that limit the utility of the 2.5 GHz band, the Applicants point only to Clearwire marketing statements and to two high-level references to the 2.5 GHz band by the Commission in the National Broadband Plan and the *14th CMRS Competition Report*.[174] These are feeble arguments. First, Clearwire's marketing statements about its spectrum position are not an analysis of the 2.5 GHz band.[175] Second, when the Commission has closely examined conditions at 2.5 GHz as part of its spectrum screen analysis,

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172 Sprint Petition at 66-70.

173 *Id.* at 70 (describing fact that AT&T received only $0.17 per MHz Pop in return for its 2.5 GHz holdings, while paying $3.15 per MHz Pop at auction for Lower 700 MHz B and C Block licenses in 2008).

174 Opp. at 183.

175 Sprint does not control Clearwire's public statements. As Clearwire indicates in its comments, it is "an independent company with operations and customers entirely separate from Sprint[.]" Clearwire Comments at 4.

it has specifically concluded that only 55.5 MHz of BRS spectrum at most is suitable for the provision of mobile telephony/broadband services.[176]

Again ignoring the realities of the 2.5 GHz band, the Applicants continue to argue that the Commission should incorporate 194 MHz of 2.5 GHz spectrum as well as 90 MHz of mobile satellite service ("MSS") ancillary terrestrial component ("ATC") spectrum into the spectrum screen calculations for its local market analysis. Just as it was in the Application, this request is meritless. The Applicants have given the Commission no reason to revisit its prior finding that only 55.5 MHz of BRS spectrum in the band is suitable for mobile telephony/broadband services. In addition, there is still no legitimate basis for including MSS ATC spectrum in the screen analysis, given the nascent nature of any operations in that spectrum, the interference concerns raised about LightSquared's planned operations in the MSS 1.6 GHz L band,[177] the

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[176] *See, e.g., Sprint Nextel Corporation and Clearwire Corporation; Applications for Consent to Transfer Control of Licenses, Leases, and Authorizations*, Memorandum Opinion and Order, 23 FCC Rcd 17570, ¶¶ 67-70 (2008). Executives at both AT&T and Verizon have previously maintained that their companies enjoy spectrum positions superior to Clearwire. AT&T's Kris Rinne, its Senior Vice President for Architecture and Planning, stated that unlike Clearwire, "AT&T can expand its LTE offering into more spectrum bands." Noting that "AT&T could eventually push LTE into its existing 850 MHz and 1900 MHz spectrum," Rinne stated that "[y]ou need to make sure you count all of our spectrum when you make these comparisons." Phil Goldstein, *AT&T, Verizon push LTE plans, advantages*, FIERCEWIRELESS (Mar. 19, 2010), *available at*: <http://www.fiercewireless.com/ story/t-verizon-push-lte-plans-advantages/2010-03-19>. Tom Sanawobori, Verizon's Vice President for Network Strategy, said "Verizon's 700 MHz spectrum has better propagation characteristics and requires fewer cell towers that Clearwire's airwaves, which primarily sit in the 2.5 GHz range." *Id*.

[177] *See, e.g.,* Letter from Julius Genachowski, Chairman, Federal Communications Commission, to the Honorable Charles E. Grassley, United States Senate, at 1 (May 31, 2011) (The "Commission will not permit LightSquared to begin commercial service without first resolving the Commission's concerns about potential widespread harmful interference to GPS devices."). *See* Phil Goldstein, *Two Government Agencies Say LightSquared's Network Interferes with GPS*, FIERCEWIRELESS (June 9, 2011), *available at*: <http://www.fiercewireless.com/story/two-government-agences-says-lightsquareds-network-interferes-gps/2011-06-09>.

yet-to-be resolved bankruptcy and ownership status of 2 GHz MSS licensees DBSD and TerreStar,[178] and the pendency of at least one major proceeding that could rework the 40 MHz of spectrum in the 2 GHz MSS band and perhaps encourage the surrender of the two MSS licenses in that band.

More fundamentally, if the Commission adopted the Applicants' proposal, the Commission's spectrum screen would be rendered irrelevant in this and likely numerous other proceedings.[179] Under the Applicants' approach, the overall volume of spectrum included in the screen analysis would increase from 425.5 MHz to 653 MHz, raising the screen threshold to 215 MHz or higher.[180] As the Applicants indicate, even AT&T's unprecedented post-transaction holdings[181] would fail to trigger further competitive review in a *single* local market under this

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178 *See Closely Watched TerreStar Auction Pushed Back*, COMM. DAILY (June 9, 2011) (describing the continuing uncertainty regarding the ownership of TerreStar and the regulation and use of the 2 GHz MSS band).

179 *See also* MetroPCS – NTELOS Petition at 46-47 (adoption of the Applicants' proposed spectrum screen would make that mechanism "nugatory").

180 Opp. at 187.

181 The Applicants state that AT&T would hold a nationwide average of 134 MHz of spectrum following its takeover of T-Mobile. In calculating this total, however, the Applicants do not include the spectrum that AT&T is acquiring from Qualcomm in the Lower 700 MHz band, on the basis that this spectrum "will not be usable until 2014 at the earliest." Opp. at 187 n.349. The Commission should reject this argument and include the Qualcomm spectrum in its screen analysis. All Lower 700 MHz band spectrum has been included in the Commission's spectrum screen calculations since 2007, and the Applicants provide no basis for suddenly discounting Lower 700 MHz D and E Block frequencies from a proposed transferee's spectrum total. *See Applications of AT&T Inc. and Dobson Communications Corp. for Consent to Transfer Control of Licenses and Authorizations*, Memorandum Opinion and Order, 22 FCC Rcd 20295, ¶ 31 (2007). The Commission's screen calculations should also include the additional 700 MHz spectrum that AT&T is attempting to secure through numerous pending applications. *See* Sprint Petition at 58 n.199.

The Applicants also exclude Wireless Communications Services ("WCS") spectrum from its spectrum screen analysis. If, however, the 2.5 GHz and MSS bands are fully included in a spectrum screen calculation – as the Applicants do here – the WCS band should be included as

approach.[182] This extreme, nonsensical result is inconsistent with the Commission's responsibility to evaluate the competitive and public interest effects of proposed transfers of wireless licenses.[183] In contrast, applying the current spectrum screen, the Applicants concede that 202 CMAs – over one-quarter of the 734 CMAs in the United States – would be flagged and subject to further competitive analysis by the Commission.[184]

The Applicants also attempt, but fail, to rebut the record evidence that the Twin Bells' "disproportionate share of so-called 'beachfront spectrum'" below 1 GHz "far exceeds other spectrum in utility and value."[185] The Applicants point to the Commission's acknowledgment that spectrum above 1 GHz provides certain benefits with respect to capacity; however, the

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well. Contrary to the Applicants' claims, the obstacles to mobile wireless development in the WCS band are not materially different from the technical and regulatory issues in the 2.5 GHz and MSS bands. *See Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band,* Report and Order and Second Report and Order, 25 FCC Rcd 11710, ¶ 1 (2010) (amending the WCS rules to "enable licensees to provide mobile broadband services in 25 megahertz of the WCS band").

182 In addition to the Applicants' omission of Qualcomm's 700 MHz spectrum from AT&T's spectrum count, there is a 2 MHz discrepancy between the Applicants' calculation of AT&T's post-takeover, nationwide holdings (134 MHz) and Sprint's calculation of those holdings (136 MHz, without Qualcomm's 8 MHz of Lower 700 MHz band spectrum). While the Applicants rely on the spectrum data contained in the Commission's year-plus old *14th CMRS Competition Report*, Sprint's calculations are based on currently available licensing data and account for transactions occurring since that Commission report.

183 *See, e.g., Applications of AT&T Inc. and Centennial Communications Corp. for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Leasing Arrangements*, Memorandum Opinion and Order, 24 FCC Rcd 13915, ¶¶ 27-29 (2009) (citing 47 U.S.C. §§ 214(a), 310(d)) ("*AT&T-Centennial Merger Order"*).

184 Application at 76. As COMPTEL notes, the number of CMAs where the screen threshold is exceeded would likely be greater if the Commission's screen analysis accounted not only for Qualcomm's spectrum (as the Applicants did in their Application), but also the additional 700 MHz spectrum that AT&T is attempting to secure through pending applications. COMPTEL Petition at 13.

185 Free Press Petition at 51.

Applicants' references to Commission statements regarding any meaningful advantage are misleading.[186] In the very report cited by the Applicants – the *14th CMRS Competition Report* – the Commission emphasizes the superiority of lower-band spectrum, stating that "[l]ow-band spectrum can enable the same level of service, at a lower cost, than high-frequency bands, such as the [PCS, AWS, and 2.5 GHz] bands," and noting "[t]he higher value that many providers have placed on low-band spectrum with respect to the provision of mobile service[.]"[187] Indeed, less than four months ago, AT&T's Senior Vice President and Wireless Chief Financial Officer, Peter Ritcher, confirmed the greater value of spectrum below 1 GHz, stating that "low-frequency spectrum[] obviously ha[s] much better sort of in-building penetration, much better build characteristics" and is akin to "beachfront property."[188]

In addition, contrary to the Applicants' objections, the book value analysis presented in Sprint's Petition is a legitimate means for comparing carriers' respective spectrum holdings. As described in the CRA Declaration, AT&T's post-transaction holdings would represent approximately 36 percent of the total financial value of the volume of spectrum considered by CRA, while AT&T and Verizon together would have holdings representing approximately *74* percent of the overall financial value of this spectrum.[189] Rather than refute the dominant nature of the Twin Bells' holdings – which they cannot credibly do – the Applicants advance

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186 Opp. at 189-90 (citing *14th CMRS Competition Report* ¶ 269).

187 *14th CMRS Competition Report* ¶¶ 270-71.

188 *AT&T at Credit Suisse Group Convergence Conference*, FAIR DISCLOSURE WIRE, at 7 (Mar. 9, 2011).

189 Sprint Petition at 70-71; CRA Decl. ¶ 85. CRA's valuation analysis is based on the book values carried on carriers' balance sheets as submitted in annual filings to the SEC. In this analysis, CRA included all spectrum considered by the Commission to be suitable for mobile telephony/broadband services plus additional spectrum held by Clearwire at 2.5 GHz and by LightSquared in the MSS L band. *See* Sprint Petition at 70-71.

meritless complaints about CRA's methodology.[190] The Commission should reject these extraneous concerns and give appropriate weight to CRA's confirmation of what is now well established – that the Twin Bells would control an enormous percentage of the nation's most valuable spectrum holdings following AT&T's proposed takeover of T-Mobile.

Finally, while the Applicants assert that it "would promote no rational policy objective" for the Commission to prevent AT&T from amassing this unprecedented concentration of spectrum,[191] Sprint and other petitioners have demonstrated that this aggregation of frequencies would cause substantial competitive harm in the wireless marketplace. In their Opposition, the Applicants do nothing to refute the likelihood of this harm.

Sprint and other petitioners have described the competitive harm that would result from AT&T's addition of T-Mobile's PCS and AWS spectrum to its already substantial share of beachfront spectrum in the 700 MHz and 850 MHz cellular bands.[192] By acquiring T-Mobile's

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190 The Applicants argue that the book values relied on by CRA are an incomplete measure of factors that determine a spectrum band's value. CRA acknowledged that book values are imperfect proxies for market values, but these book values represent the carrier's own assessments of their spectrum assets. *See*, *e.g.*, Sprint Petition at 70-71; CRA Decl. ¶ 85 n.76. The Applicants also note that CRA's book value for Verizon's spectrum is 40 percent greater than the value for AT&T's holdings, despite AT&T's greater overall holdings and near-equivalent volume of spectrum below 1 GHz. Opp. at 190. This difference is not surprising. First, these values rest on the carriers' self-assessment of their spectrum, so some differential is to be expected. Second, assuming AT&T reported the value of its spectrum accurately, AT&T may have properly reduced its value estimate to reflect the consistently low-level investment it has made in its spectrum resources relative to the industry generally and to Verizon in particular. In any event, to the extent AT&T and Verizon have reported the value of their spectrum to the investing public inaccurately, such discrepancies would not undercut the basic conclusions of CRA's analysis. Even if there were relatively significant reporting errors, the Twin Bells would remain the predominant holders of spectrum as measured by these carrier-reported figures.

191 Opp. at 180.

192 As RTG notes, spectrum is "a limited resource that is necessary to both compete in and enter the market." RTG Petition at 18. MetroPCS observes that "[c]arriers who secure spectrum

spectrum, AT&T (like Verizon) would meet its capacity needs in these core wireless bands and could avoid the costs associated with developing the infrastructure, equipment, and ecosystems necessary for commercial operations in undeveloped or less-developed spectrum bands. While the Twin Bells would benefit from the advantageous scale efficiencies of the mature ecosystems in those core bands, Sprint and other carriers would have to absorb the full cost of developing new spectrum in order to increase their capacity.[193] Bearing these added costs, Sprint and other carriers would be weakened, and would have a reduced ability to drive innovation and act as a competitive constraint on the behavior of the Twin Bells.[194] The Applicants fail to confront the competitive implications of this scenario.

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first will be in a position to build unassailable beachheads against those who acquire spectrum later when the Commission finally is able to make it available," and it contends that the widening spectrum disparity resulting from the transaction would leave carriers "with less spectrum [and thereby] less and less able to compete for . . . whole segments of mobile broadband data customers, such as laptop cards, tablets and connected devices." MetroPCS – NTELOS Petition at 4, 34. In this environment, carriers lacking sufficient spectrum "[would] not be able to act as the competitive check that AT&T claims they will be." *Id*. at 34. Apparently viewing these competition issues or the petitioners themselves as trivial, the Applicants do not respond at all on these points.

[193] *See* CRA Reply Decl. ¶¶ 138, 155; CRA Decl. ¶¶ 111-12; Sprint Petition at 71-72. While the Applicants suggest that no new spectrum will be made available in the short-to-intermediate term (Opp. at 191), AT&T, Sprint, and other carriers should in fact have the opportunity to acquire additional spectrum rights at FCC auctions within the next few years, including in the H Block, J Block, AWS-3 Block, and federal government spectrum at 1755-1780 MHz and elsewhere. *See* Sprint Petition at 109-10.

[194] CRA Decl. ¶ 112. Contrary to the Applicants' claim, Sprint does not assert any right to take advantage of investments made by AT&T toward the development of new spectrum bands. Opp. at 191. At the same time, the Commission should not permit an anti-competitive shift of developmental costs to Sprint and other carriers as a result of the proposed transaction.

II. THE APPLICANTS HAVE FAILED TO DEMONSTRATE THAT THE PROPOSED TRANSACTION WOULD PRODUCE ANY COGNIZABLE PUBLIC INTEREST BENEFITS, LET ALONE BENEFITS THAT WOULD OUTWEIGH THE TRANSACTION'S HARM TO COMPETITION

The Opposition dwells on the alleged synergies the Applicants claim would result from combining the AT&T and T-Mobile networks, but focusing on internal operational efficiencies misses the point of the Commission's public interest analysis. Taken to its logical conclusion, the Applicants' narrow focus on internal efficiencies would mean any wireless merger – even an AT&T/Verizon combination – would serve the public interest, since combining two networks will invariably produce some synergies. The Commission's public interest analysis, of course, takes a far broader view by examining whether a proposed merger would produce cognizable, verifiable efficiencies that could not be achieved in the absence of the merger, and whether any such efficiency gains outweigh the anti-competitive effects of the merger.[195] As the Horizontal Merger Guidelines state, "the antitrust laws give competition, not internal operational efficiency, primacy in protecting customers."[196]

AT&T has a long "grow by acquisition" tradition, having acquired numerous other wireless carriers over the years. AT&T argues that its latest takeover effort would provide the quickest, least expensive solution to its alleged capacity constraints. Even if true – and they are

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[195] *See Application of EchoStar Communications Corp., General Motors Corp., and Hughes Electronics Corp.*, Hearing Designation Order, 17 FCC Rcd 20559, ¶¶ 27, 189-90, 192 (2002) ("[C]ombining assets may allow the merged entity to reduce transaction costs and offer new products, but it may also create market power, create or enhance barriers to entry by potential competitors, and create opportunities to disadvantage rivals in anticompetitive ways.") ("*EchoStar-DirecTV Hearing Designation Order*"); Sprint Petition at 82 (summarizing FCC's public interest criteria in assessing merger efficiency claims).

[196] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 10 (issued Aug. 19, 2010) *available at*: <http://www.justice.gov/atr/public/guidelines/hmg-2010.html #foot1> ("Horizontal Merger Guidelines").

not – these assertions wrongly assume that the private gains accruing from the proposed transaction equate to public interest benefits. As AAI states in its petition,

> The argument that it may be cheaper or faster for AT&T to increase its network capacity by buying its competitor, rather than investing in upgrading its network, as AT&T claims (but does not demonstrate), is not a sufficient justification for a merger that significantly reduces competition in an already highly concentrated market. It is often easier to expand capacity by buying one's competitor, but sound competition policy insists that a firm as dominant as AT&T expand by internal growth, not by acquiring a significant rival.[197]

AT&T wants to "throw[] [T-Mobile's] spectrum" at its alleged network capacity constraints, but its solution would cause substantial harm to competition and create "a disincentive for investment in efficient network facilities and for innovation that increases the productivity of existing spectrum and facilities."[198] Putting aside the private gains the Applicants seek, the proposed transaction is contrary to the *public* interest. The proposed transaction would produce no cognizable, merger-specific public interest benefits that would come close to outweighing the serious harm to competition and consumers.[199]

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[197] AAI Petition at 3-4. *See also* CRA Reply Decl. ¶ 163; *EchoStar-DirecTV Hearing Designation Order* ¶ 200 (rejecting efficiency argument because it was presented as "a measure of the Applicants[']' private benefit, not the public interest").

[198] Charles B. Goldfarb, Congressional Research Service, *The Proposed AT&T/T-Mobile Merger: Would it Create a Virtuous Cycle or a Vicious Cycle*, at 11 (May 10, 2011), *available at:* <http://ieeeusa.org/policy/eyeonwashington/2011/documents/attmerger.pdf>. *See also* CRA Reply Decl. ¶ 164; COMPTEL Petition at 33 ("AT&T's proposal to resolve its spectrum crunch … is the most anticompetitive solution to the problem.").

[199] Horizontal Merger Guidelines § 10 (Where a proposed transaction would cause substantial anti-competitive effects, merger applicants must demonstrate "extraordinarily great cognizable efficiencies."). *See also EchoStar-DirecTV Hearing Designation Order* ¶ 103 ("[W]here a proposed merger would result in a significant increase in concentration in an already concentrated market, parties advocating the merger will be required to demonstrate that claimed efficiencies are particularly large, cognizable, and non-speculative."); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 720 (D.C. Cir. 2001) (proposed merger that would result in high market

A. The Applicants' Network Capacity Claims Do Not Provide a Public Interest Justification for the Proposed Transaction

1. The Opposition Fails to Address Fundamental Flaws Underlying the Applicants' "Spectrum Exhaust" Claims

In their Opposition, the Applicants ignore or simply refuse to accept obvious facts that undercut their claims and fail to support those claims with verifiable evidence. The record shows that the Applicants' efficiency claims are "more bluster than reality"[200] and in some instances "disingenuous in the extreme."[201]

Denying the Inconvenient Truth. AT&T's "spectrum exhaust" claims are premised on assertions that AT&T faces unique spectrum constraints and data demands on its network and that it faces an unusual burden of having to support three generations of technology.[202] None of these assertions is true. The only thing that sets AT&T apart from the rest of the wireless industry is its failure to invest sufficiently in its network to maximize the efficiency of its vast spectrum holdings.

"AT&T is rich in spectrum,"[203] and its assertions that it faces a spectrum crunch are "pure contrivance."[204] Although the Opposition seeks to dispute the fact that much of AT&T's spectrum is lying fallow,[205] the Applicants cannot deny that AT&T has, on a population-

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concentration levels required merging parties to demonstrate "proof of extraordinary efficiencies").

200 Leap – Cricket Petition at 28.

201 CCIA Petition at 21. *See also* Free Press Petition at 3 (Applicants' "claims appear speculative at best, specious at worst").

202 Opp. at 20-25.

203 Diogenes Petition at 14.

204 RCA Petition at 25.

205 Opp. at 25-28.

weighted nationwide average basis, 40 MHz of spectrum – approximately *40 percent* of its total spectrum holdings – that is currently either unused or underused.[206] AT&T's spectrum warehouse includes 27 MHz of highly valuable 700 MHz and AWS spectrum on which not a single customer is receiving service today. The Applicants' technical consultants state that "major carriers are likely to have some 'idle' spectrum as they prepare to deploy the next generation of technologies."[207] A carrier facing network congestion, however, should deploy any available spectrum to new technologies as soon as possible to improve service for customers. Moreover, the phrase "*some* idle spectrum" is a gross understatement when it comes to describing AT&T's vast, longstanding warehouse of unused spectrum. The Applicants never provide a sufficient explanation as to why AT&T has been so slow in putting to use its unused spectrum to relieve its alleged capacity restraints sooner rather than later. Numerous carriers, including Verizon, MetroPCS, and Clearwire, are well ahead of AT&T in deploying 4G wireless services to customers.

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206 Sprint Petition at 90-93. *See also* RCA Petition at 25-26 ("AT&T [has] amass[ed] the largest spectrum stockpile of any of the Big Four wireless carriers"); Green Flag Petition at 2 (AT&T is "warehousing large swaths of fallow spectrum"); Leap – Cricket Petition at 28 ("AT&T already controls enormous amounts of spectrum, and indeed is sitting on an extensive spectrum reserve that it has not tapped."); AAI Comments at 22 ("AT&T's claims about its spectrum constraints are dubious on their face. AT&T already has more spectrum than anyone else in the industry."); CCIA Petition at 20 (describing the "'spectrum crunch' asserted by AT&T/T-Mobile" as "a complete fabrication"); Diogenes Petition at 12 (in asserting that it is facing a "'spectrum crunch,' … AT&T has not been candid with the FCC. By almost any metric, AT&T has more than enough spectrum to launch LTE and maintain its existing services"); RTG Petition at 7 (AT&T's claim that it faces capacity constraints more severe than any other carrier "is completely false").

207 Reed – Tripathi White Paper at 33.

AT&T's assertion that it faces unique data demands on its network is also false. Nearly all carriers face dramatic increases in consumer demand for mobile data services.[208] As the Stravitz Reply Declaration explains, independent drive tests measuring carrier network performance suggest that AT&T is *not* confronting unique demands on its network, and in fact all of the national carriers face similar or perhaps even greater network performance challenges.[209] Data services accounted for 35.4 percent of Verizon's wireless service revenues in 2010 compared to 34.0 percent for AT&T, a clear indication that data usage on the Verizon and AT&T networks are comparable today.[210] A recent analyst report found that, contrary to the assertions in the Opposition, Verizon and AT&T have "similar usage on their networks today" and forecasts that Verizon will significantly *outpace* AT&T in network usage in 2011.[211] AT&T's claim that it faces unique data demands is also undercut by the fact that iPhone users consume substantially *less* data than Android users, as a recent Nielsen report confirms.[212] Due to its years-long iPhone exclusivity, AT&T's smartphone portfolio skews heavily toward iPhone

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208 *See, e.g.,* MetroPCS – NTELOS Petition at 24-33; Leap – Cricket Petition at 29-31; Public Knowledge Petition at 9.

209 Stravitz Reply Decl. ¶¶ 9-13.

210 *See* CRA Reply Decl. ¶ 162.

211 J.P. Morgan, *Breaking Down Data – Part Deux: T and VZ Network Demand Similar, but Growing Faster*, at 1-2 (Feb. 4, 2011) ("Feb. 2011 J.P. Morgan Report") (estimating that the Verizon and AT&T networks each handle approximately 17 petabytes/month today but that Verizon's network usage will reach 37 petabytes/month by year-end while AT&T's network will be 28 petabytes/month by year-end). The report attributes Verizon's projected higher network usage to an estimated higher growth rate in smartphone penetration (driven by Verizon's iPhone sales and the strength of its Android devices) and other factors. The analyst reports cited in these reply comments are cited only for factual statements. Sprint otherwise disclaims and does not endorse or adopt said reports, including any statements, opinions, or analyses therein.

212 *Android Leads in U.S. Smartphone Market Share and Data Usage*, NIELSENWIRE (May 31, 2011), *available at:* <http://blog.nielsen.com/nielsenwire/consumer/android-leads-u-s-in-smartphone-market-share-and-data-usage/>. *See also* MetroPCS – NTELOS Petition at 29.

users,[213] making AT&T less reliant than Verizon and other carriers on the more data-hungry Android devices. Based on this and other evidence, Steven Stravitz of Spectrum Management Consulting ("SMC") states that "SMC has a high degree of confidence that the data demand on Verizon's network is comparable to, if not larger than, the data demand on AT&T."[214]

The Opposition continues to insist – as if mere repetition makes it true – that AT&T faces unique challenges because, "unlike some of its competitors, AT&T must simultaneously support tens of millions of customers and embedded handsets using three different generations of technology[.]"[215] The fact is that *most* wireless providers, including Verizon and Sprint, face the same exact challenge. As the Stravitz Reply Declaration explains, AT&T is dedicating a large portion of its spectrum to GSM technology even though that technology is far less spectrum efficient than 3G or 4G technologies; AT&T should expedite the migration of its GSM subscribers to these newer technologies.[216] Like other carriers, AT&T can accelerate subscriber migration to newer technologies in various ways, including expediting the deployment of new services, offering handset subsidies, and marketing campaigns.[217] AT&T could, for example,

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213 *See* Feb. 2011 J.P. Morgan Report at 3, Figures 2-3 (estimating that, as of the fourth quarter of 2010, 31.0 percent of AT&T devices were iPhones and 11.5 percent were non-iPhone smartphones, and that 0 percent of Verizon's devices were iPhones and 26.1 percent were non-iPhone smartphones).

214 Stravitz Reply Decl. ¶ 16.

215 Opp. at 21.

216 *See* Stravitz Reply Decl. ¶¶ 65-73 (describing spectrum utilization tests that show that AT&T is allocating more than one-fourth and more than one-third of its PCS and cellular band spectrum to its GSM network in New York City and Washington, D.C., respectively).

217 *See* MetroPCS – NTELOS Petition at 37 ("If MetroPCS can upgrade almost half of its entire subscriber base in one year, surely AT&T with its vastly greater resources could subsidize the upgrade of its subscribers on legacy technologies to more efficient devices."); Sprint Petition at 92-93, 99-103.

waive any early termination fees for subscribers upgrading to newer technologies on AT&T's network, thus removing a significant disincentive to subscriber migration. AT&T could also at some point consider imposing a small monthly surcharge on subscribers that remain on its GSM network, just as AT&T did to encourage migration of subscribers from TDMA to GSM.[218] Supporting multiple technology generations hardly makes AT&T unique and does not provide a justification for the proposed transaction.[219]

With the largest licensed spectrum holdings of any CMRS carrier, AT&T is better positioned than others to address the increasing consumer demand for data services. But to do so, AT&T must maximize the efficiency of its spectrum by investing in its wireless network rather than lagging behind the rest of the wireless industry in investment per subscriber over the past five years:[220]

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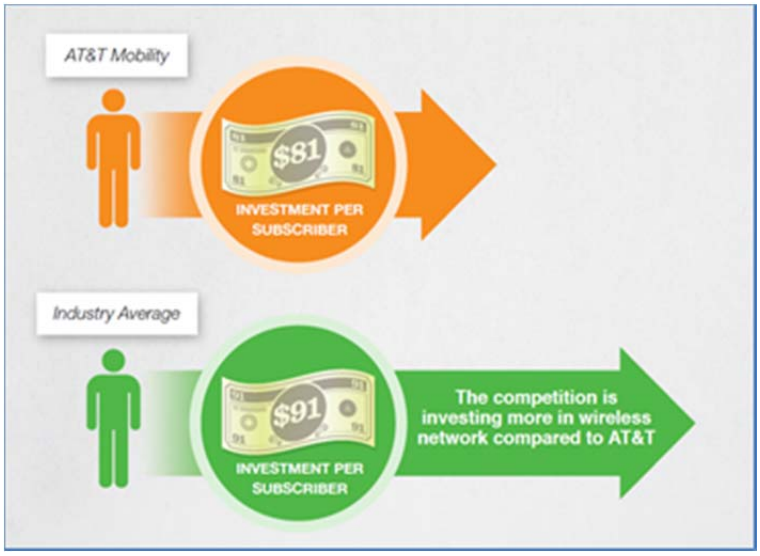
218 *See* Kevin Fitchard, *Cingular Cleaning Out the TDMA Cellar*, CONNECTED PLANET (Aug. 2, 2006), *available at:* <http://connectedplanetonline.com/wireless/commentary/cingular_tdma_gsm_080406/>.

219 The Opposition compares AT&T's migration of subscribers to newer technologies to the 800 MHz reconfiguration process*, but that is an "apples to oranges" – or even "apples to bowling balls" – comparison.* Opp. at 33. The 800 MHz rebanding process involves reconfiguring thousands of public safety and other incumbent systems across the country and raises complexities (*e.g.*, renegotiating spectrum treaties with Mexico and Canada, negotiating frequency relocation agreements with each individual incumbent licensee, avoiding disruption to ongoing public safety communications) of far greater magnitude than giving a GSM subscriber the incentive to upgrade his or her handset to a newer, better 3G or 4G device.

220 *See* Sprint Petition at 86.



The Opposition makes a passing effort to defend AT&T's investment strategy, but inflates the amount of AT&T's purported investments by including investment in AT&T's *wireline* network and money AT&T has spent in acquiring competing wireless providers.[221] These arguments completely miss the point. The reason Verizon and other wireless carriers can handle increasing data traffic with less spectrum and without creating an anti-competitive duopoly is that they are investing in their *wireless* network infrastructure to expand capacity on their *existing* spectrum holdings. The fact that AT&T has significantly lagged behind all other carriers in capital expenditures per wireless subscriber over the past five years translates to a less efficient network.[222] To the extent AT&T is facing any alleged network capacity constraints,

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221 Opp. at 37.

222 Sprint Petition at 85-86. *See also* Dave Burstein Comments at 1 (May 31, 2011) ("I am filing AT&T's latest 10K because I believe many of the claims in other filings, including AT&T's are refuted by a reading of the AT&T SEC filings. In particular, I note that AT&T's capital expenditures dropped by $3B from 2008 to 2009 and even in 2010 were still below 2008. That's a good explanation of their service problems.").

"they are largely constraints of its own making that have arisen through its mismanagement of resources."[223]

AT&T seeks to turn the Commission's public interest analysis on its head by effectively arguing that its failure to use spectrum resources efficiently justifies the proposed anti-competitive transaction. Simply throwing T-Mobile's spectrum at AT&T's alleged capacity problems would not fix them. Stravitz analyzed network performance data (*e.g.,* dropped calls, blocked calls) in a number of markets and correlated this data with the spectrum positions of carriers in the markets. Stravitz's analysis found no dependence between network performance and spectrum holdings.[224] Stravitz also analyzed the correlation between AT&T's performance metrics and spectrum holdings across different markets. Stravitz again found that AT&T's spectrum availability is not correlated to AT&T's network performance.[225]

Ignoring the Inconvenient Truth. The Applicants never explain why AT&T faces capacity constraints when Verizon, which has *more* subscribers and *less* spectrum than AT&T, has stated that it has sufficient spectrum to meet its network capacity needs for the next five

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223 Leap – Cricket Petition at 28. *See also* Free Press Petition at 69 ("AT&T has a documented history of underinvestment in its network infrastructure relative to its peers, further demonstrating that it has failed to mine the full potential of the licenses it already possesses."); MetroPCS – NTELOS Petition at 36 ("Much of AT&T's current self-described spectrum crunch has arisen for two reasons. First, AT&T has clung (and acquiesced in 'tens of millions' of customers clinging) to legacy technologies that are far less efficient than today's state of the art, and are rapidly becoming obsolete. Second, AT&T has not invested in infrastructure as quickly or in the same amount as other carriers."); CCIA Petition at 22 ("AT&T's failure to upgrade its existing technology to make effective use of the spectrum it already owns cannot be grounds for it to seek new spectrum."); MAP, *et al.* Petition at 34 ("AT&T has a long history of under-investing in its network."); Public Knowledge Petition at 52 ("AT&T's capacity issues are ultimately the result of its own under-investment and/or inefficiency, and are not due as it claims to an allegedly spectrum-poor situation.").

224 Stravitz Reply Decl. ¶ 60.

225 *Id.* ¶¶ 61-64.

years.[226] Verizon, like AT&T and many other carriers, must support multiple generations of technology while transitioning to LTE, and, as described above, Verizon is facing traffic demands that will *exceed* AT&T's network usage by the end of this year. Verizon nonetheless has made clear that its existing spectrum holdings are "very, very good."[227] If Verizon can meet increasing consumer data demands with its existing spectrum holdings, why can't AT&T? The Applicants have no good answer to this question, so they apparently chose to ignore it.

The Opposition also fails to reconcile the Applicants' claims with the repeated statements by AT&T executives over the past three years reassuring investors that AT&T has sufficient spectrum to meet consumer demand.[228] Indeed, an AT&T executive reiterated these statements on the eve of AT&T's announcement of its proposed takeover of T-Mobile. In March of this year, Pete Ritcher, the CFO of AT&T's wireless business, stated that "[f]ortunately for AT&T, we're in a pretty good situation regarding where we are in the spectrum that we have and that we need here for the next few years." [229] Mr. Ritcher further stated that, while AT&T will look at potential opportunities to acquire spectrum and in the longer term "there will be more need for spectrum *across the industry*" to meet the growing demand for mobile data services, AT&T is *not* "in any sort of situation right now where we have to go do anything."[230] AT&T's President of Emerging Devices, Glenn Lurie, also told investors in November 2010 – just four months

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226 *See* Sprint Petition at 93-95.

227 *Id.* at 94.

228 *Id.* at 95-97.

229 *AT&T at Credit Suisse Group Convergence Conference*, FAIR DISCLOSURE WIRE, at 7 (Mar. 9, 2011).

230 *AT&T at Deutsche Bank Securities Inc. Media and Telecom Conference*, FAIR DISCLOSURE WIRE, at 10 (Mar. 8, 2011) (emphasis added).

before the proposed transaction was announced – that, despite the significant growth in data traffic, AT&T had "learned how to deal with that type of usage on our network" and that AT&T's network is "performing very well, really everywhere."[231] As AT&T's repeated statements to Wall Street make clear, the Applicants' "spectrum crunch" claims in this proceeding are driven not by the facts but by their lobbyists' efforts to invent out of whole cloth a justification for this anti-competitive merger.

Hiding the Inconvenient Truth. The Opposition argues that AT&T faces unique data demands that will lead to "spectrum exhaust" in a number of markets, but, as noted above, there is nothing unique about the demands on AT&T's network. Moreover, the Applicants *still* have not provided data to verify their spectrum exhaust projections. The Opposition describes AT&T's general process for projecting spectrum exhaust in a market, and provides a list of markets in which AT&T asserts it will face spectrum exhaust. The Opposition, however, fails to provide the underlying data to back up these assertions. What are the specific peak hour traffic projections for the markets in question, and how specifically were these projections derived? How does AT&T define the key parameters underlying their projections, *e.g.,* what level of blocked and dropped calls does AT&T deem unacceptable? Does AT&T project that an entire CMA will face spectrum exhaust simply because only a limited number of sectors in that CMA are experiencing high peak hour traffic demand? The Opposition does not provide sufficient answers to these questions. Moreover, a number of the Applicants' assertions suggest that

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[231] *AT&T at Morgan Stanley TMT Conference,* FAIR DISCLOSURE WIRE, at 7-8 (Nov. 17, 2010).

AT&T is overgeneralizing localized capacity issues into market-wide congestion claims and also confusing capacity constraints with the need to optimize its network performance.[232]

The Opposition contains a number of startling contradictions that further undermine the credibility of AT&T's spectrum exhaust claims. For example, the Applicants' technical consultant asserts that AT&T faces "spectrum exhaust" on its GSM network,[233] but nowhere in the Application or the declarations from AT&T executives does AT&T claim it faces constraints on that network. And while the Application and the Opposition contain sections arguing that "T-Mobile Faces Capacity Constraints in a Growing Number of Markets …,"[234] the Applicants' technical consultants state that "our examination of T-Mobile USA busy hour traffic data confirms that in the AT&T sectors that are either at or are approaching peak overload, *the vast majority of nearby T-Mobile USA cell sites are not capacity constrained.*"[235] The Applicants cannot get their story straight.

The Applicants assert that combining the AT&T and T-Mobile networks would create various synergies, but they refuse to quantify these synergies in a manner that permits verification. The Applicants' economic consultants hazard an estimate of capacity gains from the alleged synergies, but this estimate is general in nature, rests on unclear assumptions, and

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232 Stravitz Reply Decl. ¶ 17. *See also id*. ¶¶ 54-55 (describing the Applicants' failure to provide verifiable data to support AT&T's alleged capacity constraints).

233 Reed – Tripathi White Paper at 35.

234 Opp. § I.A.1d. *See also* Application § I.A.3.

235 Reed – Tripathi White Paper at 12 (emphasis added). It is reasonable to assume that, to the extent T-Mobile suffered capacity constraints, the constraints would occur in the same areas where AT&T also faces its alleged constraints, given that such constraints would likely arise in the same densely populated areas.

does not explain why the alleged capacity increases are merger specific.[236] It is also odd for Applicants to rely on economists, rather than their technical consultants, to estimate network capacity gains. Contrary to the Applicants' generalized, theoretical claims, the Stravitz Reply Declaration explains that the actual capacity gains from channel pooling and Applicants' other alleged synergies are likely to be quite limited in real-world conditions, particularly given the high subscriber density and usage that AT&T and T-Mobile face in urban markets.[237]

There are other flaws in the Applicants' synergy claims. For example, AT&T seeks to buttress its claim that integrating certain T-Mobile cell sites into its network would increase its network capacity by submitting maps of Washington, D.C. and San Francisco depicting the two carriers' cell sites to suggest how they might be integrated.[238] SMC compared this information to data it obtained showing alternative sites in the two cities, and found that, in many instances, existing sites are within close proximity to the T-Mobile sites and could likely serve as alternatives to T-Mobile sites.[239] Moreover, as explained in the Stravitz Reply Declaration, AT&T's claim about the number of T-Mobile sites it could integrate into its network is based on an overly simplistic analysis and appears to substantially overestimate the network benefits AT&T would gain from the proposed transaction.[240]

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236 *See* CRA Reply Decl. ¶ 171.

237 Stravitz Reply Decl. ¶¶ 77-96.

238 Reply Declaration of William Hogg, attached to Joint Opposition of AT&T Inc. Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments, WT Docket No. 11-65, ¶ 33, Exh. B (June 10, 2011) ("Hogg Opp. Decl.").

239 Stravitz Reply Decl. ¶ 91.

240 Stravitz Repl. Decl. ¶¶ 81-90.

Perhaps realizing that their rhetoric is no substitute for data, the Applicants try to lower the bar. The Applicants' technical consultants argue that "these types of network synergies resist precise quantification."[241] The Opposition complains that the Applicants are limited in their ability to quantify their alleged network synergies until they can actually integrate T-Mobile's network into AT&T's network.[242] These excuses are not only feeble, they ignore the Applicants' burden of proof. As the Commission has made clear, "[b]ecause much of the information relating to the potential benefits of a merger is in the sole possession of the applicants, they are required to provide sufficient evidence supporting each claimed benefit so that the Commission can verify its likelihood and magnitude."[243] The Applicants have failed to provide this level of proof to substantiate their synergy claims.

2. AT&T Can Meet Its Alleged Network Capacity Needs Without the Proposed Anti-Competitive Transaction

The Applicants claim that combining the AT&T and T-Mobile networks would increase network capacity by up to approximately 100 percent in some markets, and argue that these capacity gains exceed what AT&T could achieve alone.[244] As Sprint and other parties have explained, however, there are a range of solutions AT&T can pursue to increase its network capacity to an even greater extent without the proposed transaction. The Stravitz Reply

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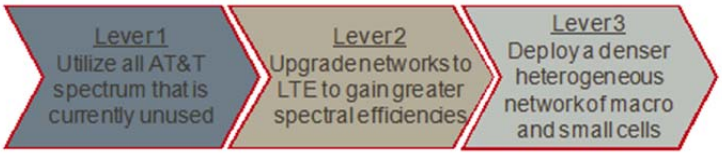
241 Reed – Tripathi White Paper at 3.

242 Opp. at 45. *See also* Response of AT&T to Information and Discovery Request Dated May 27, 2011, at 32 (June 10, 2011) ("AT&T Response to May 27 Information Request") ("AT&T has not yet begun detailed integration planning and its knowledge of T-Mobile USA's operations is necessarily limited at this early stage . . . . AT&T has not determined the exact number or location of T-Mobile USA towers or other locations used for transmission of signals that will be integrated into the combined company's network to increase network density.").

243 *AT&T-Centennial Merger Order* ¶ 90.

244 Opp. at 57-58.

Declaration elaborates on these solutions.[245] It presents a case study analysis demonstrating how AT&T could employ its existing spectrum assets and available technologies to fully meet AT&T's current and future network requirements in New York and Los Angeles, the nation's largest two markets, by using three "levers":



The first lever simply calls on AT&T to expedite the use of the large of amount of unused spectrum it currently holds. AT&T should be doing a much better job of putting its spectrum to use. For example, T-Mobile, MetroPCS, and Leap launched service on AWS spectrum within two years of the FCC's AWS auction, yet, five years after that auction, AT&T still has not launched any service on its large AWS holdings.[246] Under the second lever, AT&T would gradually repurpose spectrum from its GSM and UMTS networks to more spectrally efficient LTE technology. The analysis in the Stravitz Reply Declaration assumes a gradual migration path that, if handled properly by AT&T, would not disrupt subscriber service.[247] Under the third lever, AT&T would deploy heterogeneous network topologies that increase its use of small cells to supplement its macro cell network.[248]

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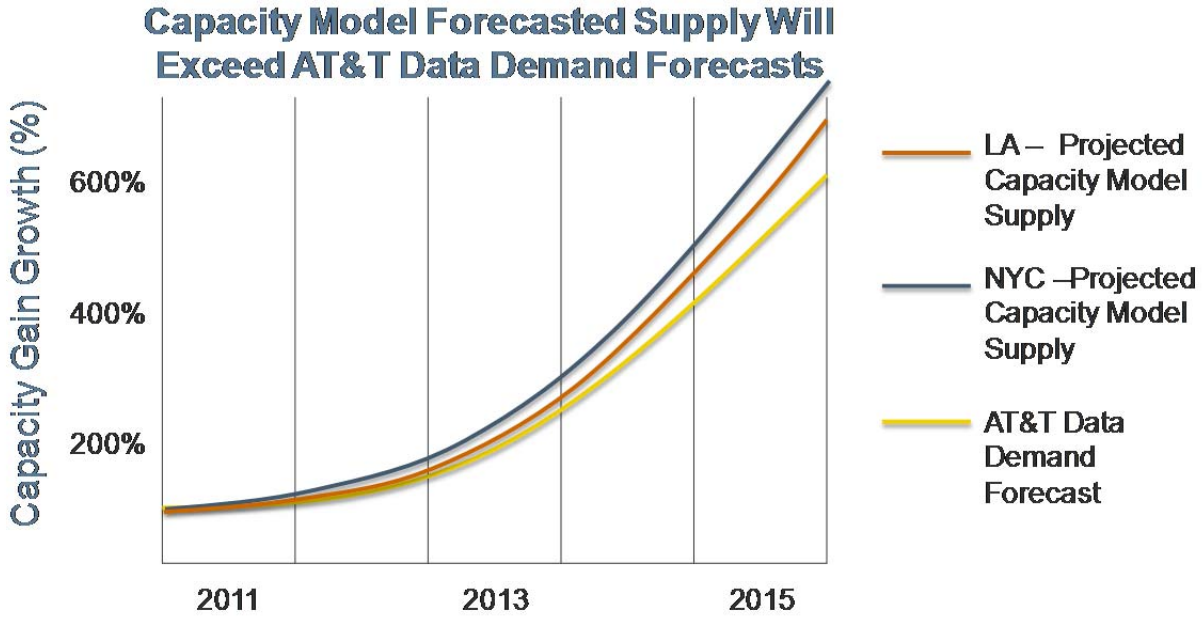
245 Stravitz Reply Decl. ¶¶ 18-48.

246 *Id.* ¶ 25.

247 *Id.* ¶ 26.

248 *Id.* ¶¶ 32-36.

By applying these three levers, AT&T could increase network capacity by *more than 600 percent* by 2015 *without* the proposed transaction or acquiring additional spectrum.[249] This capacity increase will meet or exceed AT&T's projected network capacity needs both in the long term and the short term. It will also exceed the capacity that AT&T alleges it would achieve from the proposed transaction, particularly given that it can begin applying these three levers today rather than wait several years to obtain the claimed efficiencies from the proposed transaction.[250]



The Applicants try to downplay the effectiveness of these three levers, particularly the deployment of heterogeneous networks. They incorrectly assert, for example, that femtocells

249 *Id.* ¶ 37.

250 AT&T claims it would take two years following closing to complete the integration of T-Mobile's network with its network, yet this integration schedule could easily be delayed by various real-world complexities. *See* Sprint Petition at 116-17.

only increase coverage and do not expand capacity.[251] The Applicants dismiss the use of small cell technologies as "localized solutions"[252] when that is precisely the point: network congestion is a local problem requiring a localized solution. The Applicants ignore the fact that numerous carriers have used small cell technologies to meet consumer demand for their services.[253]

AT&T is clinging to traditional macro-cell network architecture, ignoring the capacity gains that advanced topology networks can achieve due to developments in LTE technology. The traditional macro cell network relies on time-consuming network planning and placement of macro base stations:

Traditional Macro Network

A heterogeneous, or advanced topology, network supplements macro cells with the flexible placement of picocells, femtocells, and relays to enhance capacity and performance:

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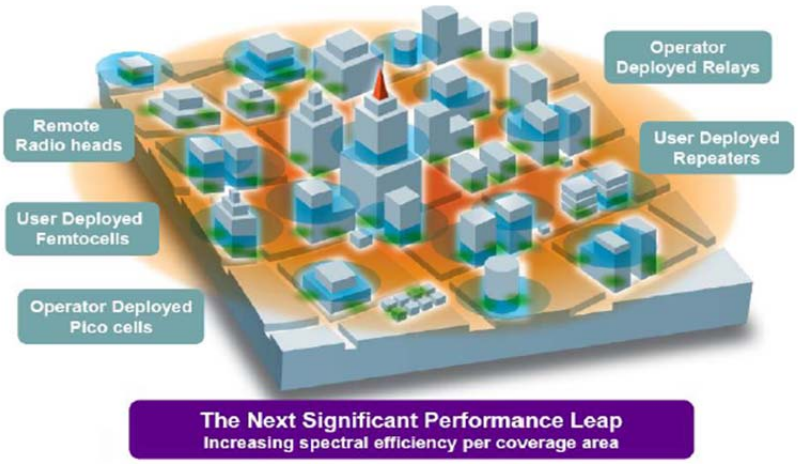
[251] Opp. at 71. *See* Stravitz Reply Decl. ¶¶ 32-36, 50-51 (explaining how heterogeneous networks, including the use of femtocells, increase network capacity and citing report that more than 80 percent of a customer's usage at home or the office can be offloaded from the macro-cellular network).

[252] Hogg Opp. Decl. ¶ 52.

[253] *See, e.g.,* MetroPCS – NTELOS Petition at 26-34; RCA Petition at 28. The Applicants also ignore the deployment of advanced technologies that can improve the capacity of GSM networks. A number of international GSM carriers have proven the effectiveness of these technologies. Stravitz Reply Decl. ¶¶ 74-76.



Advanced Topology Network

As explained in the Stravitz Reply Declaration, the wireless industry is moving toward heterogeneous network topologies because they greatly increase spectral efficiency, substantially lower network costs, and provide a better consumer experience.[254] Qualcomm has stated that heterogeneous networks "provide the most pragmatic, scalable and cost-effective means to significantly enhance the capacity of today's mobile wireless networks by inserting smaller, cheaper, self-configurable base-stations and relays in an unplanned, incremental manner into the existing macro cellular networks."[255] According to Qualcomm, the placement of small cell technologies such as picocells and femtocells does not require the same careful network planning as the placement of macro cells, and "[d]ue to their lower transmit power and smaller physical size, pico/femto/relay base-stations can offer flexible site acquisitions."[256] These small cell

254 Stravitz Reply Decl. ¶ 34.

255 Qualcomm, *LTE Advanced: Heterogeneous Networks*, at 9 (Feb. 2010), *available at:* <http://www.qualcomm.com/documents/files/lte-advanced-heterogeneous-networks.pdf> (submitted as part of Qualcomm response to FCC information request in WT Docket No. 11-18).

256 *Id.* at 4.

solutions thus not only substantially expand capacity, they avoid many of the delays and costs that, according to AT&T, beset the placement of macro cells.

The Applicants claim that AT&T's network is already heterogeneous. As an initial matter, it is important to point out that the use of heterogeneous networks is only one lever for increasing capacity. AT&T has *not* applied either of the first two levers described above – using all available spectrum and providing LTE service – and therefore could greatly increase capacity even assuming its network is fully heterogeneous today. But that assumption is far from the truth, as AT&T's own examples of small cell deployments demonstrate. Deploying 15 permanent WiFi Hotzones – a miniscule number compared to AT&T's 94 million subscribers – is hardly anything to boast about.[257] AT&T **[begin confidential information]** [redacted] **[end confidential information]**[258] and therefore could be doing far more to offload traffic from its network. The Opposition claims that AT&T has deployed more than 24,000 WiFi hotspots.[259] However, as the Carlton Declaration acknowledges, these "installations are a managed service offered by AT&T" to retail outlets and restaurants such as McDonald's and Starbucks and, "unlike Hot Zones, are not deployed simply as a tool to offload network traffic or to improve network coverage."[260] AT&T's WiFi hotspots thus appear to be primarily aimed at generating additional revenue, rather than relieving congestion on AT&T's network.

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257 Hogg Opp. Decl. ¶ 52.

258 *Id.*

259 Opp. at 70.

260 Carlton Opp. Decl. at 14 n.40.

AT&T has deployed only 1,800 Distributed Antenna Systems ("DAS").[261] Deploying a significantly greater number would expand capacity in areas experiencing large network usage. AT&T complains that DAS are expensive, but MetroPCS, a company with far fewer resources, has aggressively used this new technology to expand capacity in urban areas. MetroPCS points out that "DAS networks allow quicker and easier deployment since in many instances the carrier can avoid having to obtain site by site approval from local municipalities."[262] AT&T could also be more aggressive in deploying femtocells and picocells to relieve congestion. AT&T only commercially launched subscriber femtocells in the second quarter of last year,[263] and could be deploying a far greater number to homes and businesses to offload traffic from its wireless network. Sprint first introduced femtocells for its subscribers almost three years ago.[264]

AT&T could also deploy a greater number of macro cells to address its alleged capacity needs. AT&T **[begin confidential information]** [redacted] **[end confidential information]** cell sites last year.[265] Clearwire deployed 10,000 sites in 2010.[266] If AT&T simply matched Clearwire's efforts, it would have 20,000 new cell sites within the next two years, creating cell splits and expanding capacity without the proposed takeover of T-Mobile.

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261 Opp. at 70.

262 MetroPCS – NTELOS Petition at 32.

263 AT&T Response to May 27 Information Request at 45.

264 News Release, *Sprint Wins Femtocell Industry Award for AIRAVE from Femto Forum*, Sprint Nextel Corporation (July 29, 2009), *available at:* <http://newsroom.sprint.com/article_display.cfm?article_id=1184>.

265 Application at 27.

266 Stravitz Decl. ¶ 45. The Opposition strains to distinguish Clearwire's 2010 site build efforts, Opp. at 67 n.72, but surely AT&T could match these efforts with its far greater resources and far more extensive relationships with tower vendors.

Thus, the Applicants have not established that their efficiency claims are merger specific given the broad range of alternative solutions available to meet AT&T's capacity needs. Their claims provide no basis for approving the proposed transaction.

B. AT&T's LTE Deployment Claims Are Simply a Ploy

The Opposition accuses some parties in this proceeding of making arguments "designed to extract regulatory favors."[267] Yet that is precisely what AT&T is attempting to do with its claim that it would deploy LTE to 97 percent of the U.S. population if its proposed takeover of T-Mobile is approved. On a superficial level, this claim has an appealing ring, but in reality it is a "sleeves off my vest" promise. As the Leap and Cricket Petition points out, "it is simply implausible to think that AT&T would not devote significant resources to deploying LTE on its own absent this transaction."[268] Verizon has announced that it will deploy LTE to virtually the entire population, and "it is unthinkable that AT&T, with the most spectrum resources in the nation, would build out LTE to 80 percent of the population and then stop, while its principal rival would deploy to 97 percent."[269]

AT&T is thus offering to do what it would most likely do even without the merger. Put more frankly, AT&T is threatening to withhold service that it would provide under normal marketplace conditions if it does not get its way in this proceeding. AT&T's posturing is most likely an empty threat, as "it is inconceivable that if the proposed acquisition is denied, AT&T

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267 Opp. at 18.

268 Leap – Cricket Petition at 30. *See also* Stravitz Reply Decl. ¶ 108.

269 *Id.* at 31. *See also* Sprint Petition at 128-30.

will choose not to compete as some sort of retaliation against America."[270] Whether the threat is real or empty, it certainly provides no justification for approving the proposed transaction.

The Opposition asserts that AT&T's pre- and post-merger LTE deployment plans are based on a "business judgment" and reflect the additional resources and spectrum the proposed transaction would provide.[271] These vague, conclusory assertions, however, are refuted by the facts. AT&T's spectrum footprint already covers 97 percent of the U.S. population; the addition of T-Mobile's spectrum would produce very little further coverage.[272] AT&T has more than enough spectrum to deploy LTE in the vast majority of its coverage areas. Its unused AWS and 700 MHz spectrum alone will permit deployment of LTE to 95 percent of the population, and AT&T itself has made clear that it can also deploy LTE on its 850 MHz cellular band and PCS spectrum which covers 97 percent of the population.[273] AT&T, one of the largest companies in the world, certainly has the resources to deploy LTE to almost all Americans.[274]

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270 MAP, *et al.* Petition at 35 n.98.

271 Opp. at 81-82.

272 *See* Sprint Petition at 124-25; MAP, *et al.* Petition at 33.

273 *See* Stravitz Reply Decl. ¶ 97; Sprint Petition at 126-27; Free Press Petition at 59. AT&T's large amount of 700 MHz and 850 MHz spectrum is particularly well suited for deploying LTE in rural areas. *See* MetroPCS – NTELOS Petition at 42; RCA Petition at 27. The Opposition asserts that AT&T cannot deploy LTE on its 850 MHz or PCS spectrum because it needs that spectrum to support GSM and UMTS services "in the short to medium-term." Opp. at 55-56. However, AT&T's Senior Vice President for Architecture and Planning made no such qualification in stating last year that AT&T could use these bands for LTE. *See* Sprint Petition at 126. In any event, AT&T claims it would take *six years* to deploy LTE to 97 percent of the population, and AT&T can certainly expedite customer migration and repurpose a significant amount of its 850 MHz and PCS spectrum for LTE within that six-year timeframe. AT&T can also acquire spectrum or enter into partnership arrangements with rural carriers in the very limited number of areas where it would need additional spectrum. *See* Sprint Petition at 127-28. Its LTE subscribers can also roam on other carrier networks. *See* RTG Petition at 12.

274 The Opposition provides wholly insufficient data and analysis to support its claim that the proposed transaction would provide AT&T with "scale, scope, and resources" to extend its

A competitive marketplace will ensure that more than 97 percent of Americans have access to mobile broadband services. In fact, more than 98 percent of Americans have access to 3G or 4G wireless services *today*.[275] AT&T already plans to deploy HSPA+, a service it calls "4G," to 97 percent of the population by the end of 2012.[276] AT&T argues that the higher speeds offered by its HSPA+ deployment are driving Verizon's plans to deploy LTE to virtually the entire country.[277] By AT&T's own reasoning, AT&T ultimately will need to upgrade its entire nationwide footprint to LTE to respond to the higher speeds that Verizon's LTE network will provide.[278]

Competition, not the T-Mobile transaction, will thus drive AT&T to nationwide LTE coverage. AT&T is seeking to package its LTE deployment plans into a set of regulatory conditions to justify its proposed anti-competitive takeover of T-Mobile. For the first time in its FCC filings, the Opposition states that AT&T promises to deploy LTE to 97 percent of the population within six years from the closing of the takeover if it is approved, or sometime around

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LTE footprint from 80 percent to 97 percent. Opp. at 81. In fact, "[a]cquiring T-Mobile would not increase the population density of the remaining 20 percent. It would not impact the economies of scale inherent in building an advanced network to serve them. It would not significantly reduce the per-customer costs." Public Knowledge Petition at 55.

275 *14th CMRS Competition Report* ¶ 122.

276 Opp. at 81.

277 Hogg Opp. Decl. ¶ 47.

278 The Opposition repeatedly asserts that T-Mobile will have "no clear path" to LTE without the proposed transaction. Opp. at 39, 97, 142, 156, 160. T-Mobile's executives, however, expressed no such concerns in presentations to investors earlier this year. To the contrary, they expressed strong confidence in T-Mobile's ability to compete in offering mobile broadband services. *See also* Stravitz Reply Decl. ¶¶ 104-05 (describing T-Mobile's spectrum options for deploying LTE).

2018 or 2019.[279] Vague, speculative promises so far into the future cannot form the basis of a cognizable merger commitment.[280] Yet the more fundamental problem with AT&T's regulatory promises is that they are completely unnecessary and completely irrelevant to this proceeding. The Commission can and should rely on free market competition to drive AT&T and other carriers to bring 4G wireless services to the vast majority of Americans.

III. NO REMEDIES – SHORT OF BLOCKING THE TRANSACTION – WILL PRESERVE COMPETITION AND PROTECT THE PUBLIC INTEREST

The Commission has no choice but to block AT&T's proposed acquisition of T-Mobile. In the face of the Twin Bell duopoly, the Applicants' proposed "local divestitures of spectrum or business units"[281] and behavioral conditions would be ineffective against the takeover's widespread competitive and public interest harms.[282]

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279 Opp. at 75.

280 *See EchoStar-DirecTV Hearing Designation Order* ¶ 202 ("More generally, many of the Applicants' efficiency claims are inherently speculative because they are not projected to occur until three or more years after consummation of the merger."); N.J. Div. of Rate Counsel Petition at 14 ("AT&T's passing 'promise' to deploy LTE services . . . is simply too vague to warrant credibility."); Sprint Petition at 119-24.

281 Opp. at 206-26. The Applicants, who argue at length against most conditions proposed in the record, would seem to prefer an unregulated duopoly. *See, e.g.*, Steven Pearlstein, *The revenge of the Baby Bells*, THE WASH. POST (June 4, 2011) ("And therein lies the central question in all this: Which arrangement – a tightly-regulated oligopoly or a lightly-regulated market with numerous firms of varying size – is most likely to produce the next innovation that improves services while lowering costs? At different times, we've had success with both models, but surely the worst outcome would be the unregulated oligopoly that AT&T and Verizon would have us embrace."), *available at*: <http://www.washingtonpost.com/ business/economy/steven-pearlstein-the-revenge-of-the- baby-bells/2011/05/31/AGLic0IH _story_1.html>.

282 As noted above, DoJ repeatedly has moved to block transactions when the merging parties have been unable to cure the anti-competitive effects of the proposed merger. *See*, supra n.18.

Under DoJ practice, which traditionally informs the Commission's analysis,[283] a transaction must be blocked outright if its anti-competitive effects cannot be fixed by an agreed-upon divestiture or other remedy.[284] Further, any set of merger remedies must be sufficient to preserve the level of competition existing prior to the merger,[285] and divestitures must include a set of assets sufficient to enable the purchaser to replace the competition lost by the merger in a timely manner and to be an effective competitor over the long term.[286] The DoJ Merger Remedies Guide also provides that the divestitures themselves must not cause competitive harm:

> [I]f the concern is that the merger will enhance an already dominant firm's ability unilaterally to exercise market power, divestiture to another large competitor in the market is not likely to be acceptable, although divestiture to a fringe incumbent might. If the concern is one of coordinated effects among a small set of post-merger competitors, divestiture to any firm in that set would itself raise competitive issues. In that situation, the [Antitrust] Division likely would approve divestiture only to a firm outside that set.[287]

Targeted spectrum and asset divestitures in local markets would do nothing more than break up T-Mobile into numerous pieces. T-Mobile has been a strong national competitor, providing critical restraints on AT&T's ability to raise prices.[288] In the face of the Twin Bell

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283 *AT&T – Centennial Merger Order* ¶ 29.

284 *See* U.S. Dep't of Justice, Antitrust Division Policy Guide to Merger Remedies 3 (June 2011) ("Where a remedy that would effectively preserve competition is unavailable, the Division will seek to block the merger.") ("Merger Remedies Guide").

285 *Id.* at 2 ("[E]ffectively preserving competition is the key to an appropriate merger remedy.").

286 *Id.* at 7-8.

287 *Id.* at 28.

288 *See* MAP, *et al*. Petition at 21; Diogenes Petition at 5; Cox Petition at 4; USA Mobility Comments at 11-12; Greenlining Institute Petition at 17-18.

duopoly, divestitures would not replace this lost competition.[289] Conditions and *ad hoc* local divestitures cannot create a new competitor with the key attributes needed to be effective – *e.g.*, a nationwide facilities-based network, the ability to offer cutting-edge handsets and other devices, and a strong national brand. T-Mobile and the other national carriers have these attributes, but the fringe carriers cannot fill this gap.

The record in this proceeding also confirms that, because AT&T and Verizon control such large market shares, no remedy short of blocking the transaction could preserve T-Mobile's role as a proven source of innovation in the U.S. wireless industry. Many commenters highlighted T-Mobile's irreplaceable role in fostering such innovation.[290] T-Mobile, for example, has led handset innovation, beginning with the company's sale of the first U.S. BlackBerry smartphone in 2002 and continuing through to its marketing of the first Android smartphone, the G1, in 2008.

The Commission has successfully promoted competitive market forces as the best way to benefit consumers and encourage investment in wireless networks.[291] Consistent with those efforts, the Commission should choose competition – by blocking this anti-competitive takeover – rather than ultimately futile conditions and divestitures. In rejecting EchoStar's offer to accept

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289 One of the unfortunate consequences of Commission-ordered spectrum divestitures in prior RBOC-related wireless transactions has been the divestiture of spectrum to the other RBOC. This has had the perverse impact of allowing each of the Twin Bells to improve its spectrum position and scale advantages as part of a single transaction, further concentrating the market.

290 *See, e.g.,* CERC Comments at 23-26; MAP, *et al.* Petition at 22-24.

291 *See Implementation of Sections 3(n) and 332 of the Communications Act,* Third Report and Order, 9 FCC Rcd 7988, ¶ 23 (1994) (noting the Commission's goal of creating a regulatory framework "to foster economic growth and expanded service to consumers through competition").

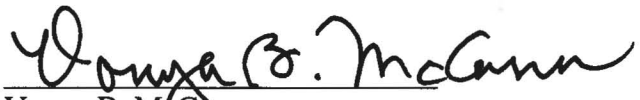
conditions to remedy the harms presented by its proposed acquisition of DirecTV, the Commission recognized that it could not replace competition with regulation in the face of a merger that would result in so many anti-competitive effects. The same situation is presented by the proposed transaction. No package of divestitures or conditions could remedy the competitive and other public interest harms that would result from AT&T's takeover of T-Mobile.

IV. CONCLUSION

The Applicants have failed to demonstrate that the purported public interest benefits of AT&T's proposed takeover of T-Mobile outweigh the serious harm to competition and consumers that would result from the transaction. No conditions or divestitures would ameliorate these public interest harms. The Commission should therefore deny its consent to AT&T's proposed acquisition of T-Mobile and designate the Application for hearing.

Respectfully submitted,

SPRINT NEXTEL CORPORATION



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APPENDIX A

List of Petitions and Comments Filed in WT Docket No. 11-65 and Cited in Sprint's Reply Comments

Petitions and Comments	Date Filed	Shortened Citation
Comments of the American Antitrust Institute	05/31/11	AAI Comments
Comments of Cablevision Systems Corporation	05/31/11	Cablevision Comments
Petition to Deny by the Computer & Communications Industry Association	05/31/11	CCIA Petition
Comments of Consumer Electronics Retailers Coalition	05/31/11	CERC Comments
Petition of Cincinnati Bell Wireless LLC to Condition Consent or Deny Applications	05/31/11	Cincinnati Bell Wireless Comments
Comments of Clearwire Corporation	05/31/11	Clearwire Comments
Petition to Deny of COMPTEL	05/31/11	COMPTEL Petition
Petition of Cox Communications, Inc. to Condition Consent	05/31/11	Cox Petition
Petition to Deny of Credo Mobile, Inc.	05/31/11	Credo Mobile Petition
Comments of Dave Burstein	05/31/11	Dave Burstein Comments
Petition to Deny of the Diogenes Telecommunications Project	05/31/11	Diogenes Petition
Petition to Deny of DISH Network L.L.C.	05/31/11	DISH Petition
Petition to Deny of Free Press	05/31/11	Free Press Petition
Petition to Deny of Green Flag Wireless, LLC	05/31/11	Green Flag Petition
Petition to Deny of Greenlining Institute	05/31/11	Greenlining Institute Petition
Petition to Deny of Iowa Wireless Services, LLC	05/31/11	Iowa Wireless Petition
Comments of Japan Communications Security & Compliance Technologies, Inc.	05/31/11	Japan Communications Comments
Petition to Deny of Leap Wireless International, Inc. and Cricket Communications, Inc.	05/31/11	Leap – Cricket Petition
Joint Petition to Deny of Center for Media Justice, Consumers Union, Media Access Project, New America Foundation, and Writers Guild of America, West	05/31/11	MAP, *et al*. Petition

Petition of MetroPCS Communications, Inc. and NTELOS Inc. to Condition Consent, or Deny Application	05/31/11 (Erratum filed on 06/01/11.)	MetroPCS – NTELOS Petition
Comments of the Mobile500 Alliance	05/31/11	Mobile500 Alliance Comments
Petition to Deny of the New Jersey Division of Rate Counsel	05/31/11 (Corrected petition filed on 06/15/11.)	N.J. Div. of Rate Counsel Petition
Petition to Deny of NoChokePoints	05/31/11	NoChokePoints Coalition Petition
Petition to Deny of Public Knowledge and Future of Music Coalition	05/31/11	Public Knowledge Petition
Petition to Deny of Rural Cellular Association	05/31/11	RCA Petition
Petition to Deny of Rural Telecommunications Group, Inc.	05/31/11	RTG Petition
Petition to Deny of Sprint Nextel Corporation	05/31/11	Sprint Petition
Comments of United States Cellular Corporation	05/31/11	U.S. Cellular Comments
Comments of USA Mobility, Inc.	05/31/11	USA Mobility Comments

REDACTED – FOR PUBLIC INSPECTION

ATTACHMENT A

ECONOMIC ANALYSIS OF THE MERGER OF AT&T AND T-MOBILE

JOINT REPLY DECLARATION OF
STEVEN C. SALOP
STANLEY M. BESEN
STEPHEN D. KLETTER
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AND
JOHN R. WOODBURY

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REDACTED – FOR PUBLIC INSPECTION

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FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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Applications of AT&T Inc. and	)	WT Docket No. 11-65
Deutsche Telekom AG	)	DA 11-799
	)	ULS File No. 0004669383
For Consent to Assign or Transfer	)	
Control of Licenses and Authorizations	)	

JOINT REPLY DECLARATION OF STEVEN C. SALOP, STANLEY M. BESEN, STEPHEN D. KLETTER, SERGE X. MORESI, AND JOHN R. WOODBURY

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June 20, 2011

I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In our initial Declaration, we analyzed the various components of a full competitive effects evaluation of the proposed merger of AT&T and T-Mobile. We analyzed geographic and product market definition, market shares and concentration, and the competitive effects of the proposed merger. Our competitive effects analysis involved an evaluation of product differentiation, unilateral effects, coordinated effects, exclusionary effects, and AT&T's efficiency claims.

2. We concluded that the proposed merger raises serious competitive concerns, and it would likely lead to anticompetitive effects in the all-wireless market and at least two more narrowly-defined product markets: postpaid service; and corporate and governmental accounts. There would also likely be harms to other carriers in two input markets – wholesale roaming and backhaul. We concluded that there is a national geographic market as well as local markets and that the analysis of the likely effects in the national market should be given priority in reviewing the merger.

3. Our analysis concluded that AT&T had not shown that the bulk of its claimed efficiencies were either merger-specific or verifiable. Moreover, AT&T did not show that any merger-specific, cognizable efficiencies were sufficiently large to prevent consumer harm from the elimination of T-Mobile as an independent competitor and the anticompetitive effects that the merger would cause.

4. AT&T's economists (Professor Dennis Carlton and his colleagues and Professor Robert Willig and his colleagues) have made a number of criticisms of our analysis and

conclusions. None of their criticisms nor the information provided in the rest of AT&T's filings causes us to alter our earlier conclusions. In this Declaration, we reply to these criticisms, analyze some of the new information in AT&T's filings, and present the results of our further analysis.

5. AT&T's economists were largely silent on market definition. Based on our further analysis of market definition, we continue to conclude that there is a national geographic market as well as local markets. We continue to conclude that there is a separate product market for the postpaid service offered by the national carriers. Postpaid service is distinguished from prepaid service by its long-term contracts, a higher-end mix of handsets that are more heavily subsidized, and higher-end data services to subscribers that roam around the country. Prepaid service has a lower ARPU and higher churn rate. It is sold to largely different consumer demographic groups from postpaid service and is rarely sold to corporate and government accounts. In contrast to AT&T's claims, we conclude that the national carriers priced their postpaid unlimited service plans in response to each other, not to the prepaid plans of MetroPCS and Leap. Our analysis also demonstrates that a market composed of postpaid wireless services satisfies the hypothetical monopolist test for market definition.

6. We have carried out further analysis of unilateral effects. Since submitting our initial Declaration, the Commission has made the NRUF/LNP porting data available to us. We have supplemented our previous analysis of upward pricing pressure (UPP) with the porting data. **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** As a result, we conclude that the proposed merger

would lead to even greater upward pricing pressure than did our previous analysis. We also have responded to Professor Carlton's criticisms of UPP analysis generally and his criticisms of our application of that analysis to this merger.

7. We also have carried out further analysis of the ability of the prepaid fringe carriers (MetroPCS and Leap) to reposition into the postpaid market. Our analysis shows that these carriers face significant impediments to repositioning in order to compete more directly with the postpaid services of the national carriers. This is because they sell a significantly differentiated product to a different demographic group in a limited geographic footprint. Because of their limited footprints, their data and voice services for roaming subscribers often are degraded or expensive. Their national market shares are very low and their collective market shares have not increased dramatically over the last several years. Our analysis of the porting data shows that they are **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** Finally, we also present some evidence that indicates that the regional fringe carriers are not significant participants in the market for corporate and governmental accounts.

8. We also have carried out further analysis of the risks of parallel accommodating conduct (PAC) and other forms of coordination by AT&T and Verizon. In particular, we explain why MetroPCS and Leap are unlikely to be disruptive mavericks that would deter coordination between AT&T and Verizon. MetroPCS and Leap currently have a different competitive position from AT&T and Verizon and face substantial impediments to repositioning. We also explain why the risks of coordination between AT&T and Verizon would be substantially higher after the merger of AT&T and T-Mobile than the risks of coordination among wireless carriers

were in 2004-2005 after the merger of Sprint and Nextel. One reason is the growing importance of competition at the national level. Another is that AT&T and Verizon are two similarly situated Incumbent Local Exchange Carriers (ILECs) and would have a combined all-wireless market share of about 76% after the merger of AT&T and T-Mobile.

9. Market concentration is not the only factor that affects the likely success of coordination, but it can be a significant factor. We also have formulated and implemented a coordination pricing pressure index (CPPI) as a companion to the gross upward pricing pressure index (GUPPI) used in unilateral effects analysis. The CPPI scores the impact of the higher market shares from a merger on the likelihood and magnitude of coordination through parallel accommodating conduct. The CPPI would increase substantially from the merger of AT&T and T-Mobile, which indicates that the risk and significance of coordination would be greater.

10. In our initial Declaration, we analyzed the potential for exclusionary effects due to handset exclusives and AT&T and Verizon's critical role in the provision of wholesale roaming, backhaul, and wholesale service to resellers. We also analyzed T-Mobile's role in helping to maintain a sufficient customer base for independent suppliers of backhaul and network infrastructure equipment as well as its competitive role in wholesale roaming. We also explained how the exclusionary effects of the merger could raise Sprint's borrowing costs and reduce its ability to invest in capacity expansion and innovation. In this Declaration, we address the criticisms that Professors Willig and Carlton make of our analysis. We explain why the exclusionary effects concerns are merger-specific. We also explain that, while coordination between AT&T and Verizon would reinforce these effects, coordination is not necessary for the exclusionary effects to occur. We also analyze the significance of these effects. Finally, we

explain why preventing these effects by maintaining competition through an independent T-Mobile is strongly preferred to attempting to remedy them through increased regulation.

11. Merger analysis is primarily a forward-looking exercise. However, given the long and well-documented history of the wireless market, it is worth pausing to look backwards as well. In light of the exclusionary effects, there are concerns that this merger may cause the wireless market to begin to revert to a duopoly. For that reason, we examined the impact of the entry of PCS on wireless prices in the 1990s. When new entry occurred, prices fell much faster than they had during the earlier duopoly period. This is another reason why AT&T should have a heavy burden of proof on its efficiency claims.

12. We have carried out further analysis of AT&T's efficiency claims in light of the additional information it has provided. We continue to conclude that AT&T has not established that the bulk of its claimed efficiency benefits are merger-specific and verified. AT&T still fails to provide reliable evidence that there are sufficient merger-specific consumer benefits to offset the anticompetitive concerns raised by the merger. Professor Carlton refers to merger-*related* capacity increases, but he does not show that they are merger-*specific*.

13. Thus, AT&T's comments do not cause us to alter our earlier conclusions that the merger is likely to be anticompetitive and that a remedy involving regulatory conditions and local divestitures would not be in the public interest. This merger likely will cause harms on a national basis. It will eliminate T-Mobile, one of the four national competitors. National competition involves more than just spectrum. It also requires a valuable brand name, a built-out network, access to high-end handsets, and the means to innovate, none of which is currently available to the fringe carriers.

14. The remainder of this Declaration is organized as follows. Product and geographic market definition is analyzed in Section II. We then turn to our analysis of competitive effects. Unilateral effects are analyzed in Section III. Coordinated Effects are analyzed in Section IV. Exclusionary effects are analyzed in Section V. We discuss the risk of market reversion to duopoly in Section VI. AT&T's claimed efficiency benefits are analyzed in Section VII. Section VIII concludes.

II. MARKET DEFINITION

15. In our initial Declaration, we addressed the relevant market definition. Regarding relevant geographic market, we analyzed both local markets and a national geographic market.[1] Regarding relevant product market, we considered a number of potential wireless markets – all-wireless, postpaid, prepaid, and corporate and governmental accounts. We concluded that there was a national geographic market as well as separate local markets. We explained that the existence of an all-wireless market was not controversial and suggested that there likely was also a postpaid market. Our analysis also suggested that it was likely that there was a market for corporate and governmental accounts.

[1] Declaration of Steven C. Salop, Stanley M. Besen, Stephen D. Kletter, Serge X. Moresi, and John R. Woodbury, attached to Petition to Deny, Sprint Nextel Corporation ("CRA Decl.") at Section II.C.

16. Neither Professor Carlton nor Professor Willig has defined any relevant markets. This is somewhat surprising because market definition is a central issue in the 2010 Horizontal Merger Guidelines.[2]

17. Professor Willig has been a strong proponent of defining relevant markets. He recently wrote that:

> In my view, the 2010 Guidelines should assert that relevant markets and corresponding market shares will be addressed and articulated wherever there are competitive effects of concern… The purpose behind a requirement of market definition and assessment of shares is the imperative for disciplined consideration of sources of competition beyond the parties' own products, along with the need to generate a consistent calibration of the strength of that additional competition.[3]

18. Professor Carlton also has recommended that relevant markets be defined. In his article commenting on the 2010 Merger Guidelines, Professor Carlton wrote that "even though market definition may be a crude tool to use, it does provide some structure to an antitrust analysis and its use likely prevents courts from making egregious errors."[4]

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[2] U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines at 7-15 (Aug. 19, 2010), *available at*: <http://www.justice.gov/atr/public/guidelines/hmg-2010.html> ("Guidelines" or "Merger Guidelines").

[3] Robert Willig, *Public Comments on the 2010 Draft Horizontal Merger Guidelines* at 1-2 (Jun. 4, 2010), *available at:* <http://www.ftc.gov/os/comments/hmgrevisedguides/548050-00015.pdf> ("Willig Public Comments").

[4] Dennis W. Carlton, *Comment on Department of Justice and Federal Trade Commission's Proposed Horizontal Merger Guidelines* ¶ 14 (Jun. 4, 2010), *available at:* <http://www.ftc.gov/os/comments/hmgrevisedguides/548050-00034.pdf> (footnote omitted).

A. Geographic Market Definition

19. There should be no controversy over the existence of a relevant national geographic market, even if there are also local markets.[5] As we discussed in our initial Declaration, the national carriers generally set uniform national prices (with some limited local promotions). Brand names are national. Handset competition takes place at the national level. Innovation decisions and advertising are predominantly national.[6] As discussed in more detail below, we have now implemented the hypothetical monopolist test for market definition and have found that a national market for postpaid wireless service satisfies that test.

20. Professor Willig does not discuss geographic market definition for wireless mergers in his Declaration. However, he and his colleagues have previously opined on this issue. In his Declaration for AT&T in the Centennial acquisition in 2008, Professor Willig stated that:

> AT&T and Centennial generally set U.S. prices for wireless service on a nationwide basis. AT&T's current rate plans in the continental U.S. are national in scope and their pricing is determined almost entirely on a national basis.[7]

21. Professor Willig further noted that "[f]or a local deviation from the national rate plan to be implemented, AT&T undergoes a lengthy process of review in advance of its approval.

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[5] Professor Willig agrees that "there is no requirement of a unique relevant market, and several alternative market definitions with their own sets of shares may be the most useful way to articulate the results of appropriate competitive analysis." Willig Public Comments at 2.

[6] CRA Decl. Section II.C.

[7] Declaration of Robert D. Willig, Jonathan M. Orszag, and J. Loren Poulsen, attached to Applications of AT&T Inc. and Centennial Communications Corp. for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 08-246, ¶ 25 (footnote omitted) (July 12, 2007).

Any such 'promotions' are not only rare, but typically short-term in nature."[8] In the Dobson acquisition in 2007, Professor Willig similarly observed that "AT&T generally sets its prices for wireless service on a nationwide basis."[9]

22. In his latest Declaration, AT&T's Chief Marketing Officer, David A. Christopher, now concedes that "AT&T makes many important competitive decisions at the national level."[10] He goes on to state that "AT&T generally goes to market with rate plans that are uniform nationally to ensure the consistency of AT&T's offerings (such as national advertising and marketing collateral) and to keep our training and customer care operations simple and consistent."[11] Finally, he also makes the point that "national advertising and national messages are important to our marketing strategy."[12]

23. AT&T recommended in its Dobson and Centennial filings that the Commission should analyze competition at the national level. AT&T now recommends that the Commission

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8 *Id.* ¶ 26.

9 Declaration of Robert D. Willig and Jonathan M. Orszag, attached to Applications of AT&T Inc. and Dobson Communications Corp. for Consent to Transfer Control of Licenses and Authorizations, WT Docket No. 07-153, ¶ 23 (July 12, 2007).

10 Declaration of David Christopher, attached to Joint Opposition of AT&T Inc., Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments, WT Docket No. 65-11, ¶ 6 (June 10, 2011) ("Christopher Opp. Decl.").

11 *Id.* ¶ 8.

12 *Id.* ¶ 18. Mr. Christopher notes that AT&T has recently run "at least 300 distinct local handset promotions or discounts" in recent months. *Id.* ¶ 11. However, the fact that competition is not exclusively national in scope does not mean that a national market is irrelevant in evaluating the effects of this merger. Indeed, as noted below, in writing for AT&T, Professor Katz concluded that it would be "misleading" to evaluate a wireless merger solely at the local level.

should analyze competition for the AT&T/T-Mobile merger at the local level.[13] It is, at the very least, paradoxical to recommend that the Commission should analyze the acquisition of local competitors in a national market but analyze the acquisition of a national competitor only at a local level. Moreover, AT&T points to nothing that has occurred in the last two years to justify the dramatic change in its position. Alltel has been eliminated as an independent competitor. MetroPCS and Leap together still account for less than 4% of all-wireless service revenue, and neither participates significantly in the postpaid market or in the corporate and governmental accounts market.

24. Professor Carlton appears to agree that analysis should take place at the national level as well as the local level.[14] In our view, national analysis should take precedence. It is clear that analysis solely at the local level would be misleading and inappropriate. For example, in his Declaration on behalf of AT&T in 2009, Michael L. Katz wrote:

> [E]ven if one defines local markets based on the consumer-substitution methodology, there are central elements of consumer preferences and service provider competitive strategies that create national linkages…various consumers are interested in a CMRS provider's service coverage area on a local, regional, national, or even international basis. This interest gives rise to both local and national elements of competition. In addition, many CMRS providers deploy pricing and marketing strategies on a nationwide basis in order to economize on customer service and media costs. *Consequently, conducting a competitive analysis solely at a local level would be misleading.*[15]

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[13] Joint Opposition of AT&T Inc., Deutsche Telekom AG, and T-Mobile USA, Inc. to Petitions to Deny and Reply to Comments ("Opposition") at 105 ("The Commission Should Follow Its Established Precedent on Geographic and Product-Market Definition.").

[14] Declaration of Dennis W. Carlton, Allan Shampine, and Hal Sider, attached to Opposition, ¶ 64 ("Carlton Opp. Decl.").

[15] Declaration of Michael L. Katz, attached to Reply Comments of AT&T, Inc., WT Docket No. 09-66, ¶ 17 at n.12 (emphasis supplied).

25. Because of the importance of national competition, a remedy based on local divestitures would not be sufficient. Such a remedy would not prevent the elimination of a significant national competitor. Replacing T-Mobile with regional competitors would provide a far weaker competitive constraint on the pricing of AT&T and Verizon because the regional carriers lack valued national brand names, national advertising, high-end handsets, and high quality data services, particularly for individual and business subscribers who travel around the country.

B. Product Market Definition: Postpaid Market

26. As we discussed in our initial Declaration, there is a relevant market comprised of postpaid service.[16] Postpaid service is distinguished from prepaid service by its long-term contracts, higher-end mix of handsets that are more heavily subsidized, and higher-end data services to subscribers that roam around the country. Prepaid service has a lower ARPU and higher churn rate. It is sold to largely different consumer demographic groups from postpaid service and is rarely sold to corporate and government accounts. As noted above, none of AT&T's economists have taken issue with our product market definition analysis. However, Mr. Christopher does suggest that there are significant pricing responses of postpaid products to all-you-can-eat (AYCE) prepaid prices.[17] In this section, we respond to his analysis. We also discuss our analysis of the Merger Guidelines' hypothetical monopolist test for the postpaid market.

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16 CRA Decl. ¶ 40.

17 Christopher Opp. Decl. ¶ 38.

1. AT&T's Claimed Postpaid Pricing Responses to Prepaid Prices

27. In his initial declaration, Mr. Christopher suggested that the big four national carriers have changed their postpaid plans and pricing in response to the prepaid carriers MetroPCS and Leap.[18] He referred to the introduction of unlimited postpaid calling plans in early 2008 by the big four national carriers. He implied that the national carriers were "pressured" to do so by MetroPCS and Leap.[19] He also made the claim—without providing any details—that subsequent price reductions by the four national carriers for their unlimited postpaid plans were "in reaction to" Sprint Boost, MetroPCS and Leap.[20] We have reviewed the chronology based on press releases and Sprint documents and have reached a different conclusion. We conclude that the national carriers were primarily responding to one another, not to the prepaid carriers. In light of the differences in the services provided, this result is not surprising.

28. We first discuss the 2007-2008 pricing chronology.

a. On February 19, 2008, Verizon began offering an unlimited calling plan for the first time, starting at $99.99.[21] On the same day, AT&T and T-Mobile followed

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18 Declaration of David A. Christopher, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations ("Application"), WT Docket No. 11-65, ¶ 50 (Apr. 21, 2011) ("Christopher Decl.").

19 *Id.*

20 *Id.*

21 Press Release, Verizon, *Verizon Wireless Introduces New Unlimited Plans That Are As Worry Free As The Guarantee* (Feb. 19, 2008), *available at*: <http://news.vzw.com/news/2008/02/pr2008-02-19.html>.

with their own $99.99 plans.[22] Within a few weeks, Sprint followed.[23] Mr. Christopher suggests that this series of events was a response to MetroPCS and Leap by noting that, as of the end of 2007, they were the only two carriers offering an unlimited calling plan.[24]

b. It is not the case that MetroPCS and Leap introduced unlimited calling plans at the end of 2007, which then were followed in early 2008 by the four national carriers. MetroPCS and Leap had been offering unlimited calling and messaging plans for several years, at prices of about $45 for unlimited talk and text. By the end of 2007, MetroPCS had service mainly in Florida and California, and its customers could not roam.[25] Leap offered service in fewer than half the states.

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[22] Press Release, AT&T, *AT&T to Launch Unlimited U.S. Calling Plan* (Feb. 19, 2008), *available at*: <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=25197&mapcode=mobile-devices>; Press Release, T-Mobile, "T-Mobile Offers Consumers Unlimited Calling And Messaging Plan" (Feb. 19, 2008), *available at*: <http://newsroom.t-mobile.com/articles/t-mobile-unlimited-calling-messaging>.

[23] While each of the four major national carriers hit the $99.99 price point with an unlimited calling plan, each of the carriers included different services at that price. Verizon's plan did not include unlimited text or data, but those could be purchased for $39.99, bringing the price of the more inclusive plan up to $139.98. AT&T's plan also did not include text or data, but unlimited messaging and Internet access could be added for $35, bringing the price of the more inclusive plan up to about $135. T-Mobile's plan included unlimited messaging. The Sprint plan, called "Simply Everything," included voice, text, and data. Press Release, Sprint, *Sprint Launches Revolutionary $99.99 'Simply Everything(SM)' Plan* (Feb. 28, 2008), *available at*: <http://newsroom.sprint.com/article_display.cfm?article_id=614>.

[24] Christopher Decl. ¶ 50.

[25] In addition to parts of Florida and California, MetroPCS also had service in Atlanta, Dallas, and Detroit. It had not yet begun service in other major metropolitan areas such as New York City and Boston. The inclusion of roaming did not occur until late 2008. *See* Press Release, MetroPCS, *MetroPCS Launches MetroPCS Unlimited NationwideSM* (Nov. 6, 2008), *available at:* <http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1223573&highlight=>.

We have seen no evidence that the introduction of unlimited postpaid calling plans by the major national carriers in early 2008 was a competitive reaction to MetroPCS and Leap. Neither of the two trade press reports that Mr. Christopher cites suggest that competitive reaction.[26] One does not even mention MetroPCS or Leap, or make any reference to prepaid services. The other refers to MetroPCS and Leap tangentially, simply reporting that those smaller carriers already offer unlimited calling "for customers who do not want roaming capabilities."[27] That report also says MetroPCS and Leap's customers, who pay "about $40 a month for unlimited services in their local markets" would be unlikely to switch to one of the new $100 plans offered by the national carriers.[28]

29. We next discuss the 2009-2010 pricing chronology.

a. Beginning in February 2008, the four national carriers' unlimited calling plans were priced at the $99.99 price point (ranging up to about $140 including unlimited text and web access). During that time, MetroPCS and Leap's prices for unlimited calling, text and web access were $45, which they both lowered to $40 in July-August 2009.[29] MetroPCS lowered its price on July 30, 2009, and

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[26] The reports he cites are Sinead Carew, *Unlimited Mobile Plans Spark Price War Concerns*, REUTERS (Feb. 19, 2008), *available at*: <http://www.reuters.com/article/2008/02/19/us-wireless-pricing-idUSN1930076320080219> ("Carew Reuters Article"); Nicole Lee, *Verizon, AT&T, T-Mobile Implement Unlimited Calling Plans*, CNET (Feb. 19, 2008), *available at*: <http://news.cnet.com/8301-17938_105-9874425-1.html>.

[27] *See* Carew Reuters Article.

[28] *Id.*

[29] Press Release, MetroPCS, *MetroPCS Announces Enhanced Services That Pack More Value* (Jul.30, 2009), *available at*: <http://www.metropcs.com/presscenter/articles/mpcs-news-

Leap responded on August 3, 2009. AT&T and Verizon did not respond to either price change.

b. On September 10, 2009, Sprint introduced a new postpaid plan at $69.99, which included unlimited mobile-to-mobile calling as well as unlimited messaging and data.[30] Sprint's documents make it clear that its goal was to attract business away from AT&T and Verizon, not MetroPCS and Leap.[31] In October 2010, T-Mobile introduced a new unlimited plan pricing that "brought its pricing structure more closely into line with that of Sprint Nextel," according to the Commission.[32] On January 12, 2010, MetroPCS effectively cut its price by about $5 by making the $40 price "all-inclusive" (*i.e.*, the $40 included taxes and regulatory fees; before

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20090730.aspx>; Leap Wireless, *Cricket Announces New Features at Value Prices* (Aug. 3, 2009), *available at*: <http://phx.corporate-ir.net/phoenix.zhtml?c=191722&p=irol-newsArticle&ID=1316017&highlight=>.

[30] Press Release, Sprint, *Sprint Customers Can Break Free of Calling Circles with Any Mobile, Anytime* (Sep. 10, 2009), *available at*: <http://newsroom.sprint.com/article_display.cfm?article_id=1216>.

[31] **[begin confidential information]** [redacted] **[end confidential information]**. In addition, Sprint's advertising around its $69.99 "Any Mobile, Any Time" pricing makes comparisons to AT&T and Verizon, not to MetroPCS or Leap. *See* Figure 1.

[32] *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fourteenth Report, 25 FCC Rcd 11407, 11470-71, ¶ 91 (2010) ("*14th CMRS Competition Report*").

that, they were an add-on). On January 15, 2010, Verizon dropped its unlimited voice calling postpaid price from $99.99 to Sprint's $69.99 price point (or $89.99 including unlimited messaging).[33] On the very same day, AT&T matched Verizon at the $69.99 price point.[34]

c. In his Opposition Declaration, Mr. Christopher suggests that AT&T responded to industry-wide AYCE downward pricing, including pricing moves by the prepaid carriers.[35] However, a better interpretation of these events is that Verizon's $30 price cut to the $69.99 price point was a response primarily to Sprint's $69.99 offer and T-Mobile's subsequent pricing response, and that AT&T's matching price cut was responding directly to Verizon's. Neither AT&T nor Verizon appeared to be responding to MetroPCS's $5 price reduction, despite the close timing in January. MetroPCS had been charging a very low price ($40-$45) for more than a year, but none of the national carriers had matched with similarly priced postpaid plans. As Sprint's documents make clear, its $69.99 plan targeted AT&T and Verizon, not MetroPCS.

d. The Commission's interpretation of these events is similar: "T-Mobile's price changes appear to have prompted Verizon Wireless and AT&T to narrow the

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33 Press Release, Verizon, *Verizon Wireless Offers Simple, Affordable Convenience With New Unlimited Voice Plans* (Jan. 15, 2010), *available at*: <http://news.vzw.com/news/2010/01/pr2010-01-14c.html>.

34 Press Release, AT&T, *AT&T Announces New Unlimited Plans* (Jan. 15, 2010), *available at*: <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=30401&mapcode=wireless-networks-generalconsumer>.

35 Christopher Opp. Decl. ¶¶ 35-36.

> price premium on unlimited service offerings. In January 2010, Verizon Wireless reduced the prices of its unlimited voice plans for both individuals and shared family offerings. Later the same day, AT&T responded to Verizon Wireless' changes with matching price reductions on its unlimited voice plans."[36]

30. Professor Carlton also claims that AT&T responds to competition from the regional firms at a local level.[37] However, despite the 300 instances of temporary local handset promotions carried out by AT&T over the past **[begin highly confidential information]** [redacted] **[end highly confidential information]** mentioned by Mr. Christopher, it is still the case that there is relatively little variation in AT&T's prices across local markets. These transitory promotions also did not set off a national price war among the national carriers nor would they disrupt national coordination between AT&T and Verizon after the merger.

2. Hypothetical Monopolist Test for Postpaid Service

31. In our initial Declaration, we did not carry out the Merger Guidelines' hypothetical monopolist test for the postpaid market. We have now implemented that test in several ways, all of which lead to the conclusion that the postpaid services of the four national carriers (AT&T, T-Mobile, Verizon, and Sprint) constitute a relevant product market. To carry out the hypothetical monopolist test, we used porting data that we received from the Commission. The matrix of porting rates is shown in Table 1. These data indicate **[begin NRUF/LNP confidential information]** [redacted]

[redacted]

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36 *14th CMRS Competition Report* ¶ 92; *see also id.* ¶¶ 89-91.

37 Carlton Opp. Decl. ¶ 96.

[redacted] **[end NRUF/LNP confidential information]**

32. Professor Carlton provides some AT&T porting data that he says "suggests that many AT&T post-paid customers view the AYCE carriers as a substitute for AT&T's wireless services."[38] The fact that there is some substitution from the national carriers to the prepaid carriers does not indicate that the market should be broadened beyond postpaid service to include prepaid service. A relevant market does not include every possible substitute, only those that are "reasonably interchangeable."[39] The Merger Guidelines utilize "the hypothetical monopolist test to identify a set of products that are reasonably interchangeable with a product sold by one of the merging firms."[40] As demonstrated by the analysis below, the diversion ratios to prepaid carriers **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]**

33. We have implemented the hypothetical monopolist test using two types of critical loss analysis ("CLA"): (1) "simple" CLA that does not use elasticity information that is implied

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38 *Id.* ¶ 99.

39 Guidelines at 9.

40 *Id.* at 8-9. As stated in the Merger Guidelines, "[g]roups of products may satisfy the hypothetical monopolist test without including the full range of substitutes from which customers choose. The hypothetical monopolist test may identify a group of products as a relevant market even if customers would substitute significantly to products outside that group in response to a price increase." *Id.* at 9

by price/cost margins;[41] and (2) "sophisticated" CLA that does take into account that information.[42] Moreover, because the four national carriers are multi-product firms that sell both postpaid and prepaid services, we also carry out these tests for a "hypothetical cartel" that owns and controls both the postpaid and prepaid services of the four national carriers.[43] The use of the "hypothetical cartel" test for multi-product firms is endorsed by the Merger Guidelines.[44] All of these tests indicate that the postpaid services of the four national carriers comprise a relevant product market.[45]

34. Table 2 reports the critical elasticities for a 5% profit-maximizing small but significant and non-transitory increase in price (SSNIP) under both the hypothetical monopolist and hypothetical cartel tests using the simple CLA methodology. The postpaid services of the four national carriers constitute a relevant market if the demand elasticity of their postpaid services is less than the reported critical figures. In light of Professor Hausman's (and others') elasticity estimates in the vicinity of 0.5 (for all wireless services),[46] and the fact that the postpaid

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41 *See* Barry Harris and Joseph Simons, *Focusing Market Definition: How Much Substitution is Necessary*, 12 RES. L. & ECON. 207 (Richard O. Zerbe, Jr., ed., 1989).

42 *See* Michael Katz and Carl Shapiro, *Critical Loss: Let's Tell the Whole Story*, ANTITRUST (Spring 2003) at 49-56; Daniel O'Brien and Abraham Wickelgren, *A Critical Analysis of Critical Loss Analysis*, 71 ANTITRUST L. J. 161 (2003); and Joseph Farrell and Carl Shapiro, *Improving Critical Loss Analysis*, ANTITRUST SOURCE (Feb. 2008) *available at*: <http://faculty.haas.berkeley.edu/shapiro/critical2008.pdf>.

43 The hypothetical cartel would not include the prepaid carriers like MetroPCS and Leap.

44 Guidelines at 9 n.4.

45 As in the GUPPI and CMCR analyses in our Initial Declaration, we consider two alternative margins, 40.7% and 70%.

46 Hausman estimates demand elasticity of mobile subscription to be 0.51, based on aggregate data on 30 U.S. markets for the period 1988 to 1993. Jerry Hausman, "Valuing the Effect of Regulation on New Services in Telecommunications," Brookings Papers on Economic Activity: Microeconomics, 1, 1-54 (1997). Rodini, Ward, and Woroch use household survey

services of the four national carriers account for about 75% of all wireless subscribers, the actual postpaid elasticity is likely far below the critical values reported in the Table. Hence, under simple CLA there is little doubt that the postpaid services of the four national carriers constitute a relevant market.[47]

35. Table 3 reports the results of sophisticated CLA, under both the hypothetical monopolist and hypothetical cartel tests, in terms of the critical recapture percentage that would make a 5% SSNIP profit-maximizing. The recapture percentage is the fraction of lost subscribers that are recaptured by other products in the relevant market when the price of one (and only one) product in the relevant market rises by a SSNIP. The postpaid services of the four national carriers constitute a relevant market as long as the actual recapture percentage is higher than the reported critical figures. The actual recapture percentages are likely to be well above these critical figures. **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** As noted earlier, about **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** of AT&T's porting subscribers port to other national carriers. Hence, sophisticated CLA also leads

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data from 2000 – 2001 and find that (1) the own-price elasticity of mobile access with respect to monthly access charges is 0.43 and (2) that the overall elasticity with respect to both access and usage charges is 0.60. Mark Rodini, Michael Ward, and Glenn Woroch, *Going Mobile: Substitutability Between Fixed And Mobile Access*, 27 TELECOMMUNICATIONS POLICY at 457–476 (2003).

[47] The fact that the figures do not vary substantially between the two variants of the test (hypothetical monopolist vs. hypothetical cartel) is not surprising in light of the fact that the four national carriers' prepaid services account for a small fraction of all their services.

to the conclusion that the postpaid services of the four national carriers constitute a relevant market.[48]

III. UNILATERAL EFFECTS

36. In our initial Declaration, we analyzed unilateral effects.[49] We concluded that the acquisition of T-Mobile would give AT&T the unilateral incentive to raise price. We explained that Sprint, the prepaid and postpaid fringe carriers, and potential entry would be unable to deter post-merger price increases.[50] We also explained that Verizon would lack the incentive to deter AT&T price increases.

37. In this section, we expand our discussion of the impediments facing fringe carriers from repositioning (*i.e.,* entering) into the postpaid market. We also present estimates of upward pricing pressure based on the NRUF/LNP porting data that has become available. We also address Professor Carlton's criticisms of our analysis.

A. Impediments to Fringe Repositioning and Entry into the Postpaid Market

38. In our original declaration, we explained why the regional fringe firms would be unable to constrain AT&T's post-merger prices, particularly for postpaid service and sales to

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[48] Had we assumed a lower margin, the critical recapture percentage would rise somewhat, but would still remain well below what would be considered a reasonable estimate of the actual recapture percentage.

[49] CRA Decl. Section V.

[50] We also explained that the unilateral effects concerns would be magnified by the exclusionary effects.

business and government.[51] In his Opposition Declaration, Professor Carlton argues that these fringe players are more than sufficient to constrain any post-merger anticompetitive activity by AT&T.[52] In this section, we explain why the fringe carriers are highly unlikely to be able to reposition their services to compete significantly with the national carriers in postpaid service in any reasonable time frame if the post-merger AT&T were to increase prices unilaterally (or in coordination with Verizon). In the coordinated effects section, we also explain why they are unlikely to be effective mavericks that would disrupt parallel accommodating conduct or other forms of coordination between AT&T and Verizon.

39. To summarize, the fringe carriers are very different from the four national carriers in numerous dimensions. Individually and collectively they have small shares of the all-wireless national market and the largest fringe postpaid carrier (US Cellular) is losing share.[53] They have limited geographic footprints.[54] They have weak brand names.[55] They have limited access to the leading-edge handsets.[56] Two of the largest fringe carriers—MetroPCS and Leap—offer only prepaid wireless service. They lack national footprints, and their services to their subscribers who roam may be more expensive or degraded.[57] Because of its product features, prepaid service appeals disproportionately to subscribers who place less emphasis on the latest devices

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51 CRA Decl. at ¶¶ 45-46.

52 Carlton Opp. Decl. ¶ 94.

53 CRA Decl. at ¶ 44.

54 *Id.* ¶ 13c.

55 *Id.* ¶ 136.

56 *Id.* Section IV.B.

57 *Id.* Section V.C.

and features and roam less.[58] These subscribers are lower income, less credit-worthy, and younger.[59] They also have higher churn rates and lower ARPUs.[60]

40. Given the substantial existing differences between the fringe carriers and their products on the one hand, and the post-merger AT&T (and the other national carriers) and their products on the other, it is highly unlikely that these carriers could rapidly reposition their services to impose a substantial constraint on the conduct of the post-merger AT&T in the postpaid market.

41. In addition, AT&T's claims that new entry by firms such as LightSquared, Clearwire, and Cox Communications would constrain the prices of the national carriers lack credibility in light of the various barriers faced by those firms. As we discuss below, this claimed entry also will not deter post-merger price increases or protect consumers.

1. Impediments to Repositioning by the Fringe

42. There are a number of reasons that fringe carriers such as MetroPCS, Leap, and US Cellular are highly unlikely to be able to reposition their services to compete significantly against the postpaid products offered by AT&T, Verizon and Sprint. These fringe carriers currently have small shares of national wireless service, lack their own national network footprint, and have higher costs and inferior roaming services as a result. They have low brand awareness and recognition, and they face barriers in securing the higher-end, most desirable

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58 *Id.* ¶¶ 38, 43.

59 *Id.* ¶¶ 13c, 43. We continue to believe that postpaid retail wireless service is likely a relevant product market that does not include the prepaid service offered by MetroPCS and Leap. *See* Section II.B above and CRA Decl. ¶¶ 38-44.

60 CRA Decl. ¶ 41.

handsets. Moreover, two of the largest three fringe carriers (MetroPCS and Leap) offer only prepaid services and so currently have products, business models, and cost structures that would require significant changes in order to develop a competitive postpaid offering that would compete significantly with the large national carriers.

a. Fringe Players Have Only a Small Share of All-Wireless

43. As we have previously reported, the shares of the fringe carriers remain small. For the period 2009Q1 through 2010Q4, the aggregate share of all of the fringe carriers has remained at about 7%. MetroPCS and Leap collectively had only a 4.7% share in 2010Q4, rising from 3.9% in 2009Q1. US Cellular's share actually fell from 2.4% in 2009Q1 to 2.1% in 2010Q4.[61] In contrast, T-Mobile's share is about 11.3%.[62] Thus, the three largest fringe carriers would have to grow substantially to eliminate the unilateral incentives to raise price.

44. This conclusion is also evident in the FCC's porting data. These data suggest that only **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** of AT&T's subscribers that ported from AT&T switched to MetroPCS, US Cellular, and Leap combined (and only **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** switched to the entire fringe). In contrast, more than **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** switched to another national carrier, including **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** to T-Mobile.

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61 *Id.* ¶ 13c.

62 *See* Table 6.

b. No National Footprint

45. Another impediment to expansion by the fringe is that the largest three fringe carriers lack national footprints. Verizon, Sprint, and T-Mobile reach 90% or more of the licensed and covered POPs that AT&T has. By contrast, Leap reaches only about 58% of licenses POPs and 30% of covered POPs. US Cellular reaches less than 30% of AT&T's licensed POPs and only about 15% of AT&T's covered POPs. MetroPCS reaches 44% of AT&T's licensed POPs and 33% of its covered POPs.[63]

46. The network footprints of each of the fringe carriers are substantially less than the footprints of AT&T and the other national carriers. In effect, each of these carriers is not currently an option for most consumers nationwide. Moreover, their service quality is lower for the subscribers within their footprints. When their subscribers roam, they may have higher costs and degraded or unavailable features. If they roam too much, their subscriptions may be terminated.[64]

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[63] Wireless carrier 10-Ks; *US Wireless 411*, UBS Investment Research, Mar. 30, 2011 at 11-12. Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein. For Leap, its figures include the holdings of Savary Island, which may not currently be well-suited for Leap's Cricket service. Leap Wireless International, Inc., Annual Report (Form 10-K) at 7 (Feb. 25, 2011) ("Leap Wireless 2010 10-K").

[64] See, for example, the MetroPCS Terms and Conditions of Service: "Our Services and Rate Plans are designed for you to use your service each month predominantly in our service area. If your usage each month is not predominantly in our service area, we may terminate your Service or restrict your ability to receive Service outside the areas served by our network…Our Services and Rate Plans are designed for you to use your service each month predominantly using our networks. If your minutes of use, text messaging usage or data usage are not predominantly on our networks ('off-net usage'), or are excessive, abnormally high, or cause MetroPCS to incur too much cost, MetroPCS may, at its option and sole discretion, terminate your service, deny your continued use of other carriers' coverage, or change your Rate Plan."

47. For these carriers to expand their footprint to a national level would likely be very costly and take considerable time. On a national scale, these carriers would need to acquire substantial spectrum and deploy a nationwide (or near-nationwide) infrastructure (i.e., cell sites, mobile switching offices, and backhaul facilities, among others). Such a dramatic expansion, even assuming these carriers could amass the necessary capital, would take a substantial amount of time to complete and involve large sunk costs.

48. If the three fringe carriers were to expand their coverage via a combination of deployment of infrastructure in some areas and relying on roaming in others, it would almost certainly be unprofitable for them to sign up subscribers who reside in areas that they serve only by roaming. Moreover, their roaming costs may be substantially higher than (the appropriately amortized) infrastructure deployment costs. According to Leap:

> [S]ome of our competitors are able to offer their customers roaming services at lower rates. As consolidation in the industry creates even larger competitors, advantages that our competitors may have, as well as their bargaining power as wholesale providers of roaming services, may increase. For example, in connection with the offering of our nationwide voice and data roaming services, we have encountered problems with certain large wireless carriers in negotiating terms for roaming arrangements that we believe are reasonable, and we believe that consolidation has contributed significantly to some carriers' control over the terms and conditions of wholesale roaming services.[65]

49. Similarly, US Cellular reported,

> [T]he national wireless companies operate in a wider geographic area and are able to offer no- or low-cost roaming and long-

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MetroPCS, *MetroPCS Terms and Conditions of Service, available at*: <http://www.metropcs.com/privacy/terms.aspx> (last visited Jun. 16, 2011).

[65] Leap Wireless 2010 10-K at 10.

> distance calling packages over a wider area on their own networks than U.S. Cellular can offer on its network. When U.S. Cellular offers the same calling area as one of these competitors, U.S. Cellular incurs roaming charges for calls made in portions of the calling area which are not part of its network, thereby increasing its cost of operations.[66]

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[66] United States Cellular Corp., Annual Report (Form 10-K) at 8 (Feb. 25, 2011) ("US Cellular 2010 10-K") at 8. MetroPCS and Leap have also provided comments to the FCC describing their concerns about being able to achieve competitively reasonable roaming agreements if the proposed AT&T/T-Mobile merger were approved. *See* Petition to Deny of Leap Wireless International, Inc. and Cricket Communications, Inc., WT Docket 11-65, at 22 (May 31, 2011) ("Leap Petition") ("The proposed acquisition also would result in higher roaming rates. By eliminating a major roaming partner in T-Mobile, creating a monopoly in nationwide roaming partners for GSM, and strengthening AT&T's already dominant competitive position, this transaction would result in much higher GSM roaming rates, and ultimately higher 4G LTE roaming rates."); Petition of MetroPCS Communications, Inc. and NTELOS Inc. to Condition Consent, or Deny Application, WT Docket 11-65, at 54-55 (May 31, 2011) ("MetroPCS Petition") ("AT&T and Verizon are the only realistic providers to which [fringe] carriers…can go for nationwide roaming… [T]he only way mid-tier, regional and rural carriers…can offer nationwide service is though [sic] roaming agreements with these very same providers. As has been shown to the Commission over and over, AT&T and Verizon have been less than model citizens when it comes to offering roaming services on reasonable terms and conditions. These carriers have pervasively charged rates greatly in excess of their costs (plus a reasonable profit), imposed exclusionary terms forbidding certain types of competition from the regional and smaller carriers, or both. Indeed, AT&T repeatedly has refused to make 3G data roaming available." (footnotes omitted)).

We understand that MetroPCS and Leap have a reciprocal roaming agreement. Press Release, MetroPCS, *Leap Wireless International, Inc. and MetroPCS Communications, Inc. Enter into National Roaming Agreement and Spectrum Exchange Agreement and Settle Litigation* (Sep. 29, 2008), *available at*: <http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1203115>. Although we do not know the terms of that agreement, it is possible that that the roaming costs are now lower for both carriers. However, even with a national roaming agreement between the two carriers, MetroPCS subscribers would experience degraded service when roaming on the Leap network. This is because MetroPCS has 4G in some areas but Leap does not. This might suggest that MetroPCS and Leap could merge to achieve greater compatibility. However, achieving this compatibility would take time and require substantial investments in integrating the two networks. Moreover, it is not clear that this path is practical in a business sense. MetroPCS and Leap apparently have discussed a merger several times, but have been unable to reach agreement. *See*, Press Release, Leap Wireless, *Leap Rejects Unsolicited Proposal from MetroPCS* (Sep. 16 2007), *available at*: <http://phx.corporate-ir.net/phoenix.zhtml?c=191722&p=irol-newsArticle&ID=1051840>; Phil Goldstein, *Report: Leap, MetroPCS remain deadlocked over merger talks,* FIERCEWIRELESS (Jun.

50. That the limited footprint of the fringe carriers places them at a substantial disadvantage in their ability to compete with the post-merger AT&T is supported by AT&T itself. Indeed, G. Michael Sievert, Chief Marketing Officer of AT&T Wireless Services (AWS), justified the need for AT&T's acquisition of Cingular in 2004 at least in part on the fact that AT&T was competitively disadvantaged because it did not then have a nationwide network:

> AWS needs a true nationwide network, offering consistently high quality service with consistent features, to market its national plans effectively. However, there are presently some gaps in AWS's nationwide coverage, in areas where it has either not been possible or cost-effective for AWS to build out its network.
>
> These gaps in coverage affect AWS's ability to market nationwide service.[67]

51. Thus, AT&T Wireless, whose network covered about 226 million POPs at the time of the Sievert Declaration,[68] explained that it could not compete "effectively" because it lacked nationwide coverage. A national footprint is even more important today. AT&T nonetheless is now claiming that carriers that have substantially less coverage (for example,

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7, 2010), *available at:* <http://www.fiercewireless.com/story/report-leap-metropcs-remain-deadlocked-over-merger-talks/2010-06-07>.

[67] Declaration of G. Michael Sievert, attached to Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation for Consent to Transfer Control of Licenses and Authorizations, WT Docket No. 04-70 ¶¶ 10-11 (Mar. 18 2004) .

[68] *US Wireless 411*, UBS Investment Research, Jan. 3, 2006 at 12. Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein.

MetroPCS, with about 105 million covered POPs and US Cellular with about 47 million covered POPs) are "strong" competitors.[69]

c. Low Brand Awareness of Fringe Carriers

52. Another repositioning impediment facing the fringe carriers is their relatively low brand recognition. Sprint's Brand Health Monitor research showed that aided brand awareness of the big four postpaid carriers among both postpaid and prepaid subscribers was **[begin confidential information]** [redacted] **[end confidential information]** in 2010. In contrast, aided brand awareness of Cricket (Leap) **[begin confidential information]** [redacted].[70] **[end confidential information]**

53. One component of an investment in brand equity would be the use of national advertising. However, the limited coverage area of the fringe carriers would place each of them at an advertising cost disadvantage relative to the national carriers until they could expand their footprints. In the meantime, national advertising would be an expensive medium because much of the advertising would be wasted on an audience that could not purchase the service, thus increasing the effective cost of such advertising. Although the fringe carriers could purchase more local spot advertising, this would not facilitate the same development of a national brand image.

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69 *US Wireless 411*, UBS Investment Research, Mar. 30, 2011 at 12. Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein. US Cellular 2010 10-K at 1.

70 **[begin confidential information]** [redacted] **[end confidential information]**

54. Thus, acquiring the kind of "brand equity" that characterizes the current national carriers would (as with the other features) require a substantial resource commitment on the part of the fringe carriers. Even if, in the post-merger environment, they had the resources to invest, it would still require a substantial amount of time for that investment to mature into a valued national brand name of the type that T-Mobile currently has.

55. The 2006 Merger Commentary expresses skepticism that repositioning that requires the creation of a brand name could be used as a defense against an otherwise anticompetitive merger. In particular, the Merger Commentary observes that:

> The Agencies rarely find evidence that repositioning would be sufficient to prevent or reverse what otherwise would be significant anticompetitive unilateral effects from a differentiated products merger. Repositioning of a differentiated product entails altering consumers' perceptions instead of, or in addition to, altering its physical properties. The former can be difficult, especially with well-established brands, and expensive efforts at doing so typically pose a significant risk of failure and thus may not be undertaken.[71]

56. As we noted in our initial Declaration, Professor Carlton also recognized the importance of brand names in his analysis of the proposed Sprint/MCI merger.[72] He said that, "Long distance carriers without 'brand names' have not been

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[71] U.S. Department of Justice and the Federal Trade Commission, *Commentary on the Horizontal Merger Guidelines* (Mar. 2006), *available at*: <http://www.justice.gov/atr/public/guidelines/215247.pdf> at 31.

[72] CRA Decl. ¶ 136 n.150.

successful in providing service to a large share of households on a national basis."[73] It is not clear why the situation would be different in selling wireless service.

d. Different Product and Target Customer Base

57. The prepaid fringe carriers, MetroPCS and Leap, also would face significant impediments to repositioning to postpaid service because their prepaid products are substantially different from the postpaid products sold by the national carriers. Prepaid service does not involve a contract. Because there is no future obligation to continue buying service or an associated cancellation penalty, it is not necessary for prepaid carriers to run substantial credit checks on their prospective subscribers. Even if there were a short term contract (for example, month to month), prepaid carriers would have less incentive to deeply subsidize handsets. It would be more difficult to make up the cost on future service because subscribers are not tied down to a long-term contract and churn rates are typically high.[74] Therefore, the prepaid carriers tend to offer lower-end handsets. Because these carriers have narrow footprints, their roaming services are more expensive and often different from those of the national carriers.

58. Because of the characteristics of prepaid plans, the prepaid fringe carriers also tend to attract a significantly different segment of subscribers than the postpaid carriers. As a result, the prepaid carriers currently target their marketing to a substantially different set of consumers than do the postpaid carriers.

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[73] Declaration of Dennis W. Carlton and Hal S. Sider, attached to Opposition of SBC Communications to the Joint Applications of MCI WorldCom, Inc., and Sprint Corp. for Consent to Transfer Control, CC Docket No. 99-333, ¶ 10 (Feb. 18, 2000).

[74] If they were to reposition into postpaid, MetroPCS and Leap would be required to invest in the necessary back-office support to provide postpaid service.

59. For example, Sprint **[begin confidential information]** [redacted][75] **[end confidential information]**

60. Sprint's own largest prepaid brand, Boost, reveals this demographic segmentation. Recent survey data showed that **[begin confidential information]** [redacted][76] **[end confidential information]**

61. In addition, prepaid cellular service tends to attract subscribers who are less creditworthy, so they may not be able to obtain postpaid service.[77] According to Leap:

> The majority of wireless customers in the U.S. have traditionally subscribed to post-pay services that may require credit approval

[75] **[begin confidential information]** [redacted] **[end confidential information]**

[76] **[begin confidential information]** [redacted] **[end confidential information]**

[77] *See* Declaration of William Souder, attached to Sprint Petition to Deny, ¶ 10 ("Because pre-paid services are offered without a long-term contract and the customers pay for service upfront, pre-paid carriers do not have to run credit checks on their potential subscribers.").

> and a contractual commitment from the subscriber for a period of at least one year and may include overage charges for call volumes in excess of a specified maximum.[78]
>
> A core component of Cricket's business model consists of tailoring service plans to meet the needs of consumers who cannot afford or qualify for services from other wireless providers. Cricket offers its voice and broadband services without the typical long-term contract commitments or credit checks that prevent many economically disadvantaged customers from obtaining wireless services.[79]

62. Thus, the prepaid fringe carriers would have to significantly reposition their marketing effort to attract a substantially different demographic—**[begin confidential information]** [redacted] **[end confidential information]** That would involve designing a marketing strategy for postpaid consumers that is very different from that which these carriers currently use.

e. Lack of Access to Cutting-Edge Handset Models

63. An additional impediment would be the difficulty the fringe carriers currently have in acquiring cutting-edge handsets. Without such access, the fringe carriers would be unable to compete at the high end of the postpaid market. The Commission itself has noted that "Recent analyst reports…identify access to handsets as an increasing challenge faced by mid-sized and small providers."[80]

64. The fringe firms such as MetroPCS, Leap, and US Cellular lack sufficient scale to be able to attract desirable, cutting-edge handsets from the major manufacturers on a priority

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78 Leap Wireless 2010 10-K at 3.

79 Reply Comments of Cricket Communications, Inc., WT Docket No. 10-133, at 2-3 (Aug. 16, 2010).

80 *14th CMRS Competition Report* ¶ 299 (footnote omitted).

basis. If Sprint's scale limits its access to cutting-edge handsets, it follows that the three fringe carriers are in an even more tenuous position.

65. Many handsets are offered by AT&T and Verizon on an exclusive basis, and the ability of the fringe carriers to compete for such exclusives is very limited. As the Commission itself noted, "handset manufacturers generally employ EHAs with providers that have larger customer bases and extensive network penetration. For instance, all nationwide providers have some EHAs, while non-nationwide service providers typically do not have EHAs."[81] The access of the fringe carriers to desirable handsets could become even worse after the merger as the disparity between the scale of AT&T and the fringe widens.

f. Impediments to competing in a 4G environment

66. Looking into the future, if the fringe carriers wished to compete head-to-head with the four national carriers in postpaid, they would need to be able to offer 4G service in a wide area. Neither Leap nor US Cellular currently has an LTE service, although Leap has plans to begin offering it in some markets next year and US Cellular in certain markets later this year. Although MetroPCS currently offers an LTE service in 14 metropolitan areas, it has no plans to expand the service to additional markets. MetroPCS offers only 2G service elsewhere. US Cellular plans to make its initial LTE deployments late this year in a handful of cities and to expand rollout to additional markets in "2012 and beyond."[82] Moreover, the 4G service of MetroPCS has much lower quality than that provided by the four national carriers. In fact, it has been reported that MetroPCS's 4G service will only be capable of slower 3G data speeds in some

81 *Id.* ¶ 317.

82 US Cellular 2010 10-K at 7.

areas.[83] The deficiencies of the fringe carrier networks, both in coverage and quality, could , in principle, be remedied. However, it would take considerable time and investment to do so.

67. The lack of national 4G also is not easily remedied by roaming agreements. According to MetroPCS:

> Since at this time a limited number of carriers have publicly announced that they are planning to deploy 4G LTE in the near future, the number of potential roaming partners for 4G LTE will be extremely limited and are currently deploying 4G LTE on spectrum that is different than the spectrum we are deploying 4G LTE on. In addition, the current automatic roaming requirements do not include data roaming. Other carriers have in the past, and may in the future, be reluctant to provide data roaming to us at all or on terms we consider to be acceptable. In addition, some of the carriers who currently provide roaming to us may be delayed in deploying, decide not to deploy, or be unable to deploy 4G LTE, which would limit our ability to provide 4G LTE services to our customers when they roam. Further, since 4G LTE is relatively new and carriers may attempt to differentiate their services using 4G LTE, carriers may be reluctant to allow roaming at all or at prices that would make roaming cost effective for our customers. If our customers or potential customers demand 4G LTE services on a nationwide basis or our competitors offer 4G services on a nationwide basis, we may be unable to meet customer expectations or demands and we may attract less than the anticipated number of 4G LTE customers or we may experience higher than anticipated levels of churn.[84]

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[83] MetroPCS states that "In some cases, because of the limited amount of spectrum available to us in certain metropolitan areas, we will be required to deploy 4G LTE on 1.4 or 3 MHz channels." MetroPCS Communications, Inc., Form 10-K, Mar. 1, 2011 ("MetroPCS 2010 10-K") at 36. Further, "Because MetroPCS is squeezing LTE into such a narrow spectrum channel, the carrier likely won't be able to provide data speeds beyond what are available through today's 3G networks." Mike Dano, *MetroPCS to skip 3G with LTE Rollout?*, FIERCEWIRELESS (Aug. 3, 2010), *available at:* <http://www.fiercewireless.com/story/metropcs-skip-3g-lte-rollout/2010-08-03>.

[84] MetroPCS 2010 10-K at 37.

68. In brief, as the industry moves to the next generation of networks and handsets, the repositioning impediments facing the fringe likely will be substantial.

2. Impediments to New Entry

69. We explained in our initial declaration why entry would be unlikely to deter post-merger price increases and protect consumers.[85] AT&T and its experts have argued that new entry by LightSquared, Clearwire, and Cox Communications would be sufficient to deter anticompetitive effects arising from the merger.[86] However, this is, at best, speculation. LightSquared's service has been found to interfere with GPS transmissions. Unless and until it can find a solution to this technical problem, LightSquared's entry will be delayed.87 Similarly, Clearwire is limited by the fact that its spectrum is in the EBS/BRS band, which has complicated regulatory constraints. Moreover, both Clearwire and LightSquared face significant barriers related to the ability to obtain sufficient financing, availability and cost of cutting-edge handsets for their spectrum, and achieving minimum viable scale for their networks. The proposed merger also will remove one of the major potential customers for these networks, raising a question whether both networks will survive. Cox Communications is no longer intending to

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85 CRA Decl. Section V.E.

86 Declaration of Dennis W. Carlton, Allan Shampine, and Hal Sider, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 11-65 ("Carlton Decl.") at ¶¶ 116-120.

87 The rumored agreement between Sprint and LightSquared apparently does nothing to resolve the interference issues, which remain outstanding. Greg Bensinger, *Falcone's LightSquared in Deal with Sprint*, BLOOMBERG (Jun. 18, 2011), *available at:* <http://www.bloomberg.com/news/2011-06-17/falcone-s-lightsquared-venture-reaches-a-15-year-network-deal-with-sprint.html>.

become a facilities-based entrant. Cox is decommissioning its existing cellular network and has instead contracted to use Sprint's network.

B. Upward Pricing Pressure Analysis

70. In our initial Declaration, we presented a quantitative analysis of upward pricing pressure ("UPP analysis") that would result from the proposed transaction.[88] Specifically, we calculated three metrics of UPP (i.e., single-price GUPPI, simultaneous GUPPI and CMCR) to gauge the potential unilateral effects of horizontal mergers involving differentiated products.[89] The 2010 Guidelines state that the Agencies rely on the UPP methodology in their evaluation of potential unilateral effects.[90] We found that all three metrics reach levels that raise serious unilateral effects concerns.

71. In our initial Declaration, we used carrier diversion ratios that were based on the assumption that they were proportional to subscriber market shares. At the time, we did not have access to porting data or other win/loss data, as we noted in our Declaration. We have now obtained access to the NRUF/LNP porting data and we have implemented the UPP analysis with estimated diversion ratios based on those data. Using these alternative estimates of the diversion ratios **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]**, which means that the risks of adverse unilateral effects

88 CRA Decl. at 72-84.

89 *See, e.g.*, Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 ANTITRUST L. J. 701, 726 (2010); Jerry Hausman, Serge Moresi, and Mark Rainey, *Unilateral Effects of Mergers with General Linear Demand*, 111 ECON. LETTERS 119 (2011); and Gregory Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of Differentiated Products*, 44 JOURNAL OF INDUSTRIAL ECON. 409 (1996).

90 Guidelines at 20-22.

are **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]**.

72. **[begin NRUF/LNP confidential information]** [redacted][91] **[end NRUF/LNP confidential information]**

73. The results of the revised UPP analysis are shown in Table 4 (which corresponds to Table 7 of our Initial Declaration).[92] The new single-price GUPPI figures for AT&T and T-Mobile are respectively **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]**

[91] **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]**

[92] In Table 7 we used the term "recapture rate," while we now refer to the same object as "all wireless retention ratio." This is to avoid confusion with the term "recapture percentage" that we use in the market definition section to refer to the share of lost subscribers that are recaptured by other products in the relevant market, when the price of one (and only one) product in the relevant market rises by a SSNIP.

74. Professor Carlton makes a number of criticisms of our GUPPI analysis. Some of these criticisms focus on the entire UPP methodology that was adopted in the 2010 Merger Guidelines for gauging potential unilateral effects in merger cases involving differentiated products.[93] Others target the data and assumptions used in our GUPPI analysis. Despite these criticisms, the GUPPI is very useful for predicting potential unilateral effects in merger cases.

75. A number of Professor Carlton's general criticisms focus on the fact that the GUPPI does not take into account every factor relevant to evaluating the likelihood and magnitude of unilateral effects.[94] For example, repositioning, entry and merger-specific efficiencies are not incorporated into the GUPPI.[95] However, the GUPPI is not intended to capture every relevant factor and the Merger Guidelines intentionally do not attempt to formulate an index that would try to capture every relevant factor. For that same reason, we have separately analyzed the impediments to repositioning and entry, as well as merger-specific efficiencies. Similarly, because the GUPPI is based on the assumption that there is no

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93 *See* Guidelines at 20-22.

94 Carlton Opp. Decl. ¶ 67.

95 Guidelines at 21, Example 19 ("Further analysis is required to account for repositioning, entry, and efficiencies").

coordination,[96] we have separately analyzed the impact of the merger on the likelihood of coordination.[97]

76. Although Professor Carlton and his co-authors appear to be quite skeptical of the usefulness of the GUPPI, Professor Willig is more positive. In his comments on the 2010 Merger Guidelines, Professor Willig said that value-of-diverted-sales (which is the product of the diversion ratio and the dollar margin and is used to calculate the GUPPI) "is a potentially powerful new tool with a distinguished pedigree in the economics literature and solid support in professional economic logic." Professor Willig went on say that it "goes directly to the competitive effects of concern from a merger involving substitute differentiated products" and is "a welcome addition to merger analysis."[98]

77. Professor Carlton is critical that the margins that we have used to calculate the GUPPIs overstate the relevant margin because marginal cost and average variable cost may differ. However, the lower margin that we used takes into account certain fixed costs. The issue of marginal versus average cost depends on the time frame under analysis; Professor Carlton sometimes appears to prefer a very short time frame and at other times appears to prefer a longer one. Of course, in the longer-run time frame, the network scale economies and the lower costs of

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[96] Mergers create upward pricing pressure in numerous models of oligopolistic competition, not just in the Bertrand model. *See* Serge Moresi, *The Use of Upward Price Pressure Indices in Merger Analysis*, ANTITRUST SOURCE (Feb. 2010), *available at*: <http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/Feb10_Moresi2_25f.authcheckdam.pdf>.

[97] As discussed in more detail below, we also have formulated a coordination pricing pressure index (CPPI) to gauge the impact of the merger on the risk of successful parallel accommodating conduct.

[98] Willig Public Comments at 3-4. Professor Willig did not conclude that this tool obviates the need to define relevant markets. Instead, he says, "analysis of the relevant market is an important concomitant to the use of value-of-diverted-sales." *Id.* at 4.

the latest generation of network equipment and technology would come into play to reduce incremental costs. Moreover, the average margin also might overstate subscriber acquisition costs. Those costs are premised on a carrier having to compete for new subscribers, often in response to competitors' price cuts. In contrast, T-Mobile's subscriber acquisition costs likely would be somewhat lower in response to a price increase by AT&T. In any event, while Professor Carlton makes numerous criticisms of the margins that we have used, he does not propose alternative margins despite his access to internal AT&T financial data.

78. However, there is a more fundamental issue. Professor Carlton assumes that a post-merger unilateral increase in one (or both) of the prices charged (to either AT&T or T-Mobile subscribers) would require AT&T to expand capacity. This assumption is unlikely to apply. A unilateral price increase would reduce the number of subscribers served by the two merging companies, relative to the number of subscribers that they would serve in the absence of the merger. Thus, the merged firm would have additional capacity if it raised the price of one (or both) wireless services.

79. Professor Carlton made his own GUPPI estimates, using diversion ratios based on subscriber "gross adds."[99] Those GUPPIs are somewhat lower than our estimates because the diversion ratios between AT&T and T-Mobile are lower when they are based on "gross adds" than when they are based on the porting data or subscriber shares. However, diversion ratios based on "gross adds" likely are very unreliable indicators of consumers' second choices.

80. Gross adds do not indicate which carriers the additional subscribers came from. In sharp contrast, the porting data indicate not only how many subscribers a carrier added, but

[99] Carlton Opp. Decl. ¶¶ 86-87.

also from which carriers they came. The porting data are therefore more informative of consumers' switching patterns than the gross adds data.

81. Moreover, suppose that (say) T-Mobile obtains 10% of gross adds while MetroPCS obtains (say) 5%. These figures would not mean that MetroPCS would receive half the number of subscribers that T-Mobile would receive if AT&T raised the price of its postpaid services. Like AT&T, T-Mobile offers postpaid service to subscribers with demographics similar to AT&T's subscribers, whereas MetroPCS offers prepaid service to subscribers with different demographics.[100]

82. We find it somewhat ironic that Professor Carlton apparently rejects the use of porting data to estimate diversion ratios for the GUPPIs. He used porting information in his Declaration, when discussing diversion between AT&T and AYCE carriers.[101]

C. Corporate and Government Accounts

83. In our initial Declaration, we indicated that the sale of wireless services to corporate and government entities likely constituted a relevant antitrust market.[102] In particular, we observed that carriers bid for these corporate contracts, often as the result of request for

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[100] The use of "gross adds" can distort diversion ratios for another reason. To the extent that some consumers switch back-and-forth between prepaid carriers (for example, MetroPCS and Leap), then estimated diversion ratios based on "gross adds" likely will overstate the diversion ratio to both of those carriers from another carrier (for example, AT&T). This back-and-forth switching behavior is likely to be observed for those consumers who tend to buy inexpensive phones on a short-term basis and are not loyal to a particular prepaid carrier.

[101] Carlton Decl. ¶ 100. He also used porting data to estimate diversion in his Alltel Declaration. *See* Declaration of Dennis Carlton, Allan Shampine, and Hal Sider, attached to Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC For Consent to Transfer Control, WT Docket No. 08-95 ¶ 43 (June 13, 2008).

[102] CRA Decl. ¶¶ 45-46.

proposals (RFPs) and through other less formal bidding processes. For larger accounts the prices are individually negotiated and the prices are not tied to generally available retail prices. Corporate rates are lower than rates for retail individual or family plans. Thus, corporate sales, which include sales to government agencies as well as commercial firms, likely qualify as a separate relevant market.

84. In this Declaration, we provide some additional data on the extent to which T-Mobile and the non-national fringe carriers participate in this market. This information is relevant for both unilateral effects and market definition.[103]

85. In our initial Declaration, we noted that our understanding was that (a) T-Mobile was a frequent bidder for these contracts and (b) the fringe carriers—MetroPCS, US Cellular, and Leap, in particular—were not.[104] Since the filing of our initial Declaration, we have obtained more complete data from Sprint regarding wireless bidding opportunities. One data set consists of RFPs to which Sprint responded. These data span the period from April 2009 through June 2011. Another data set ("salesforce.com" data set) consists of a larger set of corporate and government business opportunities in which Sprint was involved. These data span the period January 2010 through May 2011.

86. To identify the extent to which T-Mobile was identified by Sprint personnel as a rival for the contract, we combined the two data sets. In the combined dataset, T-Mobile is identified as a bidder in contracts accounting for **[begin confidential information]** [redacted] **[end confidential information]** of the total value of all opportunities. For those bidding events where

103 Professor Carlton did not address this market.

104 CRA Decl. ¶ 132.

T-Mobile was identified as a bidder, AT&T was also a bidder for **[begin confidential information]** [redacted] **[end confidential information]** of the value of all events. Thus, it is clear that AT&T and T-Mobile **[begin confidential information]** [redacted] **[end confidential information]** for corporate and government contracts. This suggests that the loss of T-Mobile as an independent bidder for these contracts likely would generate significant anticompetitive concerns.

87. To identify the extent to which Leap, MetroPCS, and US Cellular are also identified as rivals for the corporate and government accounts, we focused on the salesforce.com data set.[105] Leap, MetroPCS, and US Cellular are identified as rivals in opportunities that represent only about **[begin confidential information]** [redacted] **[end confidential information]** of the total value of all salesforce.com opportunities that were responded to by Sprint. When we limit the analysis to "Enterprise" opportunities (i.e., roughly corresponding to the largest of these accounts), Leap, MetroPCS, and US Cellular are present in only about **[begin confidential information]** [redacted] **[end confidential information]** of the opportunities as gauged by value.

88. Overall, all non-national carriers are present in only about **[begin confidential information]** [redacted] **[end confidential information]** (by value) of all salesforce.com opportunities, and only **[begin confidential information]** [redacted] **[end confidential information]** (by value) of

[105] **[begin confidential information]** [redacted] **[end confidential information]**

all "Enterprise" opportunities in the salesforce.com data. Thus, these data suggest that the fringe carriers are not significant competitors and would not likely to be able to constrain any efforts by the post-merger AT&T to elevate prices to corporations and governmental entities after the merger.

IV. COORDINATED EFFECTS

89. Professor Carlton does not discuss parallel accommodating conduct. However, he does discuss certain factors that generally can affect the vulnerability of a market to coordination.[106] In this section, we respond to Professor Carlton's analysis. We also carry out some further analysis of parallel accommodating conduct by formulating a coordination pricing pressure index.

A. Market Vulnerability to Coordination

90. In our initial Declaration, we discussed a number of reasons why wireless markets are vulnerable to coordination and why the merger would increase that vulnerability.[107] These include the large post-merger combined market share of AT&T and Verizon; the elimination of T-Mobile as a low-price, maverick competitor with a business plan to be an emerging challenger; price transparency in the retail market; barriers to entry and repositioning facing other competitors, which are exacerbated by the merger; and the fact that AT&T and Verizon are similarly situated ILECs that are dependent on one another for backhaul services.

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106 Carlton Decl. ¶ 146.

107 CRA Decl. ¶¶ 179-180

91. Professor Carlton suggests that the large number of subscriber plans publicly listed on the websites of the national carriers would make it difficult to detect deviations from a coordinated strategy.[108] However, monitoring a large number of plans would not be very difficult and could easily be automated.

92. Professor Carlton also suggests that there is considerable asymmetry today among the carriers, but his analysis does not focus primarily on AT&T and Verizon, the two firms that we anticipate would attempt to coordinate. AT&T and Verizon compete nationally and have very similar pricing. AT&T and Verizon have repeated competitive interaction in multiple local markets, a factor that facilitates successful coordination by expanding the range of strategies that can be used to punish deviations from a coordinated strategy. As the leading postpaid providers and ILECs, they have similar competitive preferences. Finally, they supply substantial backhaul services to one another, which means that they benefit from a "mutual hostages" structure where they can make mutual threats that can facilitate coordination. We do not assume that AT&T and Verizon would rely on coordination with Sprint and the regional players. However, those carriers would be limited in their ability to disrupt the coordination between AT&T and Verizon by their various disadvantages and the exclusionary effects of the merger.

93. In an attempt to show that the AYCE carriers are "important" competitors that would be able to disrupt the coordination between AT&T and Verizon, Professor Carlton analyzes the market shares of the prepaid carriers and certain porting data.[109] We have already discussed the various impediments facing these carriers, which would reduce their power and

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108 Carlton Decl. ¶ 150.

109 Carlton Opp. Decl. ¶¶ 96-107.

incentive to disrupt. In addition, our own analysis of the market shares and porting data does not support Professor Carlton's conclusion.

94. Professor Carlton specifically claims that AT&T porting data indicates "substantial" porting by subscribers between AT&T's postpaid service and the prepaid services offered by MetroPCS and Leap.[110] In particular, he states that the percentage of AT&T postpaid subscribers that port to MetroPCS and Leap, and the percentage of MetroPCS and Leap subscribers that port to AT&T, have increased over time. He also says that the porting data show switching between AT&T postpaid subscribers and MetroPCS and Leap that is roughly proportional to their shares, and that this fact suggests that many AT&T postpaid subscribers view MetroPCS and Leap as substitutes for AT&T. He also observes that more AT&T postpaid subscribers now port to MetroPCS and Leap than the reverse. However, for several reasons, this evidence does not indicate that the fringe carriers would be able to disrupt coordination between AT&T and Verizon.

a. First, as discussed earlier, MetroPCS and Leap offer prepaid services exclusively. They do not participate in the postpaid market. Their prepaid services are significantly different from the higher-end (postpaid) services primarily sold by AT&T and Verizon. The services of MetroPCS and Leap are based on a different business model and different cost structure and appeal to a different subscriber demographic. The prepaid business model is based on lower ARPU. Costs are reduced via a focused network concentrating on dense urban areas, low or no

110 *Id.* ¶¶ 97-100.

handset subsidies, and few if any credit checks.[111] Thus, the ability and incentives of these carriers to disrupt coordination in a postpaid market is very limited. Moreover, these carriers face significant impediments to repositioning their offerings into postpaid service, as discussed earlier.

b. Second, even if AT&T loses more ports to the AYCE carriers than the AYCE carriers lose to AT&T, that does not mean that they are each other's closest competitors. Our own analysis of the NRUF/LNP porting data that we received from the Commission shows that AT&T **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** These data do not indicate either that the AYCE carriers are close competitors or disruptive competitive influences.

c. Third, these prepaid competitors together still account for a very small share of wireless subscribers. According to Professor Carlton's Table 6, the combined

111 *MetroPCS Posts Record Subscriber Growth and Churn Rates in 1Q*, Morningstar Equity Research, May 20, 2011 ("Metro has managed to achieve a low-cost structure by entering high-population-density areas and expanding carefully along the edges of its network. This strategy has allowed the firm to minimize its marketing, distribution, and network build-out costs. The firm also targets underserved youth and lower-income customers who will accept lower-end handsets, which decreases subscriber acquisition costs."). *See also Sprint Nextel: MetroPCS and Leap Discussion Materials*, UBS Investment Research, (Aug. 2009). Reports cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said reports, including any statements, opinions or analysis therein.

national (all-wireless) market shares of MetroPCS, Leap, and US Cellular were only **[begin highly confidential information]** [redacted] **[end highly confidential information]** in March 2011. (Table 5, attached, shows the figures in Professor Carlton's Table 6 expressed in share terms.)

d. Fourth, the combined market share of the regional carriers has not increased significantly in the last year. By contrast, the combined market share of AT&T and Verizon has **[begin highly confidential information]** [redacted] **[end highly confidential information]** from **[begin highly confidential information]** [redacted] **[end highly confidential information]** to **[begin highly confidential information]** [redacted] **[end highly confidential information]**. AT&T's market share increased from **[begin highly confidential information]** [redacted] **[end highly confidential information]** in March 2010 to **[begin highly confidential information]** [redacted] **[end highly confidential information]** in March 2011. It is difficult to see how the regional carriers could grow fast enough to deter parallel accommodating conduct (PAC) or other forms of coordination between AT&T and Verizon.

95. In his initial declaration, Mr. Christopher suggests that the big four national carriers have changed their postpaid plans and pricing in response to the prepaid carriers MetroPCS and Leap.[112] In his Opposition declaration, he suggests that AT&T responded to industry-wide AYCE downward pricing.[113] As discussed earlier in our analysis of product

112 Christopher Decl. ¶ 50.

113 Christopher Opp. Decl. ¶ 36.

market definition, we think that a better interpretation of the pricing evidence is that the four major national carriers responded primarily to one another, not to MetroPCS and Leap.

96. Mr. Christopher further argues that T-Mobile was not the price leader.[114] It is the case that Sprint's pricing move in August 2009 preceded T-Mobile's move in September 2009, and T-Mobile was responding to Sprint. However, Verizon and AT&T responded to both Sprint and T-Mobile. If T-Mobile had not followed Sprint, it is not clear that Verizon and AT&T would have found the need to do so. In that sense, T-Mobile did help to lead AT&T and Verizon to reduce their prices.

97. Finally, Professor Carlton has suggested that our analysis is inconsistent with our analysis regarding the Sprint/Nextel merger.[115] There are several reasons why this is not the case.

a. First, the wireless industry market has changed considerably since the end of 2004 when the Sprint/Nextel merger was announced. The combined subscriber market share of AT&T and Verizon was 53% in 2004. See Table 6. Since that time, AT&T and Verizon have acquired a number of regional carriers. At the end of 2010, the combined subscriber market share of AT&T and Verizon was about 64%. If this merger were approved, their combined share would increase to 76%. Although concentration is not the only factor relevant to the likelihood of coordination, it does matter, and the increase from 53% to 76% is quite substantial.

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114 *Id.* ¶ 35.

115 Carlton Opp. Decl. ¶ 91.

b. Second, since 2004, the market has consolidated nationally and prices have become less localized to the point that now AT&T and Verizon have substantially uniform national prices. Centennial, Dobson, and Alltel all have disappeared. This has significantly facilitated the monitoring of competitors' prices. Web price monitoring also has become more advanced.

c. Third, the combined national market share of Sprint and Nextel was significantly less than AT&T's current market share. The merger created the potential for Sprint Nextel to become a maverick. In contrast, this merger would eliminate a low-priced maverick competitor and strengthen the two leading firms.

d. Fourth, AT&T and Verizon are ILECs, whereas Sprint and Nextel were not ILECs after their merger. As we said in our Sprint/Nextel merger Declaration, "The most important differentiating risk factor is that the Cingular-AT&T Wireless transaction involved the acquisition of an independent wireless carrier by an entity owned by two major ILECs."[116] We went on to conclude, "[t]his difference between the Cingular-AT&T Wireless transaction and the Sprint-Nextel merger implies that the Sprint-Nextel combination raises fewer competitive concerns."[117] For the same reason, the AT&T/T-Mobile transaction raises more serious concerns.

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116 Declaration of Stanley M. Besen, Steven C. Salop, and John R. Woodbury, attached to Applications of Sprint Corp. and Nextel Communications, Inc. for Consent to Transfer of Control of Licenses and Authorization, WT Docket No., 05-63, ¶ 68 (Feb. 8, 2005).

117 *Id.* ¶ 72.

B. Coordination Pricing Pressure Index

98. As part of our analysis of PAC, we have formulated a coordination pricing pressure index (CPPI) to score the incremental impact of a merger on the likelihood of PAC. The CPPI utilizes diversion ratios and margins, as does the GUPPI for unilateral effects. However, the CPPI is designed to focus on coordination, not unilateral effects.

99. The CPPI reflects the role of the increased share of the merged firm on the incentives to engage in coordinated pricing. The higher share of the merged firm shifts the tradeoffs between participating in PAC versus remaining at a lower priced equilibrium. If firms have stronger incentives to engage in PAC pricing, that will be reflected in a higher CPPI. Thus, the CPPI can be used to assess the extent to which higher market shares from a merger affect the likely success of PAC.

100. The CPPI scores only parallel accommodating conduct. It does not depend on the acquired firm being a maverick, nor does it rely on a "common understanding" of the likelihood of detection and punishment of deviations from a coordinated outcome. The analytical foundation of the CPPI for gauging PAC is straightforward to explain. Consider two firms, Firm-A and Firm-B, that are contemplating price increases. Suppose that Firm-A contemplates raising its price in period-1 in the expectation that Firm-B will follow its price increase in period-2. If Firm-A's expectation is correct, both firms will continue to price at the higher level and Firm-A benefits from higher prices from period-2 onward. The cost of this strategy is the sacrificed profit incurred in period-1 before Firm-B matches. Firm-A will prefer to initiate this price increase if the discounted value of higher future profits exceeds the lost profits in period-1. Firm-B faces a similar tradeoff starting in period-2. If it matches Firm-A's elevated price, it

receives the discounted value of the profit stream as both firms continue to price at the higher level. Alternatively, if it does not match the price increase, Firm-B receives higher profits in period-2, but prices then revert to the original level from period-3 onward. Firm-B will prefer to match the price increase as long as the discounted stream of profits at the higher price is greater than the one period gain from not matching prices in period-2. We define the CPPI as the maximum price increase that one firm would benefit by initiating and the other firm would benefit by matching.

101. The CPPI depends on the margins and shares of the two coordinating firms, the diversion ratios from one firm to the other when one firm raises its price, and the discount factor that is used to evaluate profit tradeoffs in future periods. If one of the firms acquires a competitor, the respective diversion ratios between the firms generally will change, and this change will affect the CPPI calculation. An increase in the CPPI following an acquisition indicates that the two firms have more incentive to implement PAC once the merger is consummated.

102. Table 7 shows CPPI calculations for AT&T and Verizon before and after an AT&T/T-Mobile merger. To estimate the CPPI, we assume that the market is initially in a Bertrand-Nash pricing equilibrium. We also assume that the equilibrium is unaffected by either unilateral effects or efficiencies after the merger.[118] The table presents several scenarios reflecting different assumptions about key parameter values: the common margin for AT&T and Verizon is assumed to be either 70% or 40.7%, and the retention ratio that enters the diversion ratio calculation is assumed to be either 60%, 80%, or 100%. Diversion ratios are derived from

[118] These assumptions simplify the formulation and interpretation of the index in a manner similar to the GUPPI.

the porting data. The table uses a discount factor of 90% for both firms. The differences in the CPPIs (before versus after the merger) reflect changes in diversion ratios that would occur if AT&T and T-Mobile are combined. There are small differences in the calculated CPPI depending on whether AT&T or Verizon initiates the price increase that leads to a PAC; both scenarios are presented in the table.

103. The post-merger CPPI is greater than the pre-merger CPPI for every combination of parameter values in the table. For example, the parameters in the first column have a retention ratio of 60% and a price-cost margin for AT&T and Verizon of 70%. Under these assumptions, if AT&T initiated a price increase prior to the merger, AT&T and Verizon would be able to sustain a maximum parallel price increase of **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** above the initial Bertrand-Nash equilibrium price. After the merger, the maximum sustainable price increase initiated by AT&T would be **[begin NRUF/LNP confidential information]** [redacted] **[end NRUF/LNP confidential information]** above the initial Bertrand-Nash equilibrium price. This increase in the CPPI indicates that AT&T and Verizon would have a greater incentive to participate in PAC following the merger and that the maximum sustainable coordinated price level would rise.

V. EXCLUSIONARY EFFECTS

104. The merger also would lead to exclusionary effects on Sprint and the smaller regional carriers that would lead to consumer harm. These exclusionary effects are caused by the elimination of T-Mobile as an independent competitor and the associated unilateral and

coordinated effects of the merger. At the same time, the exclusionary effects reinforce the adverse unilateral and coordinated effects.

105. In our initial Declaration, we identified several input markets in which these exclusionary effects would originate: roaming; backhaul; wholesale service to resellers; handsets; and network infrastructure equipment.[119] We also explained how Sprint would face higher financing costs and investment constraints as a result of the other effects.

106. In our initial Declaration, we focused on the impact of these exclusionary effects on competition in wireless markets. However, it is worth noting that Sprint and the smaller regional carriers are purchasers in these input markets. As such, any adverse competitive effects in those markets would constitute cognizable harms in these relevant markets.[120]

107. In this Declaration, we discuss several of the issues raised by Professors Carlton and Willig in their Declarations. First, we explain why these exclusionary effects are merger-specific. Second, we explain why these effects do not rely on coordination between AT&T and Verizon in these input markets, or even in the downstream wireless markets. Although such coordination would reinforce these effects, coordination is not necessary for these effects to occur. Third, we explain why the effects would be significant. Finally, we explain why

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[119] CRA Decl. Section II.B.4.

[120] As stated in the 2010 Merger Guidelines, "[e]nhanced market power may also make it more likely that the merged entity can profitably and effectively engage in exclusionary conduct. Regardless of how enhanced market power likely would be manifested, the Agencies normally evaluate mergers based on their impact on customers. The Agencies examine effects on either or both of the direct customers and the final consumers. The Agencies presume, absent convincing evidence to the contrary, that adverse effects on direct customers also cause adverse effects on final consumers." Guidelines at 2.

preventing these effects by maintaining competition through an independent T-Mobile is strongly preferred to attempting to remedy them through increased regulation.

A. Wholesale Roaming Market

108. AT&T and T-Mobile currently are the only two carriers that compete in providing wholesale roaming services to other GSM carriers. After the merger, this competition would be eliminated. As a result, AT&T would have the ability and incentive to raise the roaming rates it charges the other GSM carriers. In turn, these small carriers would be even less able to constrain unilateral and coordinated conduct by AT&T and Verizon. Thus, the conduct flows from the merger; it is merger-specific.

109. One reason that there is only limited competition in GSM roaming is because AT&T has merged with a number of other GSM carriers in recent years. Only days before the merger was announced, T-Mobile wrote to the Chairman of the Commission to explain how mergers lead to anticompetitive conduct in the wholesale roaming market:

> T-Mobile… has seen roaming partners, including Dobson Cellular, Edge Wireless, Centennial, Alltel, RCC, and others acquired by one or the other of the 'Big 2' over the past several years, significantly reducing (and in many areas, eliminating) T-Mobile's choice of data roaming partners. In turn, with its expanded footprint, AT&T, the dominant provider of roaming services for the GSM technology platform, now has the incentive and the ability to resist entering into reasonable data roaming agreements.[121]

[121] Letter from Thomas J. Sugrue, Senior Vice President, Government Affairs, T-Mobile USA, Inc. to Hon. Julius Genachowski, Chairman, Federal Communications Commission, at 4 (Mar. 10, 2011) ("Sugrue Letter") (footnote omitted).

> AT&T's intransigence, a direct result of the dominant position it now holds in the roaming marketplace, has made it impossible for us to negotiate reasonable and non-discriminatory roaming arrangements in the absence of a rule.[122]

> In the record of this proceeding, T-Mobile had detailed the reasons that it has not been able to obtain a suitable roaming agreement with AT&T. These reasons include proposed roaming rates that were so unreasonable as to make it uneconomic for T-Mobile to offer the roaming feature to our subscribers; the proffer of a roaming footprint that overlapped with existing T-Mobile coverage; and the imposition of conditions on T-Mobile's ability to limit network overlap that effectively forced T-Mobile to purchase in-market roaming that we did not need.[123]

110. After the merger with T-Mobile, AT&T would have the ability to raise its roaming rates even further because these rates would no longer be constrained by the presence of T-Mobile. AT&T would have several incentives to raise these rates. First, by raising the rates, GSM competitors would be weakened further, which would allow AT&T to raise its retail prices at the margin. Second, as a result of the adverse (horizontal) unilateral effects of the merger discussed above, AT&T would have an increased unilateral incentive to raise its roaming rates. Third, to the extent that the merger leads to parallel accommodating conduct or other coordinated conduct with Verizon in the wireless market, the resulting higher prices also would give AT&T an increased unilateral incentive to raise its roaming rates.

111. Sprint does not acquire GSM roaming services from AT&T or T-Mobile in the continental U.S. and it could not, except on the few multi-mode handsets that it sells. However, Verizon also would have unilateral incentives to raise its wholesale roaming rates to Sprint and

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122 *Id.* at 5 (footnote omitted).

123 *Id*. at 6 (footnote omitted).

other CDMA carriers. First, as a result of the adverse (horizontal) unilateral effects of the merger discussed above, Verizon (like AT&T) would have an increased unilateral incentive to raise its roaming rates. Second, to the extent that the merger leads to parallel accommodating conduct or other coordinated conduct with AT&T in the wireless market, the resulting higher prices also would give Verizon an increased unilateral incentive to raise its roaming rates.

112. Coordination between AT&T and Verizon in the roaming market clearly is not a necessary condition for either of them to raise roaming rates.[124] As explained above, Verizon might simply respond unilaterally to higher AT&T wireless prices, higher prices that flow from AT&T's unilateral incentives to raise wireless prices.[125] However, if AT&T and Verizon were to engage in parallel accommodating conduct in the wireless market, that coordination obviously would reinforce these incentives.

113. Professor Willig suggests that AT&T and T-Mobile do not compete in the wholesale roaming market, despite the fact that they both provide GSM service, because their networks operate in different spectrum bands.[126] This is factually inaccurate. First, AT&T and

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[124] Professor Willig suggests that coordination between AT&T and Verizon is a necessary condition for higher roaming rates. *See* Declaration of Robert Willig, Jonathan M. Orszag and Jay Ezrielev attached to Opposition, ¶ 73 ("Willig Opp. Decl.").

[125] Unilateral price increases by one firm may lead to what might be termed "multi-lateral" price increases by competitors. Although those multi-lateral price increases occur in response to the initial unilateral price increase, they do not involve either parallel accommodating conduct or other forms of tacit or express coordination. Perhaps Professor Willig was characterizing these multi-lateral effects as "coordinated" effects. Either way, there are competitive harms.

[126] Willig Opp. Decl. ¶ 63. At the same time, Professor Willig predicts that there will be more roaming competition when the LTE standard is adopted nationally. *See id.* ¶ 77. However, Leap has argued in this proceeding that AT&T and Verizon "have demanded devices that are not compatible with other networks in order to limit their availability to other carriers *and increase their leverage in roaming negotiations*." *See* Leap Petition at 26 (footnote omitted, emphasis added). *See also* Reply Declaration of Steven Stravitz, attached to Reply, "Stravitz Reply Decl."

T-Mobile both have operations at 1.9 GHz, although AT&T also operates services in the 800 MHz bands. Second, even though these are separate bands, current devices regularly use both 1.9 GHz and 800 MHz transmitters precisely because of the need to roam on other carriers' networks. Cincinnati Bell's filing in this proceeding demonstrates that carriers view AT&T and T-Mobile as competitors in the roaming market. Moreover, AT&T and T-Mobile's own relationship demonstrates that they are natural roaming competitors, as Professor Carlton notes, "AT&T and T-Mobile USA are each other's largest roaming customers."[127]

114. In its Comments, Cincinnati Bell notes that: "For quite some time, AT&T would not even offer 3G [roaming] to [Cincinnati Bell Wireless]. After months of delay, AT&T offered to provide 3G roaming to CBW, but both its 2G roaming agreement and 3G roaming proposal to CBW include data and voice rates that are nearly double those of T-Mobile. AT&T's roaming arrangements also make unreasonable technical demands on CBW's own system and impose unreasonable restrictions on CBW's ability to use the roaming services to compete with AT&T."[128] This suggests that Cincinnati Bell, the largest fringe GSM carrier, would employ T-Mobile for roaming services but instead must pay much higher roaming rates to AT&T because AT&T requires "carriers that need to roam on its network to enter into exclusive or *de facto* exclusive roaming contracts with AT&T."[129]

¶¶ 109-117. Moreover, AT&T and Verizon each will have the incentive to charge high roaming rates to protect their dominant market shares in the downstream wireless market.

127 Carlton Opp. Decl. ¶ 143.

128 Petition of Cincinnati Bell Wireless LLC to Condition Consent or Deny Applications, WT Docket No. 65-11, at 10-11 (May 31, 2011) ("Cincinnati Bell Petition").

129 *Id.* at 17.

115. According to Cincinnati Bell, AT&T also has engaged in a range of other exclusionary conduct regarding roaming, the effects of which have been either to raise Cincinnati Bell's costs or reduce its revenues:

- AT&T precludes "CBW from providing services to enterprise customers based in its Cincinnati and Dayton markets, by prohibiting CBW from using AT&T's roaming services to provide wireless services to enterprise customers' locations in other states."[130]
- AT&T "has tied the offering of 3G [roaming] to a change in the structure of its voice rates in a manner that would materially increase CBW's costs of obtaining voice roaming…"[131]
- "AT&T has explicitly stated that it has no intention, much less any timetable, to roam on CBW's network. But, as a condition of entering into a 3G [roaming] agreement, AT&T would require CBW to modify CBW's own 3G network in its home market *right now* to make it technically compatible with AT&T's network and handsets *just in case* AT&T should ever want to roam on it at some future time."[132]

116. These comments are echoed by MetroPCS:

> AT&T and Verizon have been less than model citizens when it comes to offering roaming services on reasonable terms and conditions. These carriers have pervasively charged rates greatly

130 *Id.* at 17 (footnote omitted).

131 *Id.* at 18.

132 *Id.* at 19 (emphasis in original).

> in excess of their costs (plus a reasonable profit), imposed exclusionary terms forbidding certain types of competition from the regional and smaller carriers, or both. Indeed, AT&T repeatedly has refused to make 3G data roaming available, and has prevented regional competitors from competing for roaming traffic by requiring its roaming partners to route to AT&T rather than competitors whenever AT&T's signal is available.[133]

117. Professor Willig suggests that any impact in the wholesale roaming market would have only a *de minimis* effect on competition in the wireless market. According to Professor Willig, even if roaming costs were to rise by 10%, which he characterizes as "a very substantial and highly implausible price increase," the increase would represent a very small percentage of carriers' revenues.[134] However, there are several problems with this assumption.[135] First, there is no reason to assume that the increase in roaming costs would be only 10%. AT&T and Verizon could choose to raise roaming rates by far more than 10% if it were profitable to do so. Indeed, Cingular raised T-Mobile's effective roaming costs by about 50% after the Cingular/AT&T Wireless merger was consummated.[136] Second, wireless competition can be

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133 MetroPCS Petition at 55 (footnotes omitted).

134 Willig Opp. Decl. ¶ 75.

135 Because of the weight that Professor Carlton places on competition from the regional fringe carriers, it also would be relevant to analyze the magnitude of their roaming costs, which may be a much higher proportion of their costs than is the case for Sprint. Moreover, Professor Willig expresses the increase in roaming costs as a percentage of carriers' ARPUs, rather than more appropriately as a percentage of their costs. Incidentally, this is puzzling because the quoted passage from Krattenmaker and Salop's article as support actually suggests using cost, not revenue or price, as the basis for the comparison. *See* Willig Opp. Decl. ¶ 103.

136 Comments of T-Mobile USA, Inc., WC Docket No. 07-153, at 4-5 (Aug. 27, 2007) ("…shortly after the Cingular-AT&T Wireless merger was consummated, Cingular changed the Mobile Network Codes on all AT&T Wireless facilities to Cingular's. The practical effect of this change was that any T-Mobile subscriber roaming on the former AT&T Wireless network was instead considered to be roaming on the Cingular network, even though Cingular had not officially cancelled T-Mobile's roaming agreement with AT&T Wireless. As a result, T-Mobile was forced to operate under the Cingular agreements, which effectively increased T-Mobile's

reduced, not only by an increase in roaming rates but also by changing the non-price terms of a roaming agreement. For example, as noted above, AT&T's roaming agreement with Cincinnati Bell effectively prohibits with Cincinnati Bell from competing for corporate and governmental accounts in Cincinnati and Dayton.

118. Professor Willig also observes that the carriers whose roaming costs are raised are very small competitors.[137] This is ironic in that AT&T relies heavily on competition from these carriers to explain why the merger with T-Mobile would not be anticompetitive. For example, in his initial Declaration, Professor Carlton discusses numerous carriers (such as Cellular South, Cincinnati Bell, Atlantic Tele-Networks, and nTelos, in addition to Leap, MetroPCS, and US Cellular) as carriers that would constrain AT&T's behavior after the merger.[138] These carriers are all dependent on either AT&T or Verizon in order to offer nationwide service plans to their subscribers.

119. Professor Willig suggests that AT&T actually would prefer lower roaming rates because its roaming agreements are often reciprocal, have identical rates in both directions, and AT&T is often a net buyer. However, as the statements of Cincinnati Bell noted above make clear, AT&T appears to take advantage of its greater size to negotiate roaming agreements that are far from symmetric. Of course, once T-Mobile is eliminated as a competitor and existing symmetric contracts come up for renewal, AT&T could insist on asymmetric rates. As noted by

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roaming rates by about 50 percent in those areas previously served by AT&T Wireless."). Further, as we noted in our initial Declaration, after two Mexican CDMA carriers merged, they raised roaming rates by **[begin confidential information]** [redacted] **[end confidential information]**. *See* CRA Decl. ¶ 100 n.92 for a discussion of this experience.

137 Willig Opp. Decl. ¶ 71.

138 Carlton Decl. ¶¶ 101-115.

the Commission in its recent roaming report, "Conduct that unreasonably restrains trade, however, is not commercially reasonable."[139]

120. In the end, Professor Willig suggests that any anticompetitive effects can be remedied by regulation of roaming rates.[140] We disagree with his implicit suggestion that the Commission should choose regulation over maintaining competition. For one thing, regulation is slow and highly imperfect. T-Mobile and other carriers have been complaining about unreasonable data roaming rates for some time,[141] but the Commission has only recently adopted a rule requiring carriers to offer data roaming on "commercially reasonable terms."[142] Professor Willig says that it is not difficult to determine "commercially reasonable" roaming rates.[143] In fact, this underscores part of the problem with a regulatory remedy. The proper standard under the antitrust laws would be "competitively reasonable" rates, not "commercially reasonable" ones.[144]

B. Backhaul Market

121. AT&T and Verizon provide backhaul services to other wireless carriers. In some very densely populated areas with high traffic volumes, there may be numerous established

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[139] Second Report and Order, Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, WT Docket No. 05-265, ¶ 45 (adopted Apr. 7, 2011) ("*Second Roaming Report*").

[140] Willig Opp. Decl.¶ 68.

[141] *See* Sugrue Letter at 6.

[142] *Second Roaming Report.*

[143] Willig Opp. Decl. ¶ 68.

[144] For example, the dominant carriers might argue that the commercially reasonable rate would maintain a relationship between roaming rates and retail prices, a standard that would permit the carriers to obtain higher roaming rates when they raise their retail prices.

independent competitors. In other areas, there are no independent competitors and little chance for competition. In these types of areas, the merger may have no exclusionary effects. However, in intermediate markets between these two extremes, there may be only potential competition or a very limited number of actual competitors. In those markets, the merger may have exclusionary effects.[145]

122. There are several merger-specific mechanisms by which these effects could occur.[146] First, if AT&T unilaterally raises its retail prices to consumers and enterprises as a result of the merger, it also would have the incentive to raise its backhaul rates as well, in order to limit the ability of its backhaul customers from gaining market share. Second, as discussed with respect to roaming, AT&T's higher retail and corporate rates would give Verizon the unilateral incentive to raise its own retail prices, which then would give Verizon the unilateral incentive to raise its backhaul rates in order to prevent Sprint and others from attracting Verizon customers. If AT&T and Verizon engaged in parallel accommodating conduct or other coordinated conduct in the retail market, the incentives to raise backhaul rates would be further increased.

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[145] Professor Willig says that the market structure in backhaul will not change. He may be suggesting that there might be no effect because AT&T is already a vertically integrated monopolist in certain backhaul markets. Willig Opp. Decl. ¶ 85 n.135. However, the single monopoly profit theory would not apply in the markets that we focus on where AT&T currently faces actual or potential competition that would be reduced by the merger. Backhaul also is not a fixed proportions input.

[146] The fact that T-Mobile does not provide backhaul services is not germane to this analysis.

123. A third mechanism that would lead to higher rates is "customer foreclosure."[147] By eliminating T-Mobile as one of the two principal wireless purchasers of special access from independent backhaul suppliers in the intermediate markets we are discussing, the merger could significantly shrink the available customer base of these suppliers, thus discouraging their entry or leading some to exit or charge higher prices. Having less to fear from these competitors, AT&T could charge a higher price. The higher backhaul costs would harm Sprint and the other independent wireless carriers. Because their costs would be raised, competition in the wireless markets also would be harmed.

124. Professor Willig suggests that T-Mobile's backhaul purchases represent such a small share of private line services that its elimination as a customer would not lead to significant customer foreclosure.[148] Even if that would be true along routes with very high traffic volumes, it would not be true along routes that can only support a very limited number of backhaul providers. Professor Willig provides some general information about the number of firms that provide backhaul services.[149] However, his list does not specifically address those intermediate-sized markets where only a few backhaul competitors could be supported. It is those markets where the customer foreclosure theory would apply.

125. Professor Willig suggests that backhaul costs are sufficiently low that a modest increase in those rates would have only a *de minimis* effect on the costs of Sprint and the smaller

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147 Willig Opp. Decl. ¶ 106. *See also* M. H. Riordan and Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, ANTITRUST L. J. 514, 551-557 (1995); Andrew I. Gavil, William E. Kovacic and Jonathan B. Baker, ANTITRUST LAW IN PERSPECTIVE: CASES, CONCEPTS AND PROBLEMS IN COMPETITION POLICY 872 (2008).

148 Willig Opp. Decl. ¶ 107.

149 *Id.* ¶ 94. Similarly, Professor Carlton discusses the availability of competitive backhaul in urban markets. *See* Carlton Opp. Decl. ¶ 117.

regional carriers.[150] Although we lack sufficient information to predict the magnitude of the cost increase that Sprint and others would experience, the harm could be significant. First, it could extend to markets where Sprint and others currently do not acquire backhaul from Verizon or AT&T, if the independent backhaul providers lack sufficient scale to offer new facilities in the future, or the number of providers falls. Second, Sprint might not view the cost as *de minimis*. For example, Sprint's current special access costs for its wireless service were about **[begin confidential information]** [redacted] **[end confidential information]** in 2010.[151] A 20% increase would be almost **[begin confidential information]** [redacted] **[end confidential information]**. That is not a small annual tax for a carrier like Sprint that had negative operating income in 2010. An extra **[begin confidential information]** [redacted] **[end confidential information]** per year could allow Sprint to increase its investment by an additional **[begin confidential information]** [redacted] **[end confidential information]** per year.[152]

126. Professor Carlton suggests that previous mergers did not lead to higher backhaul rates.[153] However, T-Mobile previously has argued the opposite:

> The largest ILECs have undertaken a massive consolidation of the wireline industry. In late 2005, SBC merged with the interexchange carrier AT&T, and Verizon merged with MCI, eliminating the largest competitive providers of special access services… Whatever discipline an independent MCI and AT&T might once have exerted in the special access marketplace disappeared when these mergers were completed.[154]

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150 Willig Opp. Decl. ¶ 100. This is echoed by Professor Carlton. *See* Carlton Opp. Decl. ¶ 125.

151 Declaration of Paul W. Schieber, attached to Sprint Petition to Deny, ¶ 11.

152 *See* Sprint Nextel Corp., Annual Report (Form 10-K) at F-33 (Feb. 24, 2011).

153 Carlton Opp. Decl. ¶ 123.

154 Comments of T-Mobile USA, Inc., WC Docket No. 05-25, at 3 (Aug. 8, 2007).

127. As with roaming, Professor Willig and Professor Carlton ultimately suggest that any anticompetitive effects in the provision of backhaul can be remedied by regulation.[155] Moreover, Professor Carlton even seems to argue that the merger should be permitted even if regulation is highly imperfect, opining that "even if… regulation is inadequate, the appropriate remedy would be to improve regulation, not to block an otherwise efficient transaction."[156] We would treat the inefficiencies of regulation as a reason to prefer continued competition over regulation.[157]

C. Wholesale Service to Resellers

128. In our initial Declaration, we discussed the fact that, after the merger, AT&T and Verizon would provide more than 85% of this wholesale service and each would have the incentive to raise its wholesale rates.[158] When resellers' contracts expire, AT&T and Verizon would gain the ability to do so.

D. Handset Market

129. In our initial Declaration, we noted that AT&T and Verizon often obtain earlier exclusive access to innovative new handsets and other consumer devices than do other

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155 Willig Opp. Decl. ¶ 98; Carlton Opp. Decl. ¶ 120.

156 Carlton Opp. Decl. ¶ 120.

157 Professor Willig points out the potential efficiency benefit of AT&T providing backhaul to T-Mobile at cost, rather than at the supra-competitive prices that it is apparently currently charging. Willig Opp. Decl. ¶ 105. However, he does not explain why these efficiency benefits are merger-specific or likely would outweigh the anticompetitive effects of the merger.

158 CRA Decl. ¶ 103.

carriers.[159] We explained that the merger would exacerbate this asymmetric access to equipment by increasing AT&T's incentive to bid more for exclusives. The merger would also reinforce AT&T's interest in denying Sprint and other carriers access to the new technology, in order to protect higher prices over a larger subscriber base. By worsening the access of Sprint and others, AT&T and Verizon would be able to maintain or further raise their prices and market shares.[160]

130. Professor Carlton argues that "In the context of the wireless industry, exclusive relationships between a wireless carrier and a handset manufacturer (with respect to particular model) encourage the carrier to make investments in its network that enable consumers to fully utilize features offered on innovative handsets."[161] This justification certainly can be valid in some cases. However, it does not follow that increasing AT&T's ability to gain exclusive access to the best handsets by acquiring a competitor is in the public interest. That is, any benefit is not merger-specific. Moreover, it is somewhat ironic for Professor Carlton to make the "investment incentives" theory here. During its period of iPhone exclusivity, AT&T invested relatively less in its network than other carriers.[162]

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159 *Id.* ¶¶ 106, 118.

160 Professor Willig makes the point that exclusives may be efficient. *See* Willig Opp. Decl. ¶ 57. However, as we discussed in our initial Declaration, while exclusives are sometimes efficient, they are not *always* efficient. *See* CRA Decl. ¶ 107. Exclusives also may be a way for AT&T to purchase market power by limiting the access of its competitors to new handsets. For that reason, the increased incentive to bid more for exclusives that AT&T would acquire as a result of the merger is not a cognizable efficiency benefit.

161 Carlton Opp. Decl. ¶ 128.

162 CRA Decl. ¶ 195.

131. Professor Carlton makes the point that exclusionary conduct that raises marginal costs are a greater concern than conduct that raises fixed costs.[163] However, an exclusive that leads to the need for larger handset subsidies would raise the incremental cost of adding subscribers.

132. Professor Willig argues that this exclusionary effect would not occur because AT&T would be unable to "corner the market" for all or the most desirable handsets.[164] However, AT&T and Verizon would not have to obtain every handset. There could be competitive harm from an increase without such a total "lock up," simply from AT&T slightly lengthening its period of exclusivity for innovative new devices or gaining short-term exclusives for more devices. By making Sprint bid more for the handsets that it obtains, AT&T also would increase Sprint's costs.

133. In this regard, the evidence from the FCC 14th Report is telling. Of the 67 selected smartphones introduced in the 2008/2009 period, 32 were offered exclusively at launch. Of these, 15 were exclusive to AT&T.[165] Moreover, in December 2009, AT&T offered 25 smartphones. MetroPCS and Leap Wireless, two of the carriers that AT&T has identified as "strong competitors" offered 2 and 0, respectively.[166] Unsurprisingly, the Commission cited

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163 Carlton Opp. Decl. ¶ 130. Exclusives that raise competitors' fixed costs can lead to higher prices by causing entrants to fail to enter a market or to exit a market, for example.

164 Willig Opp. Decl. ¶ 12.

165 *14th CMRS Competition Report* at Table C-5.

166 *Id.* at Chart 43.

recent analyst reports that "identify access to handsets as an increasing challenge faced by mid-sized and small providers."[167]

134. Professor Willig cites the 14th Report for the proposition that "recent handset exclusive deals have typically had durations of six months or less."[168] What the Commission actually said was that the duration "appears to have ranged from six months or less to a few years or more."[169] Willig also characterizes AT&T's multi-year exclusive for the iPhone as an "aberration."[170] Whether or not that is an accurate characterization, the fact is that perhaps the most important handset ever developed was unavailable to any carrier other than AT&T for several years and is still available only to AT&T and Verizon.

135. Moreover, exclusion can occur even without explicit exclusives. For example,

- According to CBW's petition, "AT&T has successfully used its buying power to pressure [handset] manufacturers not to sell to CBW. Several manufacturers have refused to sell some product lines to CBW, citing such pressure from AT&T. Others facing such pressure have simply refused to sell any of their products *at all* to CBW."[171]

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167 *Id.* ¶ 299 (footnote omitted).

168 Willig Opp. Decl. ¶ 51 (footnote omitted).

169 *14th CMRS Competition Report* ¶ 317 (footnotes omitted).

170 Willig Opp. Decl. ¶ 51. Of course, it is not an aberration if, as the Commission indicates, exclusives can extend up to "a few years or more."

171 Cincinnati Bell Petition at 32 n.54 (emphasis in original).

- Leap Wireless and Cricket note that "[AT&T and Verizon] have demanded devices that are not compatible with other networks in order to limit their availability to other carriers."[172]

- In a similar vein, MetroPCS and NTELOS point out that "the Big 2 carriers were reportedly issuing RFPs seeking the manufacture of equipment that would be capable of using only the Big 2's allocated portion of the 700 MHz band… if the Big 2 get away with such behavior any manufacturer development of interoperable equipment, or equipment to serve the remainder of the 700 MHZ band, would have to be based solely on a business plan of serving only the much smaller customer base of the non-Big 2 carriers. Thus, recovery of the large fixed costs of development would be artificially restricted so that the smaller carriers would have to cover a much higher unit R&D cost for these devices."[173]

136. There also may be another type of "customer foreclosure" effect operating in handset development. Professor Willig discusses the success of Android devices. In fact, T-Mobile and Sprint worked together in the Open Handset Alliance to help bring Android devices to market.[174] Whereas both Sprint and T-Mobile are members of the Alliance, both AT&T and Verizon are not. After the merger, Sprint obviously would be denied the cooperation and financing assistance from T-Mobile to help develop the next platform to compete with a platform to which AT&T (or AT&T and Verizon) have exclusive access. The Stravitz Reply Declaration

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172 Leap Petition at 26.

173 MetroPCS Petition at 60-61 (footnotes omitted).

174 For a list of members of the Alliance *see Mobile Operators*, Open Handset Alliance, *available at*: <http://www.openhandsetalliance.com/oha_members.html>.

also discusses how the merger can "deprive the non-Bell 'ecosystem' of sufficient scale to make any of the huge international manufacturers interested in serving the non-Bell market at the same time or at the same price as AT&T."[175]

E. Network Infrastructure Market

137. As we discussed in our initial Declaration, cooperation and financing cost issues extend beyond simply handset platforms and apply more generally to bringing new network technologies, including network infrastructure, to market.[176] Because the merger would eliminate T-Mobile as a purchaser of new technology products that compete with those of AT&T and Verizon, the procurement costs of Sprint, the smaller carriers, and entrants may rise, or the availability of new technology products may decline. Indeed, it has been questioned by AT&T executive, John Stankey, whether both Clearwire and LightSquared can survive.[177] The proposed AT&T/T-Mobile merger would reduce their prospects by eliminating T-Mobile as a potential customer or partner.[178]

138. Absent the merger of AT&T and T-Mobile, all of the national wireless carriers, with the possible exception of Verizon, likely would seek spectrum in "new" bands, for which significant research and development costs for new network equipment have not yet been

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175 Stravitz Reply Decl. ¶¶ 115-116.

176 CRA Decl. ¶¶ 108-113.

177 Sinead Carew, *Reuters Summit-AT&T: no room for both Clearwire, LightSquared*, REUTERS (May 13, 2011), *available at:* <http://uk.reuters.com/article/2011/05/13/idUKN1321387020110513>.

178 There has been a rumored agreement between Sprint and LightSquared. *See* supra 88. Such an agreement would not necessarily improve the prospects for the survival of both Clearwire and LightSquared.

completed. Thus, these carriers would share in the costs of developing the ecosystem. As a result of the merger, AT&T may be able to delay, or avoid entirely, the need to contribute to the costs of developing this equipment. AT&T's development costs savings thus would involve cost-shifting to Sprint and the other carriers. They would not be an efficient reduction in social resource costs. These costs would still need to be paid, just not by AT&T. This cost shifting would, of course, further weaken Sprint and the other carriers.

F. Financial Constraints and Investment

139. In our initial Declaration, we explained that Sprint's ability to finance investment is limited by its low market share, in conjunction with the economies of scale of wireless telephony and lenders' concerns about default risk.[179] To demonstrate the large magnitude of the effects, we compared Sprint's borrowing costs to those of AT&T and Verizon. We showed that Sprint's annual interest costs were about **[begin confidential information]** [redacted] **[end confidential information]** per year higher as a result of its higher interest rates, and this incremental cost amounted to about **[begin confidential information]** [redacted] **[end confidential information]** of Sprint's capital investment expenditure in 2010. Thus, the adverse effect on Sprints' ability to invest is quite substantial. We explained how this could lead to a vicious cycle in which Sprint was weakened further.

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[179] CRA Decl. Section IV.D. The idea that a firm would face capital constraints that might limit its investment is not controversial. In fact, the Hogg Opposition Declaration apparently justifies AT&T's post-merger incentive to expand the geographic footprint of LTE on the grounds that the merger frees up AT&T's limited investment funds. Reply Declaration of William Hogg, attached to Opposition, ¶¶ 45-46 ("Hogg Opp. Decl."). Of course, AT&T faces much less serious investment and borrowing constraints than does Sprint, and the facts likely will show that AT&T could carry out these investments even absent the merger.

140. Professor Willig interpreted our discussion as an attack on AT&T's natural advantages and argued that the harm to Sprint that we identified was not merger-specific.[180] This interpretation is not correct. Our point is that the exclusionary effects of the AT&T/T-Mobile merger on Sprint's costs also will have a further adverse effect on Sprint's ability to borrow and invest.[181] The merger-specific harm is that the transaction would increase Sprint's cost of borrowing, which would weaken its ability and incentive to invest and compete, which in turn would lead to consumer harm. We did not criticize the transaction because it would reduce AT&T's cost of capital.

VI. REVERSION TO DUOPOLY

141. Merger analysis is a forward-looking exercise. However, given the long and well documented history of the wireless industry, it is worth pausing to look backwards as well. Nowhere does AT&T address the actual experience of the wireless industry during the 1990s when it was transformed from a duopoly to one in which a significant number of competitors were able to compete with the two incumbent firms. During that period, prices declined significantly faster than they had been falling prior to the increase in competition. That experience shows clearly that increased competition does lead to lower prices and improved service.

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180 Willig Opp. Decl. ¶ 117.

181 Professor Willig suggests that the higher prices caused by the unilateral and coordinated effects of the merger might benefit Sprint more than it is harmed by the exclusionary effects. There is no evidence to support this view. However, it also is irrelevant to the issue before the Commission, which is whether *consumers* are harmed. The unilateral, coordinated and exclusionary effects all lead to consumer harm.

142. The wireless market began as a duopoly. Licenses were issued to the local wireline carrier and to one other competitor. Prices fell slowly during this duopoly period. The market remained a duopoly until the Commission opened up entry to PCS carriers in the middle of the 1990s. At that point, prices began to decline dramatically.

143. The impact of this entry has been noted in the economic literature. For example, Professor Hausman reports that "price fell significantly in 1995-96 when the new entry of PCS [Personal Communications Service] occurred."[182] In his analysis, Hausman reports that "the effect of…competition on wireless rates in the U.S. has been significant. Throughout the 1984-1995 period real, inflation-adjusted cellular rates had fallen at a rate of 4 percent - 5 percent per year. Between 1995 and 1999, however, real cellular rates fell at a rate of 17 percent per year as [the newly-entered] PCS service providers offered service at prices per minute in bucket plans that were more than 50 percent lower than existing cellular rates."[183]

144. Seim and Viard found that the presence of additional competitors led to lower wireless prices. They also present evidence that entry improved wireless services that are offered and the range of price plans that are available.[184]

145. The Commission has long recognized that duopolies cannot be expected to price competitively and that the entry of additional firms could be expected to lead to lower prices.

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182 Jerry Hausman, *Mobile Telephone*, 1 HANDBOOK OF TELECOMMUNICATIONS ECONOMICS 564, 579 (Martin Cave *et al.*, eds. (2002).

183 *Id. at* 579-582.

184 Katja Seim and V. Brian Viard, *The Effect of Market Structure on Cellular Technology Adoption and Pricing*, 3 AMERICAN ECONONOMIC JOURNAL: MICROECONOMICS 221 (2011).

For example, in the Commission's First Report on competition in mobile telephone service, it noted:

> The duopoly nature of cellular service made it less than fully competitive… Therefore, in the early 1990s, the Commission allocated 143 MegaHertz ("MHz") of spectrum, almost three times the spectrum allocation for cellular service, to create Personal Communications Services ("PCS")… Already, the approach of broadband PCS appears to be influencing incumbent wireless providers to lower prices and increase features.[185]

146. Later, in its Third Report, the Commission noted that:

> The entrance by…new providers has resulted in substantial progress towards a truly competitive mobile telephone marketplace. While this development is still in its early stages, the signs of competition are clear. The per-minute charges for service have declined, by some estimates as much as 30 to 40 percent.[186]
>
> These developments are having beneficial effects for consumers, to whom competition is bringing more choices at lower prices, and operators, to whom competition is bringing expanding business opportunities, increased technological innovation, and less regulatory intervention.[187]

147. In its Order permitting the acquisition of Cingular by AT&T, the Commission similarly noted that:

> After stabilizing at a plateau in the final years of the cellular duopoly, the price per minute of mobile telephony service started to decline shortly before the first commercial launches of PCS

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185 *Implementation of Section 6002(B) of the Omnibus Report Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Memorandum Opinion and Order, First Report, 10 FCC Rcd 8844, ¶ 4 (1995).

186 *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Third Report, 13 FCC Rccd 19746, at 63 (1998).

187 *Id.*

> service and subsequently dropped sharply and steadily… Average revenue per minute, a proxy for mobile telephony pricing, declined from 47 cents in 1994 to 10 cents in 2003.[188]

148. Figure 2 presents a time series of wireless prices created by combining a published wireless telephone service price index for the period 1985 to 1998 and the consumer price index (CPI) for wireless telephone services which the Bureau of Labor Statistics (BLS) began reporting in December 1997.[189] Inflation-adjusted prices fell by approximately 39% in the ten years between 1985 and 1995 (a compound average growth rate (CAGR) of negative 5%). From 1995 to 2001, corresponding to the period of entry, prices fell much more rapidly, by approximately 48% in only six years (a CAGR of negative 10%). More recently, in the past five years, price reductions have slowed (CAGR of negative 3%).

149. Figure 3 presents a time series of wireless carrier revenue per minute over a somewhat shorter period.[190] This price series presents a similar story. Inflation adjusted prices fell slowly during the initial duopoly period (CAGR of negative 4% during the shorter period of 1993 to 1995), then fell much more rapidly after PCS entry (CAGR of negative 21% between 1995 and 2001), and have slowed somewhat during the past five years (CAGR of negative 7%).

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188 *Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations*, Memorandum Opinion and Order, 19 FCC Rcd 21522, ¶ 67 (2004) (footnotes omitted).

189 Hausman, *Mobile Telephone* at 580; Bureau of Labor Statistics, U.S. Wireless Telephone Service Consumer Price Index.

190 The FCC 14th Annual Report reports this series for the period 1993 to 2008 (*14th CMRS Competition Report*, Table 19). We have updated FCC's series through 2010 using data published by the CTIA ("Semi-Annual Data Survey Results: A Comprehensive Report From CTIA Analyzing the U.S. Wireless Industry, Year-End 2010 Report," Tables 79 and 87 and Chart 27).

150. In our initial Declaration, we suggested that the proposed merger of AT&T and T-Mobile places the Commission at a crossroads because it raises the possibility that the market may begin to revert to the "bad old days" of a wireless duopoly, albeit one now even more deeply entrenched at the national level with the same two carriers everywhere.[191] The acquisition of T-Mobile by AT&T would remove one of the four national wireless carriers as an independent competitor. Although AT&T suggests that T-Mobile is no longer an effective competitor, that is not what T-Mobile was saying only weeks before this merger was announced.[192] If the merger were approved, AT&T and Verizon would together serve 76% of all wireless subscribers and obtain a somewhat larger percentage of industry revenue. Their percentage of postpaid, corporate, and governmental account subscribers would be even higher.

151. Sprint, the regional fringe carriers, and new entrants would not be able to make up for the loss of T-Mobile as a competitor. The fringe carriers have limited geographic footprints. Both MetroPCS and Leap offer only prepaid service and face impediments to becoming major postpaid competitors, even if they had more spectrum. Sprint would remain as a national competitor, but there are concerns that the exclusionary effects of the merger would weaken, if not marginalize, it.[193] By controlling access to critical inputs through their vertical integration as a result of their ILEC legacy, AT&T and Verizon have the ability to increase the costs of their rivals for backhaul and roaming, thus reducing Sprint's ability to compete through lower prices. Cox has already withdrawn as a facilities-based carrier and the prospects for Clearwire and LightSquared as major independent carriers are still unclear.

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191 CRA Decl. ¶ 6.

192 *Id*. ¶ 127.

193 It would also weaken the fringe carriers.

152. As a result, the merger likely would lead to a wireless market with less competition. Not only would that lead to consumer harm from unilateral effects, it would also raise the potential for parallel accommodating conduct or other forms of coordination between AT&T and Verizon. Certainly no carrier would be in a position to threaten their national dominance and it is national competition that primarily drives wireless price competition, and spurs innovation and investment. With this step back closer to a duopoly, we can expect the significant price reductions that resulted from competition to slow, if not be reversed.

153. There also would be a likely reduction in innovation competition. Our initial Declaration described several reasons why the acquisition of T-Mobile by AT&T could lead to less innovation in the market for wireless services.[194] First, the burden of developing new spectrum bands would increasingly fall to Sprint and other small providers. As AT&T consolidates its existing spectrum holdings, it would have a reduced incentive to undertake the R&D necessary to bring new technologies to newly available bands of spectrum. The T-Mobile acquisition would increasingly shift this burden to Sprint. This would raise Sprint's R&D costs and reduce its ability to fund the investment necessary to continue to provide innovative products. As Sprint's ability to innovate diminishes, the competitive pressure on AT&T and Verizon to innovate also would lessen. This effect is merger-specific because it arises from the exclusionary effects of the merger.

154. Professor Carlton points out that innovations in the wireless industry are used worldwide, and asserts that changes in competition in the U.S. would have a limited impact on

194 CRA Decl. ¶¶ 108-123.

the incentive to innovate for the global marketplace.[195] However, as we pointed out, bringing new technology products to market involves the cooperative R&D of handset makers, chipset developers, and wireless carriers.[196] This is particularly true for phones that will be introduced on new spectrum bands. While new products may be developed for the international market, they only benefit the U.S. market if additional R&D is undertaken to introduce these new technologies in the U.S. As the merger reduces the incentives for AT&T and Verizon to innovate, this slowing of innovation may delay the introduction of new products into the U.S.[197]

155. Professor Carlton argues that the merger would provide AT&T with the capacity it needs in order to innovate. In our view, the bulk of AT&T's claimed efficiency benefits are not merger-specific and cognizable because AT&T could gain additional capacity absent the merger. Furthermore, the combined spectrum available to AT&T post-merger would shift the cost of developing technologies to be used in the new spectrum to Sprint and other smaller competitors, thereby raising their cost of increasing capacity. Thus, the merger would not foster innovation competition in the wireless market, but instead would lead toward an entrenched duopoly where the two leading firms would have a diminished incentive to engage in innovation competition. This is a path to less innovation, not more.

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195 Carlton Opp. Decl. ¶¶ 158-161.

196 CRA Decl. ¶ 110.

197 The Stravitz Reply Declaration notes that "In the most simplistic terms, international manufacturers tend to go around the world filling the 'buckets' of the biggest and most influential groups of purchasers first. Once all the big 'buckets' are full, then the manufacturers return to fill the smaller buckets within those markets. So long as multiple carriers can lay claim to the same "bucket," all carriers can benefit from the same basic order fulfillment priorities and can divide the costs associated with costly research and design, chipset development, and factory-line retooling of the global supply chain for the wireless industry." Stravitz Reply Decl. ¶ 115.

156. Professor Carlton argues that T-Mobile is unlikely to continue to be an innovative competitor in the U.S.[198] However, T-Mobile had recommitted in early 2011 to a "Challenger" strategy that would create increased competitive pressure on AT&T and Verizon.[199] Part of this strategy involves bringing to market innovative products and services such as a high speed 4G network and high-end smartphone offerings.[200] Thus, the merger in fact would eliminate a competitor that had been competing with AT&T and Verizon through innovation as well as through price and other dimensions.

157. AT&T argues that any such competitive concerns regarding price or innovation competition would be more than offset by efficiency benefits that would be passed on to consumers in the form of lower prices. Given the risks, and the well documented history of the effects of entry on wireless pricing, AT&T has a heavy burden of demonstrating that its claimed efficiencies are merger-specific, verifiable, and large enough to ensure that consumers reliably would benefit, despite the substantial risk of long term competitive harm. [201]

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198 Carlton Opp. Decl. ¶¶ 166-167.

199 CRA Decl. ¶ 127.

200 Declaration of John Carney, attached to Sprint Petition to Deny, ¶¶ 12-15.

201 Both the 2010 and the 1992 Merger Guidelines make it clear that the merging parties have the burden of establishing the dominance of the efficiency benefits. ("[I]t is incumbent upon the merging firms to substantiate efficiency claims so that the Agencies can verify by reasonable means the likelihood and magnitude of each asserted efficiency, how and when each would be achieved (and any costs of doing so), how each would enhance the merged firm's ability and incentive to compete, and why each would be merger-specific." Guidelines at 30. *See also* U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, at 31 (1992, rev. 1997), *available at*: <http://www.justice.gov/atr/public/guidelines/hmg.pdf>.

VII. EFFICIENCIES

158. In our initial Declaration, we focused on AT&T's claimed efficiencies that were premised on the removal of capacity constraints and the resulting ability to expand LTE coverage.[202] Our analysis of the capacity constraint claim focused on two points: (a) the reliability of AT&T's claim that much of its network is, or soon will be, "congested" and that its service would be degraded as a result; and (b) the merger-specificity and verifiability of the consumer benefits that AT&T claims will result from eliminating the claimed congestion. Our analysis of AT&T's claim that the merger will permit expanded LTE coverage from 80% to 97% of the U.S. population focused on the merger-specificity and verifiability of its claim.[203]

159. The touchstone of our analysis has been the Commission's requirement that, when a merger raises substantial competitive concerns, the evidence supporting the claimed efficiencies must be all the more substantial and reliable. As the Commission noted in its review of the AT&T/Centennial merger, "where potential harms appear 'both substantial and likely, a demonstration of claimed benefits also must reveal a higher degree of magnitude and likelihood than we would otherwise demand.'"[204]

160. This requirement also is reflected in the Merger Guidelines, which state that "[t]he greater the potential adverse competitive effect of a merger, the greater must be the cognizable efficiencies, and the more they must be passed through to customers, for the Agencies

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202 CRA Decl. ¶¶ 183-201.

203 *Id.* ¶ 183.

204 *Applications of AT&T Inc. and Centennial Communications Corp. For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Leasing Arrangements,* Memorandum Opinion and Order, 24 FCC Rcd 13915, ¶ 91 (2009).

to conclude that the merger will not have an anticompetitive effect in the relevant market."[205] Thus, the bottom line issue is the magnitude of the verifiable, merger-specific efficiencies.

161. Based on these standards, we concluded that AT&T had failed to meet its burden. After reviewing the AT&T Opposition Declarations of Professor Carlton and AT&T executive Mr. Hogg, and the Stravitz Reply Declaration, we conclude that AT&T has still failed to meet the relevant "substantial and likely" standard. Although AT&T has provided some additional details, it still fails to provide sufficiently reliable evidence to verify the extent to which its claimed efficiencies are merger-specific and would lead to consumer benefits sufficient to offset the competitive concerns raised by the merger.

162. At the outset, it is important to recognize that all wireless carriers, not only AT&T, face dramatic increases in consumer demand for mobile data services.[206] Data services accounted for 35.4% of Verizon's wireless service revenues in 2010 compared to 34.0% for AT&T, a clear indication that Verizon provides similar proportions of data services.[207] A recent analyst report found that, contrary to the assertions in the Opposition, Verizon and AT&T have "similar usage on their networks today" and forecasts that Verizon will significantly outpace AT&T in network usage in 2011.[208] AT&T's claim that it faces unique data demands is also

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205 Guidelines at 31.

206 *See, e.g.*, MetroPCS Petition at 24-32; Leap Petition at 29-30; Petition to Deny of Public Knowledge and Future of Music Coalition, WT Docket No. 11-65, at 9 (May 31, 2011).

207 *See* Table 8. The initial Carlton declaration attached to the Application reports **[begin highly confidential information]** [redacted] **[end highly confidential information]**. *See* Carlton Decl. at 45, Table 2.

208 *Breaking Down Data – Part Deux: T and VZ Network Demand Similar, but Growing Faster*, J. P. Morgan North American Equity Research at 1-2 (Feb. 4 2011) (estimating that the Verizon and AT&T networks each handle approximately 17 petabytes/month today but that Verizon's network usage will reach 37 petabytes/month by year-end while AT&T's network will

undercut by the fact that iPhone users consume substantially less data than Android users, as a recent Nielsen report confirms.[209] Due to its years-long iPhone exclusivity, AT&T's smartphone portfolio skews heavily toward iPhone users, making AT&T less reliant than other carriers on the more data-hungry Android devices.[210]

163. Moreover, even if it were the case that the merger is the least expensive way for AT&T to relieve its claimed capacity constraints, what is least expensive for AT&T is not necessarily best for consumers. By acquiring T-Mobile, there will be a significant reduction in competition. If AT&T's costs are lower, but consumers are worse off because prices are higher, then the merger would not pass muster under the antitrust laws, nor be in the public interest. As summarized in the Merger Guidelines, "the Agencies are mindful that the antitrust laws give competition, not internal operational efficiency, primacy in protecting customers."[211] Thus, the fact that a merger may be the least expensive way for a firm to achieve its goal does not mean that it is best for consumers.

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be 28 petabytes/month by year-end). The report attributed Verizon's higher network usage to its projected higher smartphone penetration growth rate (driven by Verizon's iPhone adoption and the strength of its Android devices) and other factors. Cited only for purposes of this factual statement. Sprint disclaims and does not endorse or adopt said report, including any statements, opinions or analysis therein.

209 *Android Leads in U.S. Smartphone Market Share and Data Usage* NIELSENWIRE (May 31, 2011), *available at:* <http://blog.nielsen.com/nielsenwire/consumer/android-leads-u-s-in-smartphone-market-share-and-data-usage/>. *See also* MetroPCS Petition at 29.

210 In his Reply Declaration, Mr. Stravitz describes a test conducted to evaluate the performance of the national carriers. Based on that test, he concludes that "AT&T did not experience the lagging performance of a carrier facing an imminent threat of serious capacity constraints on its network…all of the nationwide mobile operators face similar or perhaps even greater network performance challenges than AT&T." Stravitz Reply Decl. ¶¶ 12-13.

211 Guidelines at 31.

164. Finally, as we noted in our initial Declaration, AT&T's claimed capacity constraints (if a firm with so much unused spectrum can be considered to have capacity constraints) appear to be partially or largely due to AT&T's failure to expand capacity in response to increased traffic resulting from its iPhone exclusive and other smartphones.[212] In fact, AT&T made the business decision not to invest at the same pace as its rivals during the first three years of its iPhone exclusive (2007 through 2009).[213] A policy permitting AT&T (or other firms in the future) to justify a horizontal merger with a significant competitor under these circumstances would encourage what economists call "moral hazard." Firms would have the incentive to forgo investment competition in order to save costs and then gain the privilege of merging with a competitor as a bail-out.[214]

A. AT&T's Capacity Constraint Claims

165. As Sprint noted in its Petition to Deny, AT&T's capacity constraint claims in this merger review proceeding are inconsistent with AT&T's repeated statements prior to its announcement of the proposed T-Mobile acquisition. For example, in March 2011, shortly before this merger was announced, AT&T's CFO, Peter Ritcher, characterized AT&T's capacity

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212 CRA Decl. ¶ 195.

213 Ironically, Professor Carlton makes the point that exclusives encourage carriers to "make investments in its network that enable consumers to fully utilize features offered on innovative handsets." Carlton Opp. Decl. ¶ 128. Apparently, that was not the case here for AT&T.

214 In its Petition to Deny, MetroPCS notes as well that AT&T's network investments have significantly lagged those of other rivals, Verizon in particular. MetroPCS Petition at 37. It also notes that "since AT&T has eschewed infrastructure investments and technology improvements, such as 6-sector cells and DAS, the Commission should not put its thumb on the competitive balance in favor of AT&T." *Id.*

situation as follows: "We don't feel that we are in any sort of situation right now where we have to do anything."[215] Mr. Ritcher went on to observe:

> We feel pretty good about where we are spectrum-wise here in the short term and what spectrum we have sort of set aside to go and launch LTE on. There's obviously always kind of places where you would maybe like to have a little bit more if you could, but those things are not anything that really keeps us from being able to launch LTE and to do what we need to do here in the next few years.[216]

166. Similarly, in light of these claimed capacity constraints, the pace of AT&T's LTE build-out appears to be surprisingly slow, just sufficient to satisfy the FCC's build-out requirements. At a conference held after the announcement of the proposed acquisition, AT&T representative, James Cicconi, described the pace of the build-out of AT&T's 700 MHz spectrum in the following way: "I think on the spectrum we hold, the FCC as part of the auction process has build-out requirements and as far as I know we're meeting all of those." [217] Deploying LTE at a pace that satisfies the FCC's build-out requirements seems inconsistent with AT&T's claimed need for a substantial increase in its capacity.

167. The initial Hogg Declaration claimed to identify the extent to which a number of CMAs would reach "spectrum exhaust" by 2013. However, there was no explanation of the basis for that conclusion. The Hogg Opposition Declaration now identifies one factor that

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215 Transcript of AT&T at Deutsche Bank Securities Inc. Media and Telecom Conference, March 8, 2011.

216 Transcript of AT&T at Credit Suisse Group Convergence Conference, March 9, 2011.

217 Transcript of the Brookings Institution Panel: "A Framework for Innovative Federal Spectrum Policy" at 30 (Mar. 30, 2011), *available at:* <http://www.brookings.edu/~/media/Files/events/2011/0330_spectrum/20110330_spectrum_transcript.pdf>.

affects congestion—the volume of traffic at the peak period.[218] It also identifies general criteria for a determining that a CMA will be subject to "spectrum exhaust":

> [W]hen those peak loads are projected to reach a level that threatens network performance in a market where no spectrum and corresponding radio capacity can be added.…AT&T identifies those markets as facing spectrum exhaust.[219]

168. However, this explanation is far from complete. The Stravitz Reply Declaration identifies numerous gaps in the description of the underlying methodology used by Mr. Hogg as well as in the data provided.[220] Mr. Stravitz notes that "Given the lack of information provided by AT&T, it is not possible to discern the existence, extent or magnitude of AT&T's alleged capacity problem."[221] Mr. Hogg's Opposition Declaration also does not indicate when AT&T became aware of these claimed capacity constraints (i.e., prior to the merger announcement or after the merger announcement), information that would be relevant to gauging the reliability of the estimates and relevant to an understanding of what other actions AT&T has, or could have, taken to address its claimed spectrum constraints. In short, AT&T has not provided sufficient data to verify and test its claims, as required by the Commission and the Merger Guidelines.

169. AT&T's response also provides only limited information from which to judge whether the capacity relief that AT&T claims will be provided by its acquisition of T-Mobile is merger-specific. In part, this failure stems from an apparent assumption on the part of AT&T

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218 Hogg Opp. Decl. ¶ 6.

219 *Id.* ¶ 6. **[begin highly confidential information]** [redacted] **[end highly confidential information]**

220 Stravitz Reply Decl. ¶¶ 14-16.

221 *Id.* ¶ 14.

that there is nothing that AT&T can do to relieve its capacity constraints short of a merger. This "capacity paralysis" assumption is implausible. It is more reasonable to expect that AT&T would more aggressively pursue alternative capacity-expanding strategies, even if those strategies were somewhat more costly than a merger with T-Mobile. Only the difference in costs between these strategies and the costs that AT&T will incur as a result of the merger can be credited as merger-specific.

170. In his Opposition Declaration, Professor Carlton provides a set of calculations that illustrate this capacity paralysis assumption. Specifically, Professor Carlton purports to calculate the increased capacity that would result from the merger, as compared to the current capacities of AT&T and T-Mobile. [222] In the post-merger scenarios examined by Professor Carlton, AT&T is assumed to have "successfully increased network density based on its current post-merger network integration assumptions." Professor Carlton concludes that the "merger-related" increases in capacity are substantial.[223]

171. However, "merger-related" efficiencies are not the same as "merger-specific" efficiencies. The "but-for" comparison in Professor Carlton's Opposition Declaration assumes that the stand-alone AT&T would not take any additional actions, or make any additional investments, to expand capacity absent the merger. Thus, these estimated capacity increases may be merger-*related*, but they are not merger-*specific*. Professor Carlton ignores the capacity gains AT&T could have or would have achieved in the absence of the proposed transaction. Thus, he sets a very low threshold for identifying the increase in capacity that he claims would result from

222 Carlton Opp. Decl. ¶¶ 28-32.

223 *Id.* ¶ 34.

the merger. This methodology also fails to satisfy the merger-specificity standard in the Merger Guidelines.

172. The significance of identifying and carefully evaluating alternatives to merger is all that more important in light of the finding in the Stravitz Reply Declaration that there is "no relationship between the amount of spectrum owned by AT&T and the consumer experience [as measured by a number of service quality metrics]."[224] As explained by Mr. Stravitz:

> [N]etwork performance appears to be primarily a function of signal strength which depends upon various factors including sound network design, location of cell sites, and fine tuning of various network parameters. While additional spectrum naturally helps improve network performance at some basic level, additional spectrum is not a primary or even secondary indicia of improved network performance for AT&T.…**[begin confidential information]** [redacted] **[end confidential information]**[225]

His analysis thus suggests that non-spectrum based alternatives are an important component to expanding capacity.

173. Indeed, in our initial Declaration, we noted (for example) that a stand-alone AT&T could provide capacity relief by adopting a more aggressive migration strategy from the spectrally-inefficient GSM network to UMTS, thereby providing additional spectrum for UMTS service.[226] Mr. Hogg's Opposition Declaration continues to assert that that alternative is not

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224 Stravitz Reply Decl. ¶ 64.

225 *Id.* ¶¶ 61-64.

226 CRA Decl. ¶ 187.

practical.[227] However, Mr. Hogg never explains why a more aggressive migration strategy would not relieve at least some of the claimed capacity constraints generated by its GSM customers. Indeed, MetroPCS notes that it provided incentives for its customers to migrate to more spectrally efficient alternatives: "If MetroPCS can effectively turn over and replace handsets in more than one-half of its entire subscriber base in one year, surely AT&T can do the same."[228] [229]

174. Professor Carlton discusses and dismisses several ways of expanding capacity other than merger, including deployment of new cell sites, Distributed Antenna Systems, Wi-Fi hot spots, and femtocells. Professor Carlton claims that these alternatives are far more expensive than the deployment of "freely available" spectrum.[230] However, he provides no specific data to compare the costs of deploying the non-merger alternatives to attain the same capacity as the merger with the costs (including the integration costs) of attaining the same capacity via merger with T-Mobile.

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227 Mr. Hogg's Opposition Declaration asserts that "even when offered economic incentives to replace their handsets with newer devices and technologies, many customers choose to retain their current device and their current service." Hogg Opp. Decl. ¶ 18. Of course, AT&T could encourage faster migration by more aggressively subsidizing the subscriber upgrades or combining those incentives with a date-certain when the GMS network will be "turned off."

228 MetroPCS Petition at 31. Similarly, the Stravitz Reply Declaration notes that "AT&T's lack of investment in the network prevents it from migrating those customers in GSM-only coverage area to UMTS/HSPA devices." Stravitz Reply Decl. ¶ 73. Mr. Stravitz also notes that "while surely there is a place for GSM network running on a smaller portion of AT&T's spectrum to continue to support a declining legacy GSM subscriber base, there is no place for a large GSM network in the face of the impending spectrum crunch claimed by AT&T." *Id.* ¶ 74.

229 In his Reply Declaration, Mr. Stravitz notes that AT&T "claims spectrum poverty due to the large number of GSM subscribers it claims to have on its network, but on the other hand, it continues to actively sell GSM only phones to *both* its prepaid and postpaid subscriber base for less than $10. If AT&T were to migrate the majority of its GSM customers to its UMTS/HSPA network… it will immediately gain capacity." Stravitz Reply Decl. ¶ 72.

230 Carlton Opp. Decl. ¶¶ 18-23.

175. Even if there were some cost difference between these alternatives and using T-Mobile's spectrum to increase capacity (after accounting for the costs of integrating the two networks), only the difference would count as a merger-specific efficiency. Moreover, Professor Carlton fails to show that any cost difference would lead to lower prices paid by consumers after taking into account the anticompetitive effects of the merger. As noted earlier, what is least expensive for AT&T is not necessarily best for consumers when the merger would reduce wireless competition.

176. AT&T seems to assume that it could not, and would not, pursue any alternatives to merger for capacity expansion, even if they are somewhat more expensive. However, the fact that AT&T already is deploying a number of these capacity-enhancing strategies suggests their practicality. Professor Carlton highlights the success that AT&T has had in using network equipment to **[begin highly confidential information]** [redacted] **[end highly confidential information]**, as well as using improved backhaul facilities and femtocells to provide capacity enhancements.[231]

177. Finally, Professor Carlton fails to consider the alternative of expanding capacity by making further spectrum acquisitions. This is surprising because the Hogg Opposition Declaration makes it clear that AT&T intended to acquire additional spectrum. As stated in that Opposition Declaration in the context of the LTE coverage expansion, "the transaction will enable AT&T to re-purpose its existing capital budget allocated to spectrum acquisitions to be allocated for other uses."[232]

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231 *Id.* ¶¶ 44-46.

232 Hogg Opp. Decl. ¶ 45.

B. AT&T's Claimed LTE Benefits

178. In our Declaration, we identified a number of reasons why the claimed LTE benefits should be discounted by the Commission, including the failure of AT&T to identify the merger-specific efficiencies and the fact that the claimed benefits would be realized only in the distant future.[233] The Stravitz Reply Declaration identifies in greater detail how AT&T could substantially expand its LTE rollout and footprint by deploying unused spectrum, upgrading existing networks to LTE, and deploying heterogeneous network of macro and small cells.[234]

179. The Hogg Opposition Declaration purports to explain why AT&T would have a post-merger incentive to expand the geographic LTE footprint by freeing up AT&T's limited investment funds. As stated in the Hogg Opposition Declaration, "[b]ecause of the spectrum gains and the overall economic benefits resulting from the transaction, senior management made a business judgment that the merger with T-Mobile USA allowed AT&T to expand its LTE build-out to 97 percent of the population."[235] Mr. Hogg described the economic case for the expansion as the fact that "the scale and scope of the larger combined wireless business will permit the additional capital investment to be spread over a larger revenue base than would be the case absent the merger."[236] However, Mr. Hogg does not identify the economic factors that determined the original business decision to limit the coverage to 80% by the end of 2013, nor does he discuss AT&T's plans and the factors that would come into play in the period after 2013.

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233 CRA Decl. ¶¶ 196-201.

234 Stravitz Reply Decl. ¶¶19-52.

235 Hogg Opp. Decl. ¶ 45.

236 *Id.* If AT&T meant instead that the revenue base would be higher because prices would be higher, then the implication would be that the merger would have an anticompetitive effect.

Finally, he does not discuss how those factors change as a result of the merger to make it profitable to expand the LTE roll out to 97% six years after closing of the transaction.

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180. Thus, despite the additional details provided by AT&T, there remain significant questions regarding the verifiability, merger-specificity, and magnitude of its efficiency claims.

VIII. CONCLUSIONS

181. Our conclusions are the same as they were in our initial Declaration.[237] Our analysis indicates that, if the AT&T/T-Mobile merger were approved, it would likely be harmful to wireless consumers and competition, whether analyzed in terms of a national market or local markets. By removing T-Mobile as an independent competitor, the merger would give AT&T the unilateral incentive to raise prices and also would facilitate anticompetitive coordination between AT&T and Verizon. In addition, unlike most mergers, this transaction would have significant exclusionary effects by raising the costs of Sprint and the smaller regional carriers. These exclusionary effects would increase the likelihood of adverse unilateral and coordinated effects on consumer welfare. They also make it less likely that competitors would be able to constrain the pricing of AT&T and Verizon. Innovation also may be slowed as a result of the merger. Approval of the merger would move the industry toward an entrenched duopoly in which Sprint is marginalized and additional strong national competitors are less likely to emerge.

182. The only remedy that can address these harms is to prohibit the merger. In that way, T-Mobile would remain an independent national competitor that would serve as a

[237] CRA Decl. ¶¶ 202-203.

significant challenger to Verizon and AT&T. The competitive harms that would result from approval are neither minor nor localized and cannot be cured by localized divestitures or behavioral conditions. Important dimensions of competition take place at the national level, and there would be competitive concerns in so many local markets that it is highly unlikely that localized remedies could restore national competition. Spectrum and subscriber divestitures would not maintain T-Mobile as a going concern with a valuable national brand name. If spectrum or other assets were divested to Verizon as part of a merger remedy, competition would not be increased. If anything, it would facilitate coordination between AT&T and Verizon. If the merger were approved, there would just be three national competitors, including one that would be substantially weakened and a significant risk that the wireless market would revert to a duopoly.

TABLES AND FIGURES

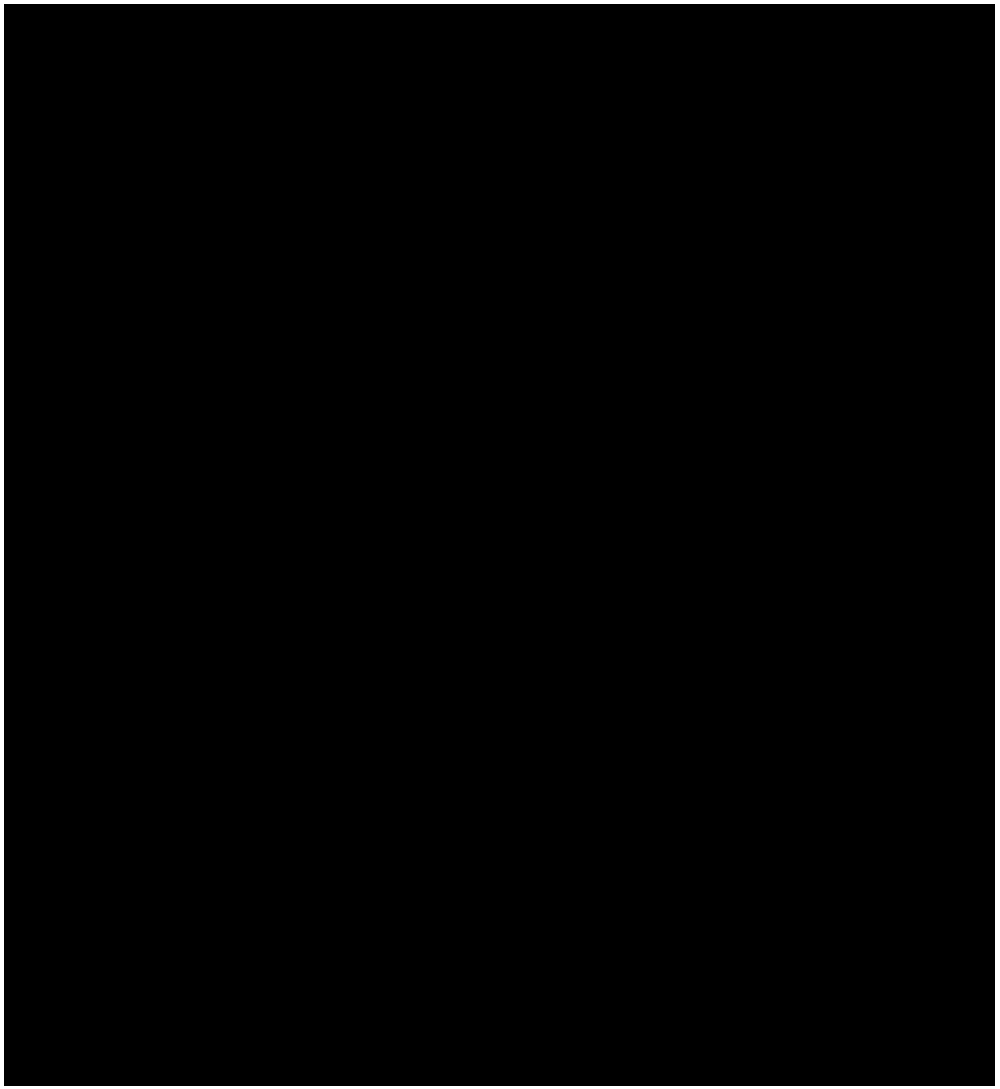
Table 1: Analysis of Porting Data - Porting Rate Percentages

[begin NRUF/LNP confidential information]

[end NRUF/LNP confidential information]

Table 2: Simple Critical Loss Analysis

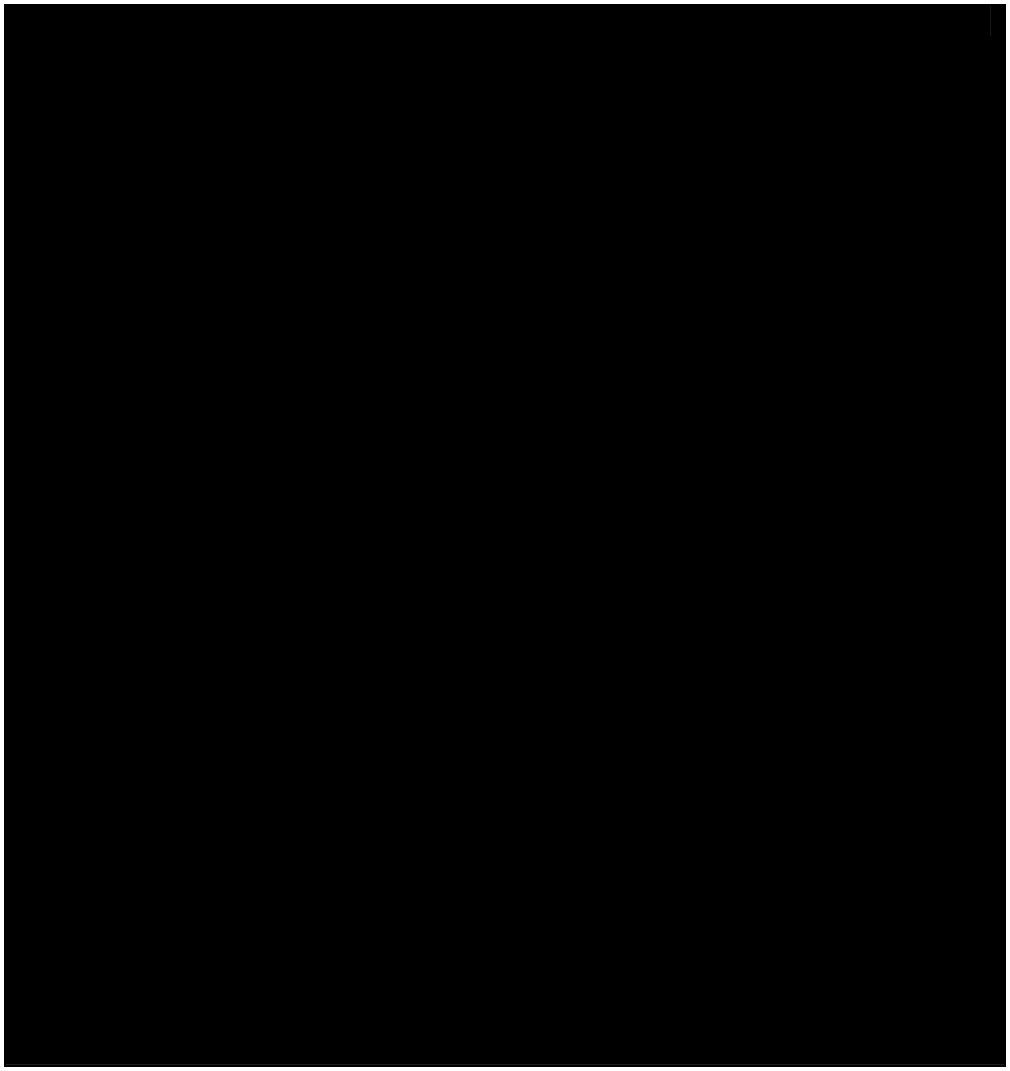
[begin NRUF/LNP confidential information]



[end NRUF/LNP confidential information]

Table 3: Sophisticated Critical Loss Analysis

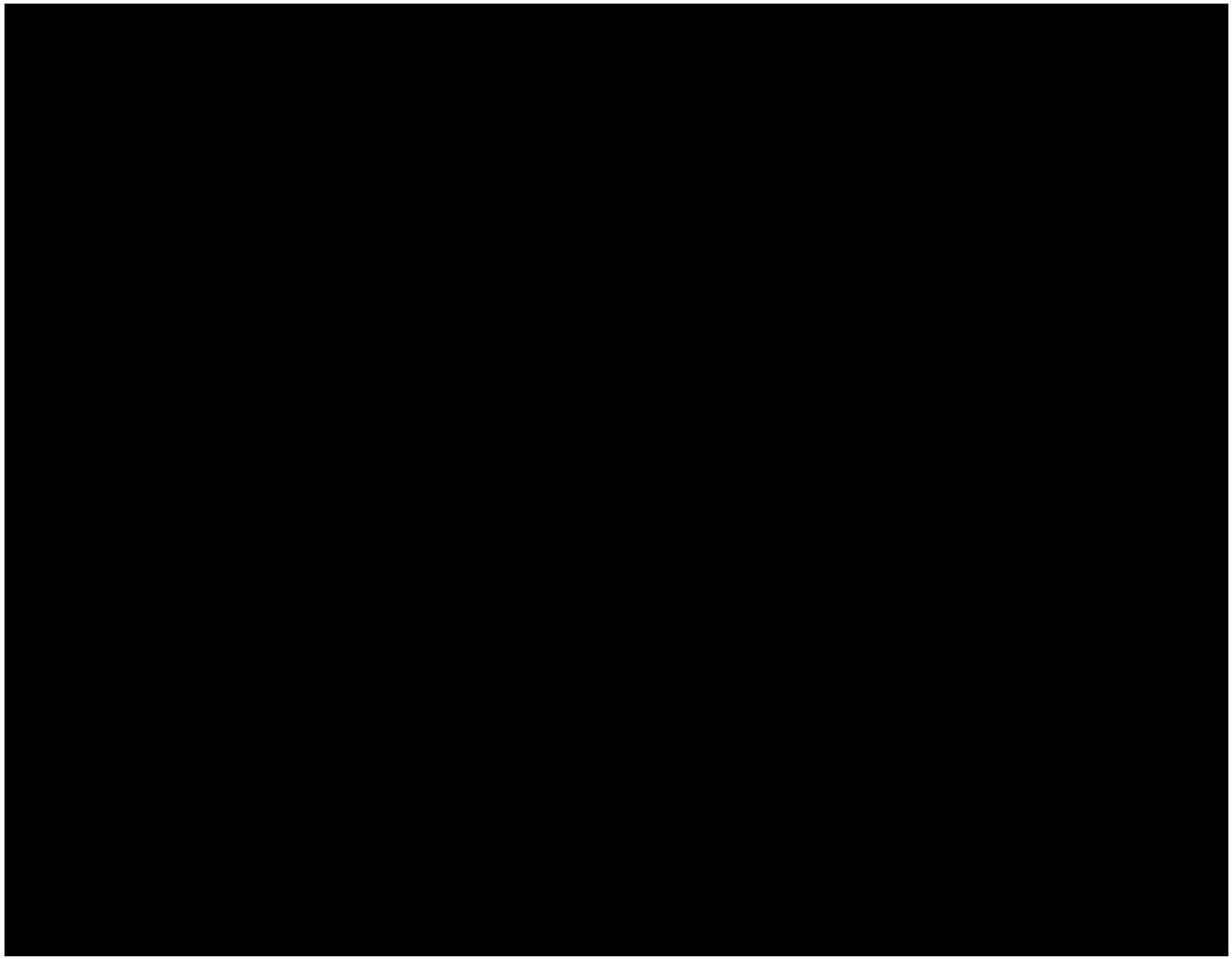
[begin NRUF/LNP confidential information]



[end NRUF/LNP confidential information]

Table 4: GUPPI and CMCR Results Using Porting Rates - All Wireless Market

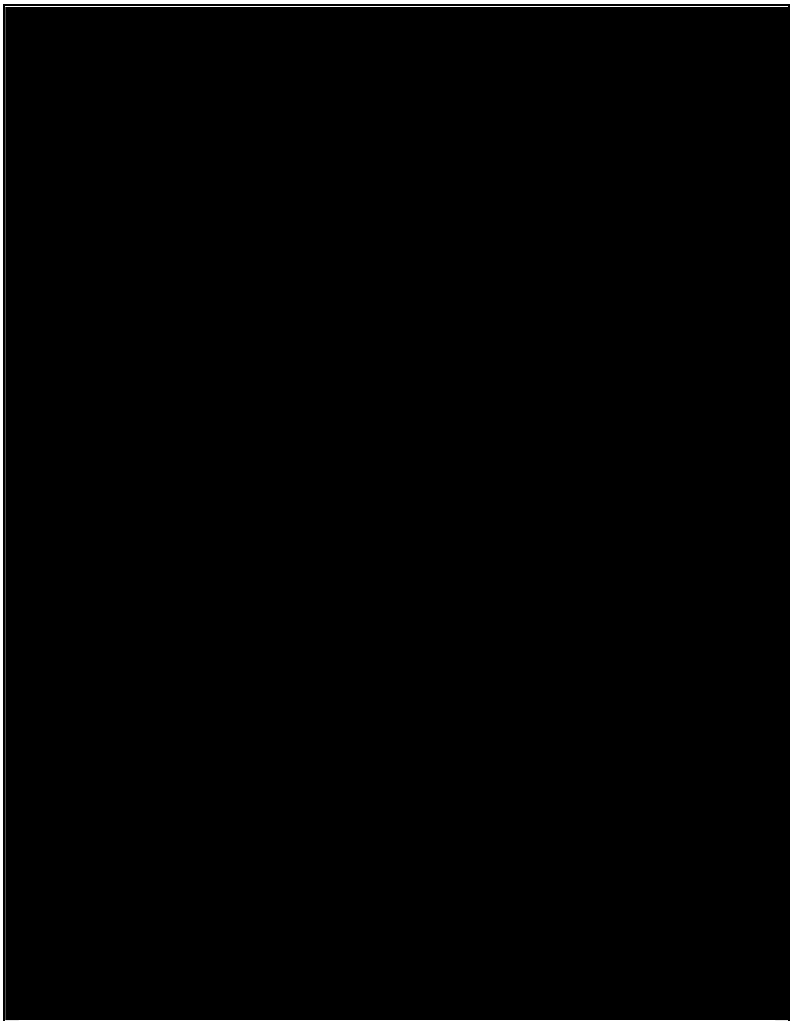
[begin NRUF/LNP confidential information]



[end NRUF/LNP confidential information]

Table 5: All Wireless Subscriber Shares

[begin highly confidential information]



[end highly confidential information]

Table 6: All Wireless Subscriber Shares - 2004 and 2010

	Subscribers	
	2004	**2010**
National Carriers		
Verizon Wireless	25.1%	33.5%
AT&T	28.1%	30.7%
T-Mobile	9.9%	11.3%
Sprint	12.3%	17.1%
Nextel	8.6%	0.0%
National Total	84.0%	92.6%
Regional Carriers		
MetroPCS	0.9%	2.9%
Leap	0.9%	2.0%
US Cellular	2.8%	2.2%
Alltel	5.7%	0.0%
Other	5.7%	0.3%
Regional Total	16.0%	7.4%
Total	100.0%	100.0%
Selected Subtotals		
AT&T and Verizon	53.2%	64.2%
AT&T, Verizon and T-Mobile	NA	75.5%

Notes:

Reseller (i.e., Mobile Virtual Network Operator - MVNO) subscribers are attributed to the facilities-based carriers.
The MetroPCS subscriber count for 2004 is not available so its share is based on a count reported for the first quarter of 2005.
NA = not applicable.

Sources:
US Wireless 411, UBS Investment Research, Jan. 3, 2006 and Mar. 30, 2011.
Wireless carrier SEC 10-K filings, annual reports, press releases, and investor presentations.

Table 7: CPPI Results Using Porting Rates - Postpaid Market

[begin NRUF/LNP confidential information]

[end NRUF/LNP confidential information]

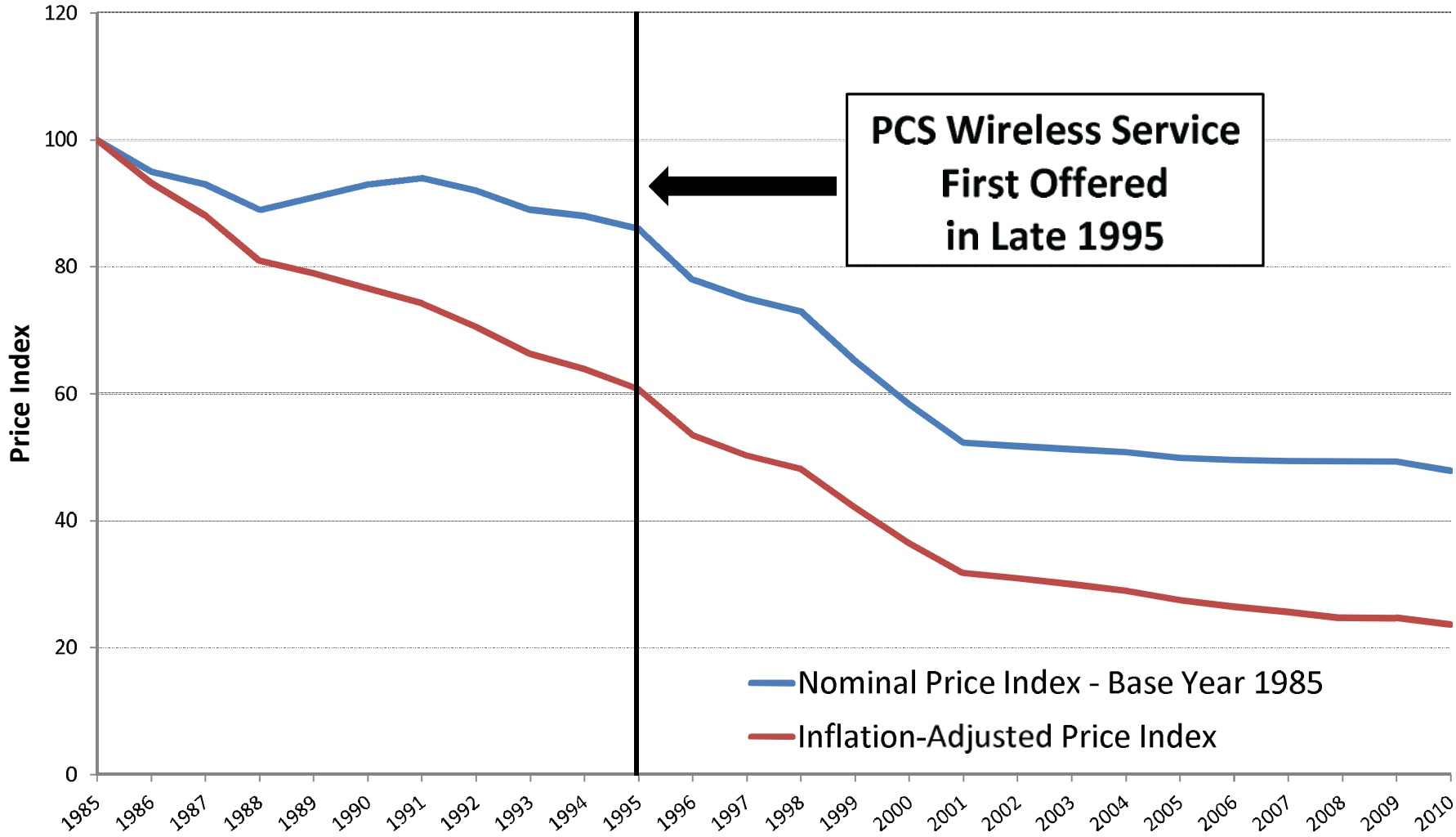
Table 8: Data Services Revenue as Share of Total Wireless Service Revenue - 2010

	Wireless Service Revenue		
Carrier	Data Services ($ Billions)	Total Services ($ Billions)	Data Services Share of Total
AT&T	18.2	53.5	34.0%
Verizon	19.8	56.0	35.4%

Sources:
AT&T Inc., Annual Report, 2010 at 34, 36.
Verizon Wireless, "1st Quarter 2010 Earnings Conference Call" (slides) at 6.
Verizon Wireless, "3rd Quarter 2010 Earnings Conference Call" (slides) at 8.
Verizon Wireless, "4th Quarter 2010 Earnings Results" (slides) at 8.

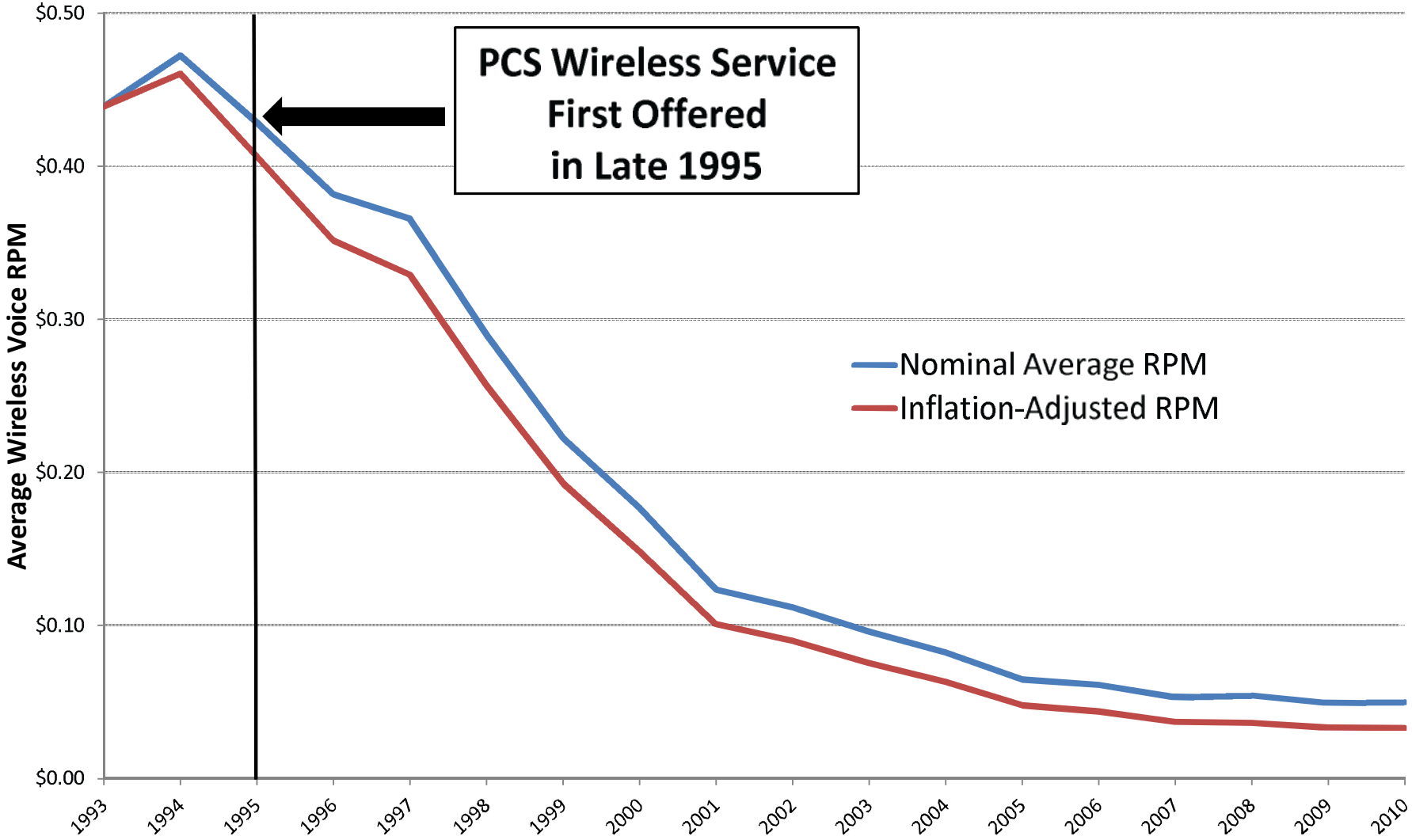
Figure 1: National Sprint Advertisement For Its $69.99 "Any Mobile, Any Time" Postpaid Plan

Figure 2: Wireless Telephone Services Price Index - 1985 to 2010



Notes: Data for the period 1985 to 1997 are based on an annual Cellular Phone Service Price Index for Top 30 MSAs as reported by Dr. Jerry Hausman in *The Handbook of Telecommunications Economics* (2002). All data after 1997 are based on the monthly U.S. Wireless Telephone Service Consumer Price Index as published by the Bureau of Labor Statistics (BLS). Prices are adjusted for inflation using the Consumer Price Index for All Urban Consumers (CPI-U) and a base year of 1985.

Figure 3: Average Wireless Voice Revenue Per Minute (RPM)



Notes: Nominal RPM reported for the years 1993 to 2008 are from Table 19 in the FCC's 14th Report. Nominal RPM reported for 2009 and 2010 are reported by the CTIA. Prices are adjusted for inflation using the Consumer Price Index for All Urban Consumers (CPI-U) and a base year of 1993.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 17, 2011

Steven C. Salop
Professor of Economics and Law
Georgetown University Law Center
Senior Consultant
Charles River Associates

Executed on June 17, 2011

Serge X. Moresi
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ATTACHMENT B

REPLY DECLARATION OF STEVEN STRAVITZ

REPLY DECLARATION OF STEVEN STRAVITZ
TABLE OF CONTENTS

I. QUALIFICATIONS

I, Steven Stravitz, hereby declare the following:

1. I am Chief Executive Officer and Managing Director of Spectrum Management Consulting (SMC). My background and qualifications are as described in my initial Declaration, filed on May 31, 2011.[1]

2. SMC's team of telecommunication and wireless network technology experts who supported the preparation of this declaration and assisted with the related analyses has an average of 20 years of hands-on experience in design, deployment, and management of wireless telecommunications networks; acquisition and management of spectrum assets; and evaluation of advanced technology.

3. In this Reply Declaration, I outline SMC's response to various arguments in the Applicants' Joint Opposition and Reply to Comments filed with the Commission on June 10, 2011.[2] In my professional opinion, as per the analyses conducted by SMC, I conclude that the Applicants have again failed to demonstrate why AT&T needs to acquire T-Mobile to meet the claimed growing demand on its network.

II. EXECUTIVE SUMMARY

4. AT&T has not substantiated any of the key technical benefits it claims from the T-Mobile acquisition and has instead chosen to premise its Joint Opposition on theoretical data

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[1] Declaration of Steven Stravitz, attached to Petition to Deny of Sprint Nextel Corporation ("Sprint Petition"), WT Docket No. 11-65 (May 31, 2011) ("Stravitz Decl.").

[2] Joint Opposition of AT&T Inc. (AT&T), Deutsche Telekom AG (DT), and T-Mobile USA, Inc. (T-Mobile) to Petitions to Deny and Reply to Comments, WT Docket No. 11-65 (June. 10, 2011) ("Opposition" or "Opp.")). AT&T, DT, and T-Mobile are referred to collectively as the "Applicants."

or experience that holds no immediate relevance. SMC has conducted specific, broad-based analyses based on third-party drive tests commissioned for this Declaration, third-party drive tests available to the commercial industry, publicly available information, and analyst reports. None of SMC's analyses validate AT&T's claims and, taken together, indicate the absence of empirical evidence supporting AT&T's assertions. AT&T would need to apply its theoretical claims to the specific market conditions it faces with some measure of quantifiable precision before the Commission can even evaluate the merits of AT&T's claims.

5. In my initial Declaration, I raised a set of questions concerning AT&T's demand growth projections and assumptions used in calculating the projected efficiency gains from the proposed merger. After having analyzed the Joint Opposition and attached Declarations, I could find only vague assertions that attempt to address gaps in the Applicants' initial Application, occasional agreements with the engineering principles referenced in my initial Declaration, and application of academic theories to situations not relevant to the context of the Application.

6. Part A of this analysis further demonstrates that AT&T's asserted capacity problems are not unique to AT&T. Some of AT&T's competitors are managing a similar or even greater volume of voice and data traffic per subscriber on their networks while providing better customer satisfaction and higher network performance. Part B shows that AT&T has many other more cost effective and efficient options to meet its customer's growing data service needs than acquiring T-Mobile. To increase network capacity, AT&T could more aggressively pursue solutions that target its highly localized capacity concerns with engineering solutions and business practices. These solutions fall into three categories or "levers" as described in my initial Declaration: (1) use existing spectrum; (2) deploy more efficient technologies; and (3) deploy dense, heterogeneous networks. To demonstrate the practical application of these three

categories of solutions, I present case studies for AT&T's Los Angeles and New York City markets with the detailed modeling assumptions and calculations used in estimating potential capacity gains. These case studies demonstrate that AT&T can follow this three-pronged capacity enhancement approach to increase its network capacity to more than 600% of today's capacity in Los Angeles and New York City – and essentially any market – with strong indications of potentially higher gains still available.

7. Part C of this analysis demonstrates that spectrum availability is not, despite AT&T's claims, the sole driver of capacity availability on its network; spectrum is but one of the many drivers of network capacity and, in the case of AT&T, not a significant one. Part D provides additional analysis which proves that the claimed efficiency gains from the proposed acquisition of T-Mobile are theoretical, speculative and, in my view, unlikely to be achieved in practice. Finally, Part E of this analysis demonstrates that many other reasons given by AT&T in support of the Transaction are without foundation.

8. Accordingly, SMC concludes that AT&T has not provided enough data or analysis to demonstrate why its proposed acquisition of T-Mobile is the best option available to cure its claimed capacity issues when compared to the various alternatives described in my initial Declaration and this Reply Declaration.

PART A

AT&T's stated capacity problems are not unique; some of AT&T's competitors are managing a similar or even greater volume of voice and data traffic per subscriber on their networks, with superior customer satisfaction and network performance.[3]

III. AT&T'S CLAIMED CAPACITY PROBLEMS ARE NOT UNIQUE TO AT&T

9. In its Opposition, AT&T concedes that it managed to accommodate an 8,000% increase in demand for wireless voice and data services on its network during the three years from 2007 until 2010, but claims that deploying idle spectrum, investing in technology upgrades, and building additional network infrastructure cannot support the incremental 800-1,000% demand growth that AT&T projects will occur across its subscriber base during the four years from 2011 until 2015.

10. The first step in deconstructing AT&T's rather remarkable assertion that the company's existing spectrum, technical, and capital budgets have simply run their course is to provide some context for the demand increases that AT&T repeatedly and uncritically characterizes as exceptional. As I explained previously, demand for wireless services has increased markedly over the last five years; however, AT&T's demand increase is wholly unexceptional within the industry. In fact, AT&T's demand increase is, if anything, *smaller* than the demand increases experienced by its largest competitor for reasons that I explain in greater detail below in section IV. For present purposes, however, it is enough to simply examine AT&T's performance in managing its subscriber demand against the contemporaneous ability of AT&T's competitors to manage their respective subscriber demands. If AT&T were truly facing

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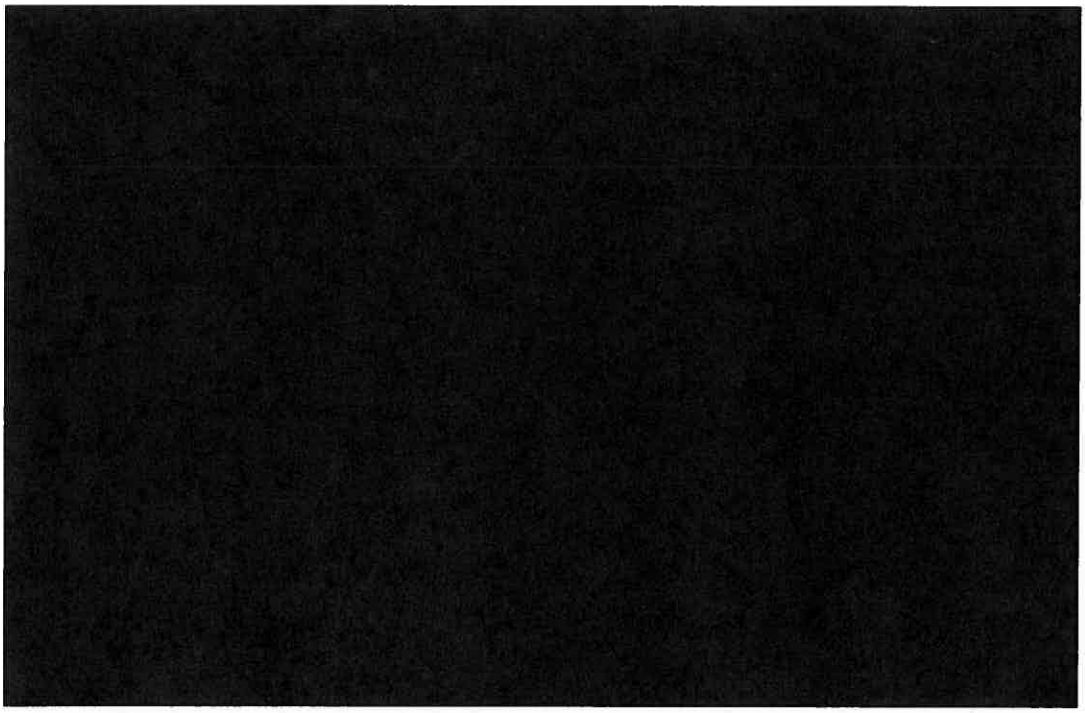
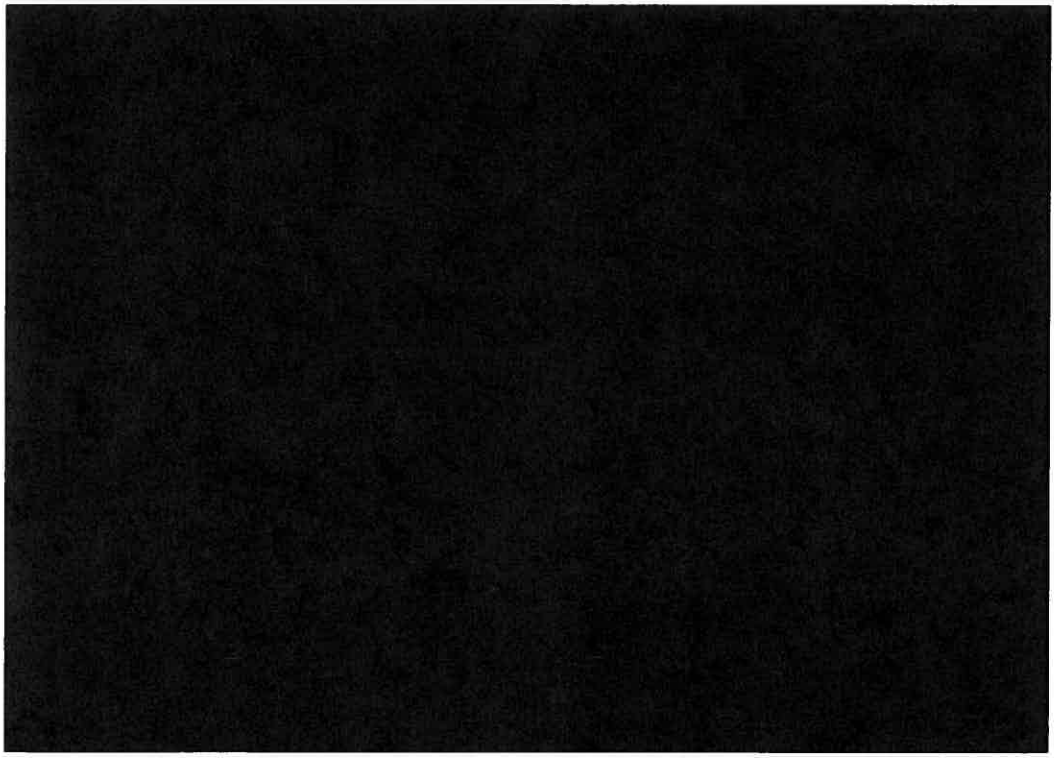
[3] *See* Press Release, American Customer Satisfaction Index, *ACSI: Customer Satisfaction Turns Positive Despite Drop for Information Services* (May 17, 2011), *available at*: <http://www.theacsi.org/images/stories/images/news/11may_press.pdf>.

a near-term inability to reasonably satisfy consumer demand, one would anticipate that AT&T's network performance metrics would prove inferior to that of its competitors across most, if not all, of the market study areas.

11. Just the opposite is true. **[begin confidential information]** [redacted] **[end confidential information]** SMC analyzed network performance data collected through drive tests over the period 3Q 2010 to 1Q 2011 for AT&T and its major national competitors. As shown in the graphs below, the data demonstrate that AT&T's network performed comparably to its competitors when compared over one hundred CMAs. **[begin confidential information]**



[redacted]



[redacted]

[end confidential information]

12. Figures 1 and 2 above compare AT&T's data and voice network performance to that of other national carriers on several widely recognized industry performance metrics, such as throughput, connection success, connection times, blocked calls, and dropped calls. On measurement after measurement, AT&T did not experience the lagging performance of a carrier facing an imminent threat of serious capacity constraints on its network. Indeed, the performance differences among all of the carriers studied are minimal, at best.

13. These results are significant because drive tests are considered among the most

reliable and well respected means of collecting performance data, which in turn can help identify network capacity issues. For example, the number of blocked calls and dropped calls related to a handover failure between cell sites will increase in a network facing significant capacity issues. **[begin confidential information]** [redacted] **[end confidential information]** In this case, objective, third-party drive tests strongly suggest that all of the nationwide mobile operators face similar or perhaps even greater network performance challenges than AT&T.

IV. AT&T'S DEMAND INCREASE IS, IF ANYTHING, *SMALLER* THAN THE DEMAND INCREASES EXPERIENCED BY OTHER CARRIERS

14. Given the lack of information provided by AT&T, it is not possible to discern the existence, extent or magnitude of AT&T's alleged capacity problem. For example, AT&T has not provided its peak hour usage information. Worse, AT&T has not offered a definition of the peak load period, explained how the peak periods are identified or how long those peaks persist. AT&T does not shed light on how its predictive algorithms operate, the relative accuracy of the algorithms, the likelihood of errors, and other vital aspects of AT&T's "spectrum exhaust" analysis. In the absence of these data and the methodology AT&T presumably has used to assess it, SMC has evaluated publicly available information about data usage on AT&T's network and the networks of other wireless providers for the purposes of comparing demand. In one such publicly-available study, the Nielsen Company analyzed nearly 65,000 U.S. cell phone bills from the first quarter of 2011 and found that, on average, Android device owners consumed 582 MB of data each month compared to 492 MB for iPhone owners. This information indicates that the

majority of AT&T's iPhone smartphone users consume much less data than Android smartphone users, which typically subscribe to service on carriers other than AT&T.[4]

15. To further validate this conclusion, SMC also reviewed certain analyst reports from JP Morgan concerning current and projected data demand on AT&T's and Verizon's networks.[5] JP Morgan estimates that the total data demand on AT&T's network is expected to grow slowly in comparison to that of Verizon Wireless. Specifically, JP Morgan estimates that demand on AT&T's data network will be 7% lower than the data demand on Verizon Wireless' network in the first quarter of 2011 with the difference expanding to 31% higher for Verizon by the end of 2011.

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[4] *See Android Leads in U.S. Smartphone Market Share and Data Usage*, NIELSENWIRE (May 31, 2011), *available at*: <http://blog.nielsen.com/nielsenwire/consumer/android-leads-u-s-in-smartphone-market-share-and-data-usage/>. For the first quarter of 2011, Nielsen analyzed nearly 65,000 U.S. cell phone bills from the first quarter of 2011 and found that, on average, Android owners consumed 582 MB of data each month compared to 492 MB for iPhone owners. *Id.*

[5] JP Morgan North America Equity Research, *Telecom Services & Towers: Breaking Down Data - Part Deux: T and VZ Network Demand Similar, but Growing Faster* (Feb. 4, 2011).

	1Q11	2Q11	3Q11	4Q11
Number of 3G and 4G Users				
AT&T	44,927	46,764	49,612	51,188
Verizon Wireless	43,655	48,463	52,679	56,897
Average Weighted MB Usage/User/Month				
AT&T	265	296	341	378
Verizon Wireless	248	304	364	427
Total Subscriber Data Demand (TB/month)				
AT&T	19,479	21,792	25,233	28,463
Verizon Wireless	20,801	25,930	31,302	37,152
Difference in Data demand, VZW-AT&T	7%	19%	24%	31%
Y/Y Change				
AT&T	86%	79%	69%	66%
Verizon Wireless	68%	79%	94%	106%

Figure 3: Comparison of Projected Data Demand on AT&T's and Verizon Wireless' Networks, per JP Morgan's Analysis and Report[6]

16. Having reviewed the comprehensive third-party Nielsen data and the JP Morgan report, SMC has a high degree of confidence that data demand on Verizon's network is comparable to, if not larger than, the data demand on AT&T.

V. AT&T'S OSTENSIBLE CAPACITY-AUGMENTATION TRIGGERS ARE UNUSUAL AND, IF IMPLEMENTED AS DESCRIBED, WOULD REQUIRE PREMATURE USE OF SPECTRUM CAPACITY

17. AT&T's academic advisors suggest that when peak load "in even a small number of sectors in a market are straining the system, then good engineering practice mandates capacity augmentation in that market."[7] This advice is incorrect. On the contrary, good engineering practices do not mandate market-wide solutions for localized capacity problems. Instead, the

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[6] The JP Morgan forecast does not include the traffic on Verizon's LTE network since AT&T did not offer the same as a service at the time of report creation. Had the LTE data volume on Verizon's network been included in the analysis the difference in data demand between AT&T and Verizon would have been greater.

[7] Jeffrey H. Reed and Nishith D. Tripathi, *Analysis of Network Efficiencies Associated with the Proposed Acquisition by AT&T, Inc. of T-Mobile USA, Inc.*, attached to Joint Declaration of Jeffrey H. Reed and Nishith D. Tripathi, attached to Opposition, WT Docket No. 11-65, at 8 (June 10, 2011) ("Reed – Tripathi White Paper").

most efficient use of available capital and spectrum is to deploy a solution proportional to the problem itself, with techniques such as cell splitting, cell sectorization, picocells, and other traffic offload methodologies described in greater detail in Part B of this Declaration. And while AT&T engineers undoubtedly use "complex methods to measure and predict peak loads" to predict spectrum exhaust in a market,[8] SMC questions whether the criteria of **[begin confidential information]** [redacted] **[end confidential information]** is indicative of a need to add additional capacity to the network or if it instead indicates the need for further optimization of network performance.[9] Where AT&T's specified criteria are exceeded, it may indicate the need to add capacity, the need to optimize performance, or both. AT&T's description of spectrum exhaust forecasting does not clearly demonstrate whether AT&T has first availed itself of other available means before concluding a market is facing spectrum exhaust. For example, adjusting the radio frequency coverage among neighboring sectors, call admission control parameters, handoff parameters, etc., are effective means to balance traffic load among adjacent sectors; AT&T makes no mention of implementing these measures or others like them. Thus, it is unclear whether AT&T has consistently and programmatically optimized its network – actions which are essential to maximizing utilization of the deployed spectrum and infrastructure.

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[8] Reply Declaration of William Hogg, attached to Opposition, WT Docket No. 11-65, ¶ 6 (Apr. 21, 2011) ("Hogg Opp. Decl.").

[9] *See id.* at ¶ 7.

PART B

Like many of its competitors, AT&T is facing potential congestion in some parts of its network in some cities, particularly on its data network. More aggressively pursuing targeted, market-specific local solutions to its problems, supported by smart engineering and management decisions, offers a faster, more cost effective technical solution to AT&T's purported capacity constraints than acquiring another national network.

VI. AT&T CAN MORE THAN ADEQUATELY MEET DEMAND ON ITS NETWORK

18. AT&T does not need to acquire T-Mobile to solve its claimed network capacity challenges. Instead, AT&T can implement common industry best practices to gain the capacity it asserts is necessary to serve the growing demands on its network. I previously described three categories of capacity-enhancement measures or "levers" that AT&T could use to respond to rising consumer demand for wireless services. As summarized in the chart below, they are: (1) deploying idle spectrum; (2) upgrading outdated technology; and (3) investing in additional infrastructure.

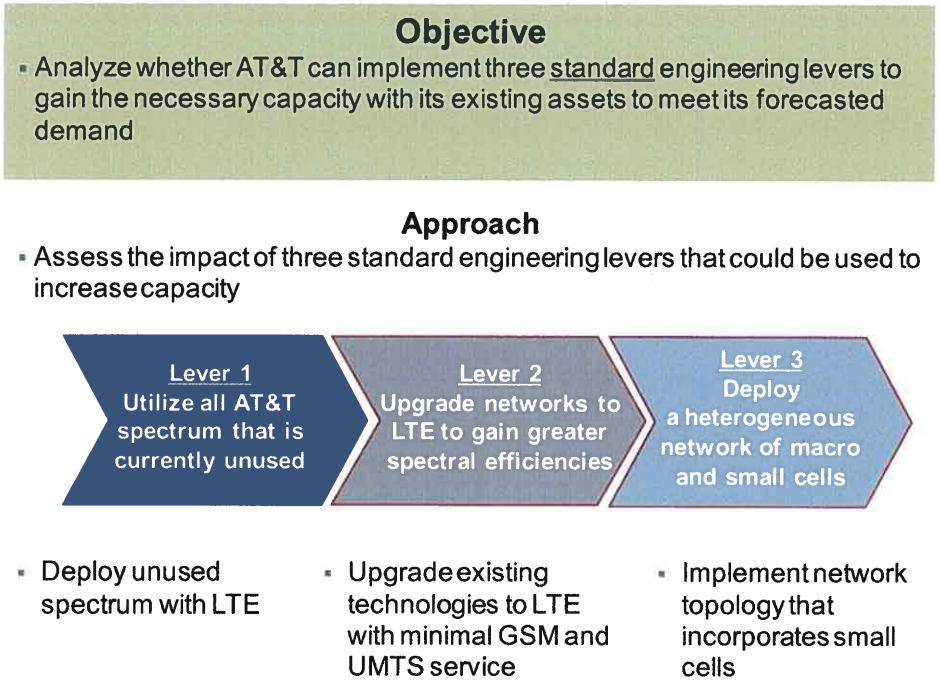

Figure 4: AT&T can solve capacity problems by implementing standard engineering solutions as captured in the Three Lever Capacity Model

19. In response, AT&T argues, once again, that the proposed transaction would allow it to meet increased network capacity demands. AT&T has not, however, demonstrated that it is likely to achieve the purported gains under real-world conditions. At some level, however, whether or not AT&T's proposed acquisition would increase AT&T's theoretical capacity is beside the point. The point is simply that AT&T has more capital-efficient and readily available mechanisms to solve its ostensible spectrum constraints than its proposed T-Mobile takeover.

20. To illustrate this fact, SMC reviewed AT&T's spectrum holdings in the two most populous and most congested economic areas in the nation: Los Angeles and New York City.[10] These markets were chosen to represent two densely populated markets in which AT&T holds

[10] SMC analyzed spectrum holdings as provided by the FCC Universal Licensing System and the American Roamer Database.

differing amounts of spectrum. Using these heavily populated, high-traffic economic areas as a baseline, SMC then applied the three "levers" of spectrum use, technology deployment and network investment to each economic area using fairly conservative assumptions for both the likelihood and extent of success in exercising each lever. In each case, the forecasted capacity gains as a result of applying these "levers" would not only meet AT&T's forecasted demand, *but exceed AT&T's purported capacity requirements well into the future.*

21. These capacity-enhancing levers are no secret to AT&T. Indeed, the prescribed measures for AT&T (or any carrier) to address any purported capacity constraints in densely-populated, high-traffic areas like Los Angeles or New York typically involve more rapidly or more extensively executing existing plans for spectrum utilization, technology deployment, and network investment. **Lever 1**, for example, is consistent with AT&T's long-term plan to deploy LTE services on its existing, unused spectrum - a step AT&T could have taken some time ago to maximize the use of all of its spectrum holdings and improve customer satisfaction.[11] **Lever 2** simply encourages AT&T to join the global migration away from spectrally inefficient 2G GSM technology to 3G WCDMA, and from 2G GSM and 3G WCDMA technologies to the even more spectrally efficient 4G LTE technology.[12] These spectral efficiency improvements translate directly into immediate capacity gains. **Lever 3** would promote a denser heterogeneous network

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[11] AT&T has periodically asserted in the Opposition, without citation from Sprint's Petition to Deny, that the Opponents of the transaction suggest AT&T deploy GSM or UMTS in its currently unused spectrum. Sprint has not made any such suggestion. As this section explains, AT&T already relies far too heavily on GSM and UMTS. This Reply Declaration recommends that AT&T migrate away from these technologies to LTE within an operationally reasonable timeframe.

[12] WCDMA technologies have been grouped together by their 3GPP origin, with UMTS, HSPA, and HSPA+ referenced specifically wherever necessary.

of macrocells and small cells in lieu of the homogeneous macrocell site densification that appears to be AT&T's preferred solution. While these levers are separately discussed to simplify the overall model, AT&T should be able to deploy them simultaneously and at a more accelerated rate than assumed in the case studies, thereby enabling AT&T to realize dramatic capacity gains much earlier than predicted by the model.

22. As a simplified analysis for current illustrative purposes, the model is based on certain assumptions and necessarily omits certain network design elements. It is not intended to provide a detailed network traffic model with cell-site level demand projections based on detailed engineering designs. Instead, the model incorporates sound design logic and the necessary elements – spectrum allocations, technology spectral efficiencies, and average downlink throughput – to forecast market capacity gains when each lever is exercised.[13] Notwithstanding the simplifications, the case studies dispel much of AT&T's claims that it cannot overcome its alleged capacity constraints without acquiring T-Mobile. Moreover, because I have consistently employed conservative assumptions for the relevant variable inputs in assessing the likely capacity gains, the case studies likely *understate* AT&T's ability to overcome its purported capacity constraints. Thus, the real-world results that AT&T could achieve by employing these three levers could outpace predicted results in terms of the amount of capacity gains and the time in which they could be achieved.

23. To keep matters simple, the case studies for New York and Los Angeles present

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[13] This case study assumes, in the absence of detailed market-by-market demand projections from AT&T, that the same growth rate of data usage is experienced in AT&T's Los Angeles and New York City markets as in the national market overall. While this assumption does not change overall capacity gains projected, it does provide a reference point of comparison that these gains are indeed sufficient to meet the projected demand growth.

results as gains in a percentage of capacity, measured as network throughput in megabits per second (Mbps). The model measures capacity through the average downlink (DL) capacity in Mbps for one sector of a typical cell site. It is important to note that *only* the DL throughput is measured and reflected here, as it typically represents 80% of network traffic,[14] whereas AT&T's forecasted demand through 2015 includes both uplink and downlink requirements. Each of these three levers can be initiated today with measurable gains available in short order.

24. **Lever 1** would simply have AT&T undertake the most obvious step to alleviate its spectrum crunch: aggressively deploy network services on the unused spectrum it has today. The amount of unused spectrum held by AT&T nationwide and in individual markets remains well-documented in Sprint's Petition to Deny.[15] At present, AT&T does not offer commercial LTE anywhere in the United States. The Reed/Tripathi Declaration attached to the Opposition attempts to minimize AT&T's propensity to sit on unused spectrum.[16] Compared to its competitors, however, AT&T demonstrates less agility and willingness to employ its assets. *AT&T's reserved LTE spectrum has remained unused for almost five years.*

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[14] *Data Usage Forecast*, CISCO ARTICLES (Feb. 12, 2011), *available at*: <http://www.ciscoarticles.com/3G-Wireless-Networks/Data-Usage-Forecast.html>.

[15] Sprint Petition at 90-93.

[16] Reed – Tripathi White Paper. at 33.

25. The FCC's AWS Auction 66 concluded in September 2006 with AT&T purchasing licenses worth $1.3 billion.[17] While AT&T has done nothing with its AWS spectrum, T-Mobile has already deployed its HSPA+ network and MetroPCS has deployed its LTE network on the AWS spectrum it purchased from the same auction.[18] AT&T acquired $2.5 billion worth of lower 700 MHz spectrum from Aloha Partners, L.P. in October 2007[19] and another $6.6 billion of spectrum from Auction 73 in March 2008.[20] While AT&T plans on using this spectrum for its initial LTE deployment later this summer in five cities, Verizon launched LTE in 2010 in 39 major metropolitan cities covering 110 million pops with plans to reach over

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[17] *See* Top Bidders, FCC Advanced Wireless Services Auction No. 66, *available at*: <http://wireless.fcc.gov/auctions/66/charts/66press_3.pdf>. The AWS licenses were purchased by Cingular AWS, LLC, which is now part of AT&T.

[18] Figure 5 provides a list of recent market launches and lists the total months to build each market.

Operator	Market	Technology	Launch Date	Months To Build
MetroPCS	Las Vegas	EVDO	Mar-08	18
Leap Wireless	Oklahoma	CDMA	Mar-08	18
Leap Wireless	Las Vegas	CDMA	May-08	20
Leap Wireless	South Texas	CDMA	May-08	20
MetroPCS	Philadelphia	EVDO	Jul-08	22
T-Mobile	Baltimore	UMTS	Aug-08	23
T-Mobile	Houston	UMTS	Aug-08	23
T-Mobile	Minneapolis	UMTS	Aug-08	23
T-Mobile	San Diego	UMTS	Sep-08	24
T-Mobile	Los Angeles	UMTS	Sep-08	24
T-Mobile	Phoenix	UMTS	Sep-08	24
T-Mobile	Sacramento	UMTS	Sep-08	24
T-Mobile	Portland	UMTS	Sep-08	24
T-Mobile	Seattle	UMTS	Sep-08	24
T-Mobile	San Francisco	UMTS	Sep-08	24

Figure 5: Recent market launches and total months to build each market. The months to build derived from the time interval from the completion of AWS Auction 66 and the stated commercial launch

[19] Peter Kaplan, *FCC weighs approving AT&T buy of Aloha spectrum*, REUTERS (Jan. 25, 2008) *available at*: <http://www.reuters.com/article/2008/01/25/us-att-aloha-idUSN2534452720080125>.

[20] Brian Gardiner, *In Spectrum Auction, Winners Are AT&T, Verizon, & Openness* <http://www.wired.com/epicenter/2008/03/fcc-releases-70/> (Mar. 20, 2008).

175 markets by the end of the year.[21]

26. **Lever 2** achieves capacity gains by reallocating spectrum from GSM and WCDMA to the more spectrally efficient LTE network. The execution of Lever 2 is based upon migrating AT&T subscribers from its GSM and WCDMA networks so that spectrum re-farming can ensue. Lever 2's total capacity gains incorporate the gains resulting from Lever 1. Notably, the model does *not* envision anything approaching the type of "flash cut" from GSM to UMTS technology that AT&T conjures up. Instead, the case studies SMC has conducted include a conservative estimate on AT&T's subscriber *migration* path, with the vast majority of movement occurring *after* 2015. The case studies provide a generous allocation of spectrum for AT&T to maintain its WCDMA subscriber base while migrating subscribers to the more spectrally efficient LTE network. It is not until 2015 that the model calls for any repurposing of spectrum from an existing technology. In particular, in Los Angeles, it is not until 2015 that the model calls for AT&T to reallocate a mere 10 MHz of its 65 MHz of spectrum that is dedicated to its GSM and WCDMA use to LTE. In addition, the majority of subscriber migration would not occur until 2017. In New York City, the migration path would be faster with 30 MHz of its original 50 MHz reallocated to satisfy this market's need to obtain additional capacity at a faster rate. Both of these cities have a high concentration of smartphone users, which is the subscriber base that AT&T will focus on first to relieve its current capacity constraints.

27. Based on drive tests SMC conducted as discussed below, AT&T currently allocates to its GSM network 3 times the 5 MHz of spectrum recommended by the capacity

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[21] *LTE Information Center*, Verizon Wireless, *available at:* <http://news.vzw.com/LTE/Overview.html> (last visited June 18, 2011).

model.[22] If AT&T in fact deploys more than 5 MHz for its GSM network, then the capacity gains modeled herein would actually increase to reflect the even greater efficiencies that could be realized by transitioning AT&T's GSM network to more efficient technology.

28. This model does not advocate that AT&T use 700 MHz and AWS spectrum for WCDMA technologies as AT&T has claimed in its Opposition;[23] rather, the model suggests that AT&T deploy LTE on these two spectrum bands as soon as possible to obtain maximum spectrum efficiency and subscriber capacity.

29. As noted above, the capacity gains measured here are captured as a percentage increase in network capacity over the 2011 average DL Mbps and are calculated by multiplying each technology's spectral efficiency with the amount of spectrum allocated to it. The spectrum efficiencies used to calculate capacity gains are more conservative than either AT&T's estimated capacity gains or standard models for capacity gain.[24] In each subsequent bi-annual measurement, the model recalculates the average DL Mbps based on spectrum holdings and evolving network spectral efficiencies.

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[22] For example, based on measurements and analysis performed by SMC, AT&T allocates 15 MHz for GSM and 40 MHz for UMTS in its network in New York City.

[23] *See, e.g.*, Opposition at 6.

[24] Kris Rinne, Senior Vice President, Architecture and Planning, AT&T, Inc., *Wireless Spectrum: The Path Ahead*, (Oct. 25, 2010), *available at*: <http://fjallfoss.fcc.gov/ecfs/document/view.action?id=7020918717> ("Rinne Spectrum Presentation").

Band	Technology	2011	2013	2015
GSM/EDGE				
Cellular	850MHz	0.25	0.25	0.25
PCS	1900 MHz	0.25	0.25	0.25
WCDMA				
Cellular	850MHz	0.625	0.7	0.75
PCS	1900 MHz	0.625	0.7	0.75
LTE				
700	700MHz	1.2	1.2	1.8
AWS	1700MHz	1.2	1.2	1.8
Cellular	850MHz	1.2	1.2	1.8
PCS	1900 MHz	1.2	1.2	1.8
WCS	2300MHz	1.2	1.2	1.8

Figure 5: Technology Spectral Efficiencies (bits per second (bps)/Hz) used with Lever 2 and Lever 3 case study analysis

30. The table above captures the spectral efficiencies used in the model for each technology and shows capacity increases based on evolving technology standards. The spectral efficiencies of WCDMA and LTE listed here reflect blended rates capturing the multiple technologies that can be found on AT&T's network. For example, WCDMA's 2011 spectral efficiency of 0.625 bps/Hz represents a blend of HSPA 3.6 (0.6 bps/Hz) and HSPA 7.2 (0.65 bps/Hz) as the two dominant HPSA releases in use today. By 2013, the model adopts HSPA 14.4's spectral efficiency of 0.7 bps/Hz, and it then transitions to 0.75 bps/Hz based on HSPA+ 21.6 in 2015. Similarly, LTE's spectral efficiency increases are based on advances from LTE Release 8 to Release 10 with a blended rate also based on different antenna configurations. The DL spectral efficiency of LTE-A, Release 10 is targeted to reach 2.4, 2.6 and 3.7 with antenna configurations of 2x2, 4x2, and 4x4, respectively.[25]

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[25] 3rd Generation Partnership Project ("3GPP"), *3GPP TR 36.913 v8.0.1 (2009-03) Technical Report*, at 10 (2009), *available at*: <http://www.quintillion.co.jp/3GPP/Specs/36913-801.pdf >.

31. In plain terms, LTE will provide a spectral efficiency improvement over GSM of 6.2 times by 2015 based on the model's spectral efficiencies; LTE will provide efficiency improvements over WCDMA of 1.4 times by 2015. As a reminder, these improvements exclude the benefits of putting AT&T's idle spectrum to work under Lever 1 (above) and the benefits associated with investing more earnestly in heterogeneous networks under Lever 3 (below). The magnitude of these Lever 2 efficiencies demonstrate the significant capacity gains that can be achieved. The combined deployment of unused spectrum characterized in Lever 1, coupled with Lever 2's reallocation of spectrum from AT&T's inefficient GSM and WCDMA networks to more efficient LTE technology, drive dramatic capacity increases.

32. **Lever 3** demonstrates the benefit of including small cells in AT&T's network topology. While gains could be realized in 2011 within AT&T's WCDMA network via heterogeneous topology, the model instead focuses on capacity gains starting in 2015. It is assumed in the model that the benefits of small cells are best realized with the advanced Heterogeneous Network management standards incorporated in LTE-A, Release 10. Furthermore, the gains attributed to small cells have been adjusted to account for the reality that these solutions will be used to solve localized traffic congestion problems – e.g., urban centers, commercial districts, event venues, etc. – where there is a high concentration of subscribers or where the challenges of deploying new macro sites are greater due to site acquisition or zoning challenges.

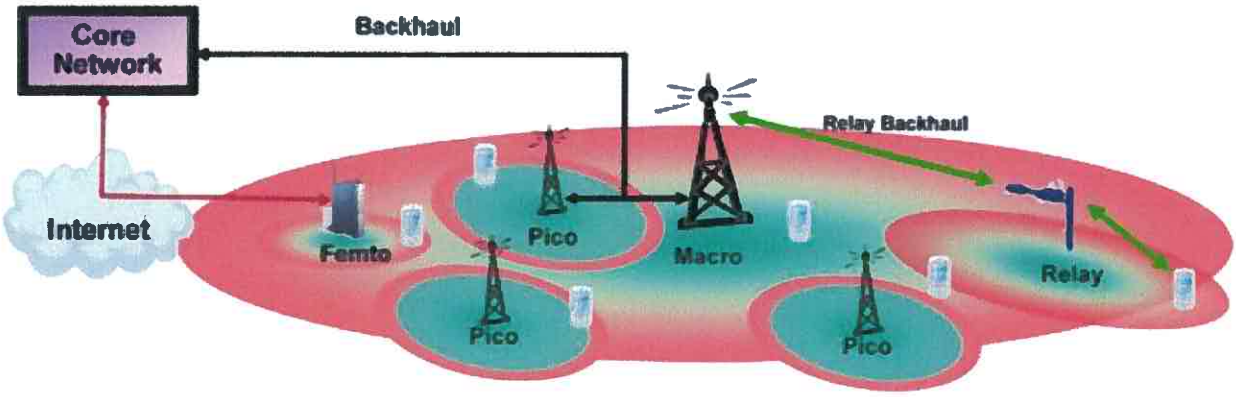

Figure 6: Heterogeneous network depicting mix of pico, femto, and macrocell sites . Qualcomm, *LTE Advanced: Heterogeneous Networks* (Feb 2010).

33. I submitted information on the benefits of heterogeneous networks in my previous Declaration and supplement the information here.[26] Heterogeneous networks are a blending of macro-, micro-, and pico- base stations and relays that address key performance issues of wireless networks, principally cell throughput, to users at the edge of cell coverage as well as in-building performance. A key feature of heterogeneous networks is the use of inter-cell interference control coordination technology (ICIC) and optimum routing technology that provide gains beyond the frequency reuse improvements resulting from cell densification.[27]

34. The wireless industry is turning to heterogeneous networks to enhance network performance beyond the levels that could otherwise be achieved through standard macrocell technology. Specific benefits include:

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[26] Stravitz Decl. ¶¶ 47-50; *See* Sprint Petition at 90-93.

[27] While heterogeneous networks can be deployed today with LTE Release 8 using separate frequency channels for the macrocell network and for the small cells to prevent interference. With Release 10, enhanced interference coordination (eICIC) and traffic scheduling will enable macrocells and small cells to operate on the same frequency in a cooperative manner. This will provide a multiplicative gain over the stand alone capacity of the macro and small cell networks.

- ***Increased spectral efficiency:*** LTE, WCDMA, and EDGE rely on link adaptation to ensure reliable data transmission while maximizing the data throughput to users.[28] Small cells enhance link adaptation functionality, optimizing the cell throughput and spectral efficiency by decreasing the distance between the site and subscribers, lowering interference, reducing overall power requirements, and increasing spectrum reuse. For example, Qualcomm's simulation results indicate a 2.1 to 2.5 times capacity gain based on the addition of four pico cell sites per macrocell site with an average inter-site distance (ISD) of 500 meters.[29]

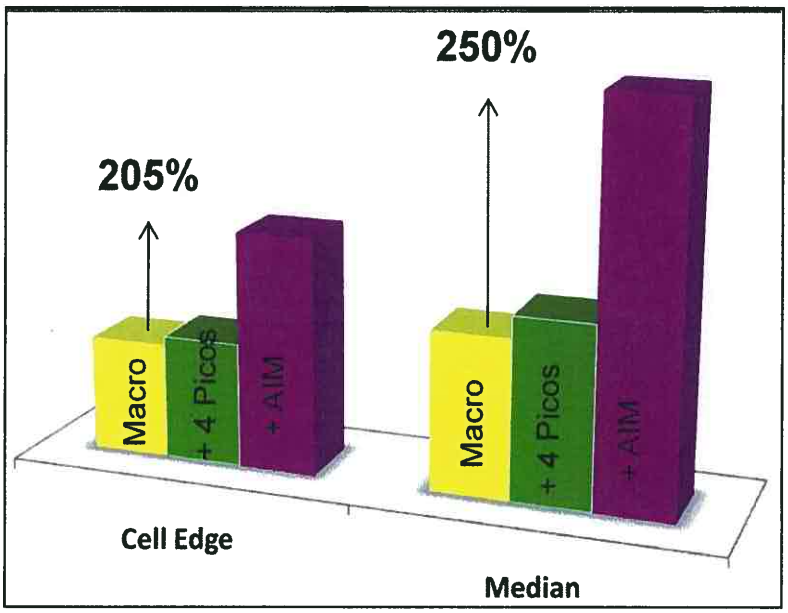

Figure 7: Throughput improvement in heterogeneous networks using advanced interference management [30]

[28] Link adaptation is a process where the modulation and coding scheme (MCS) and other signal and protocol parameters are adapted to the conditions on the radio link (e.g. the path loss, receiver sensitivity, transmit power available, etc.). LTE, WCDMA, and EDGE all use a rate adaptation algorithm that modifies these parameters according to the quality of the radio channel and in turn adjusts the effective bit rate and robustness of data transmission. The highest MCS schemes are supported where the radio link is best, e.g., near the base station location, and the lowest MCS is used where the radio link is the worst, such as at the edge of cell coverage.

[29] Qualcomm, LTE Advanced: Heterogeneous Networks (Feb. 2010), *available at:* <http://www.qualcomm.com/documents/files/lte-advanced-heterogeneous-networks.pdf>..

[30] *Id.* at 5.

- ***Lower cost per bit delivered:*** Small cell infrastructure is smaller, lighter, and consumes less power than macrocell technology without sacrificing traffic handling capacity. Given these factors, small cells can be deployed far more *opportunistically* than their macrocell counterparts. They do not require tower infrastructure, space for equipment cabinets, etc., reducing the time and cost of deployment and enabling the operator to locate small cells where capacity relief is needed most. In all, small cells can substantially reduce the capital expense and operational expense of the network, which translates to a lower cost per delivered bit.[31]

- ***Better Consumer Experience:*** Because of their deployment flexibility, small cells can be placed closer to areas where subscribers are located. Small cells improve the signal quality and data rate delivered to individual subscribers and reduce the power required from the subscriber handset to communicate with the network. Subscribers experience fewer network disconnects, faster network downloads and uploads, and enhanced battery life that together translate to a better overall consumer experience.

35. A key advantage of Heterogeneous Networks is that they provide for an evolution of readily available technologies, including microcells, picocells, and distributed antenna systems (DAS). By substantially accelerating the deployment of these technologies, AT&T can meet its capacity needs today and be better positioned to handle future demand. Professor Reed and Dr. Tripathi suggest that the technologies underlying heterogeneous networks "are simply not a feasible solution for the large-scale congestion that AT&T faces at the macro cell level."[32]

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[31] As one example, equipment and device manufacture ZTE Corporation has found that as small cells require no tower infrastructure and have low site lease costs, "drastically cutting the operational and capital expenditures" of the network operator. The cost analysis indicates that the CapEx and OpEx of a microcell is 35% that of a macrocell and for picocells the combined CapEx and OpEx is 20% of a macrocell. ZTE Corp., *Pivotal Role of Heterogeneous Networks in 4G Development*, (Jan. 12, 2010) *available at*: <*http://wwwen.zte.com.cn/endata/magazine/ztetechnologies/2010/no1/articles/201001/t20100112_179547.html*>. In addition, Alcatel-Lucent estimates that its lightRadio product, combined with LTE and small cells, will reduce an operator's total cost of ownership by 50%. *See lightRadio*,Alcatel-Lucent, *available at*: <http://www.alcatel-lucent.com/features/light_radio/index.html> (last visted June 19, 2011).

[32] Reed – Tripathi White Paper at 34.

On the contrary, these technologies will provide just the sort of capacity relief needed on the macrocell network. Much like the load balancing examples that Professor Reed and Dr. Tripathi provided in Section 6 of their White Paper, small cell technologies allow the total traffic load on the network to be balanced between the small cell and macrocell network. By "freeing up" resources on the macrocell network, the resulting traffic load will be redistributed and will thereby increase overall network capacity.[33] Contrary to Professor Reed's and Dr. Tripathi's claims, microcells, picocells, remote RF heads, and DAS can be operated in conjunction with macrocells with no adverse impact to subscriber mobility. Similarly, while Professor Reid and Dr. Tripathi focus on one specific small cell technology, femtocells, in generalizing that small cells will result in less reliable network connections,[34] they miss the fact that microcells, picocells, Remote RRUs, and DAS are all integrated into the control functions of the network and support full handover functionality (such as UMTS soft handoff) and therefore enhance rather than undermine network performance.

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[33] For example, WDCMA relies on "cell breathing". When the traffic load on a cell or sector is reduced, its coverage area increases, thereby allowing it to capture traffic from adjacent cells and sectors in the network to balance the traffic load.

[34] *See* Reed – Tripathi White Paper at 35. Femtocells are not managed by the network operator in the same manner as the other small cell types, and so have more limited functionality with regard to user mobility. Further in their attack on small cells topology, Professor Reed and Dr. Tripathi suggest that femtocells are primarily a coverage solution. While AT&T may choose to market the product as a means for extending coverage indoors, the fact that a femtocell can carry traffic that would other be carried on the macrocell network refutes the claim that femtocells do not also relieve congestion on a network. Femtocells are effective to both extend coverage *and* improve network capacity.

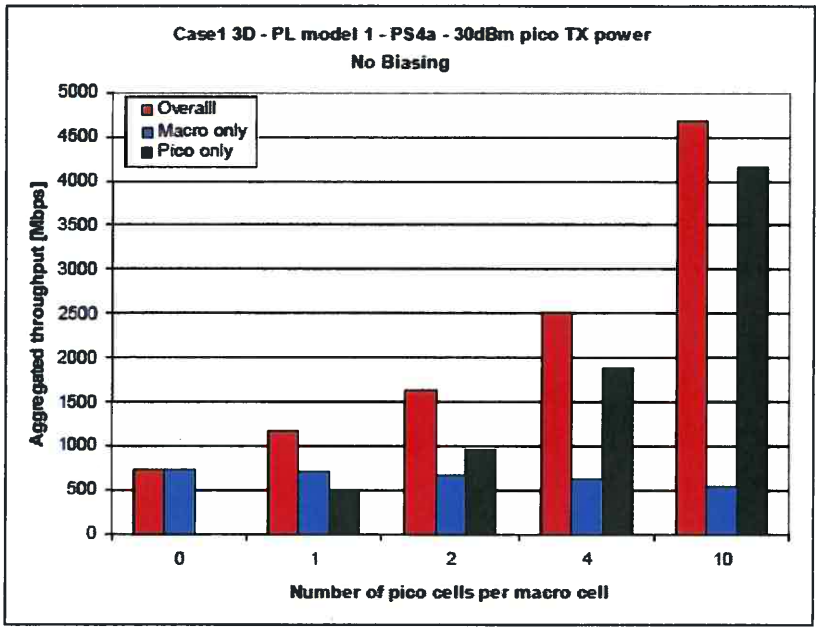

Figure 8: Bell Labs analysis extends gains to 9 times with 10 picocells[35]

36. In those dense urban areas where small cells are present, the gains can be impressive. Ericsson states that small cells placed at the edge of macrocells increase the probability of coverage and can result in "3 times more data per subscriber, no loss of data speed," and "up to 12 times better data speeds on cell edge."[36] Combining Levers 1 and 2 with the addition of small cells in both the Los Angeles and New York City markets will produce gains greater than 600% in the areas where capacity is needed most.

37. As demonstrated in both the Los Angeles and New York City case studies, AT&T can provide more than 600% of today's capacity in those areas with the greatest population

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35 James Seymour, Senior Director, Alcatel-Lucent, *The Path to 4G: LTE and LTE Advanced* at 12 (Oct. 21, 2010), *available at*: <http://www.4gamericas.org/UserFiles/file/4G%20Americas%20at%204G%20World/Jim%20Seymour,%20Alcatel-Lucent%20LTE%20and%20LTE-Advanced.pdf> (citing Bell Labs research).

36 Ericsson HetNet Briefing, at 8 (Mar. 18,2011), *available at*: <http://www.ericsson.com/res/investors/docs/2011/110318_hetnet_telebriefing.pdf>.

density and highest traffic needs by 2015. Beyond 2015, future increases in capacity could be achieved as AT&T employs the three levers and reallocates its significant spectrum holdings to its LTE network. Faced with AT&T's projected increase in data usage, there is no reason AT&T cannot migrate the majority of its customer base to more efficient LTE service and deploy its entire spectrum holdings over the course of six years.

VII. LOS ANGELES CASE STUDY

A. Lever 1: Utilize all AT&T spectrum that is currently unused

		License Blocks						
Band	Spectrum	A	B	C	D	E	F	Total
700	700MHz			10	5	5		20
Cellular	850MHz	25						25
AWS	1700MHz	20				10		30
PCS	1900MHz		30		10			40
WCS	2300MHz		10					10
	Total	45	40	10	15	15	0	125

Figure 9: AT&T spectrum holdings in Los Angeles that can be deployed on common carrier channel size[37]

38. Using Lever 1, AT&T could deploy LTE services on its existing, unused spectrum in the Los Angeles market. In Los Angeles, AT&T holds 129 MHz of total spectrum across five bands,[38] of which 125 MHz can be deployed with existing carrier channel sizes (See Figure 9).[39] AT&T holds 10 MHz of spectrum in the WCS band, but this spectrum is not included in calculating the 2015 capacity model gains described below. While AT&T disputes the current utility of the WCS band, future releases of LTE will enable TDD and FDD to operate

[37] WCDMA and LTE technologies have channel sizes defined by the governing 3GPP standards body. WCDMA uses a 5 MHz channel, or carrier size, whereas LTE can be deployed on 1.4, 3, 5, 10, and 20 MHz channel. The capacity model uses carrier sizes in multiples of 5 MHz channels to optimize spectral efficiency.

[38] SMC analysis based on FCC Licensing Data.

[39] *Id.* Spectrum total recalculated to accommodate carrier channel sizes.

on the same network simultaneously and to leverage carrier aggregation, which may prove useful for the WCS band. Of its available 125 MHz, AT&T currently utilizes a maximum of only 65 MHz across the Cellular and PCS bands.[40]

Band	Technology	2011	2013	2015
GSM				
Cellular	850MHz	5	5	5
PCS	1900 MHz			
GSM Total		5	5	5
WCDMA				
Cellular	850MHz	20	20	20
PCS	1900 MHz	40	40	30
WCDMA Total		60	60	50
LTE				
700	700MHz		10	20
AWS	1700MHz			30
Cellular	850MHz			
PCS	1900 MHz			10
WCS	2300MHz			
LTE Total		0	10	60
Unused				
WCS	2300MHz	10	10	10
700	700MHz	20	10	
AWS	1700MHz	30	30	
Unused Total		60	50	10
Used Total		65	75	115
Used % Improvement		100%	115%	177%
Total		**125**	**125**	**125**

Figure 10: Spectrum deployment for AT&T's Los Angeles market as modeled by SMC to support the case study

39. As illustrated in Figure 10 above, the case study is based on a reasonable expectation that the LTE network will be deployed in Los Angeles by 2013 with a 5 MHz by 5 MHz carrier in the 700 MHz C-Block. While not assumed in this model, the total LTE carrier

[40] *Id.*

size could also be augmented with an additional 10 MHz by 10 MHz carrier and/or a 5 MHz by 5 MHz carrier from its AWS band. These augmentations would provide much more capacity than what has been conservatively modeled in this analysis. For example, if AT&T deployed LTE in all 20 MHz of the 700 MHz band and just 10 MHz of AWS by 2013, it would strengthen its spectrum use to 146% of today's use and nearly double its capacity in 2013. In 2015, the model increases AT&T's spectrum use by deploying LTE service on 50 MHz of AT&T's currently unused 60 MHz of spectrum. It is reasonable to assume that AT&T can deploy these additional LTE carriers over the next four years because this timetable closely aligns with AT&T's asserted spectrum consumption rate of 10 MHz a year with its UMTS network.[41] In the end, the more spectrum AT&T deploys, the greater capacity it will have in its network.

40. Under this model, by 2015, all of AT&T's current 700 MHz spectrum and AWS spectrum would be deployed across the Los Angeles market with two 5 MHz by 5MHz channels in the 700 MHz band, one 10 MHz by 10 MHz channel in AWS, and another 10 MHz by 10 MHz channel enabled by LTE-A's carrier aggregation specifications with 10 MHz from AWS and 10 MHz from PCS. The benefit of carrier aggregation is that mobile network operators can take fragmented spectrum and aggregate these component carriers into effectively larger channels that can support higher data rates. Carrier aggregation will also enable AT&T to more fully use all of its spectrum assets. If AT&T is allowed to acquire the Qualcomm 700 MHz spectrum, that spectrum will also be available for use by combining two carriers' downlink with one uplink to allow for an approximate doubling of the throughput on the downlink as compared

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[41] Declaration of William Hogg, attached to Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations, WT Docket No. 11-65, ¶ 6 (Apr. 21, 2011) ("Hogg Decl.").

to the nominal one to one ratio seen today.

41. In the more immediate future, the deployment of unused spectrum and the repurposing of 10 MHz of PCS spectrum for LTE could increase AT&T's spectrum utilization to 177% of today's use by 2015. The average DL capacity will exceed 250% of the 2011 capacity based solely on LTE Release 8's spectral efficiency of 1.2 bits/Hz. Again, these gains do not assume any massive new infrastructure deployment or technological advances, nor do they require any sudden shift in the embedded base of users. These gains would be the result of prudent spectrum management of currently unused spectrum.

B. Lever 2: Upgrade networks to LTE to gain greater spectral efficiencies

42. AT&T could gain additional capacity by migrating users to LTE and re-farming spectrum currently supporting GSM and WCDMA networks to LTE. As discussed previously, the model repurposes *only* 10 MHz of PCS spectrum for LTE by 2013, thus retaining 60 MHz of spectrum for AT&T's legacy networks and providing enough time for orderly subscriber migration. By 2015, the model characterizes AT&T's network with the following spectrum allocations: GSM: 5 MHz, WCDMA: 50 MHz, and LTE: 60 MHz. This allocation will result in the average DL capacity increasing to over 350% by 2015 or over 40% of AT&T's forecasted data for that timeframe. Additional re-farming of spectrum beyond 2015 will further strengthen the capacity gains resulting from Lever 1 and Lever 2.

C. Lever 3: Deploy a heterogeneous network of macro and small cells

43. As explained in the description of heterogeneous networks, further capacity gains are expected by deploying smaller cells in the network, particularly when macrocell densification can no longer be effective due to decreasing inter-site distances and increasing interference. A

heterogeneous network composed of macrocells and small cells is particularly effective for dense urban areas like Los Angeles where AT&T's network would benefit from the deployment of small cells in dense urban areas, achieving capacity levels nearly seven times current capacity in 2015.

Band	Technology	2011	2013	2015
GSM				
Cellular	850MHz	0.5	0.5	0.5
PCS	1900 MHz	0	0	0
GSM Total		0.5	0.5	0.5
WCDMA				
Cellular	850MHz	5	5.6	6
PCS	1900 MHz	10	11.2	9
WCDMA Total		15	16.8	15
LTE				
700	700MHz	0	4.8	30.24
AWS	1700MHz	0	0	45.36
Cellular	850MHz	0	0	0
PCS	1900 MHz	0	0	15.12
WCS	2300MHz	0	0	0
LTE Total		0	4.8	90.72
Used Total		15.5	22.1	106.22
Used % Improvement		100%	143%	685%

Figure 11: Average Downlink Mbps for AT&T's Los Angeles market as modeled by SMC showing project improvement through the use of all three levers.

VIII. NEW YORK CITY CASE STUDY

A. Lever 1: Utilize all AT&T spectrum that is currently unused

		License Blocks						
Band	Spectrum	A	B	C	D	E	F	Total
700	700MHz		10	10	5	5		30
Cellular	850MHz	25						25
AWS	1700MHz							0
PCS	1900MHz	20				10		30
WCS	2300MHz							0
	Total	45	10	10	5	15	0	85

Figure 12: AT&T spectrum holdings in New York that can be deployed on common carrier sizes

44. Under Lever 1, AT&T would simply carry out its intent to deploy LTE services on its existing, unused spectrum in the New York City market. In general, New York City portrays a significantly different picture than Los Angeles with much less spectrum. However, the three levers can be equally applied to demonstrate very favorable gains. In New York City, AT&T holds 91 MHz[42] of total spectrum across three bands, of which 85 MHz[43] can be deployed with existing carrier channel sizes (See Figure above). Of this 85 MHz, AT&T currently utilizes a maximum of only 65 MHz[44] across the Cellular and PCS bands,[45] reserving 30 MHz of unused spectrum in the 700 MHz band.

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42 SMC analysis based on FCC Licensing Data.

43 *Id.* Spectrum total recalculated to accommodate carrier channel sizes.

44 *Id.*

45 *Id.*

Band	Technology	2011	2013	2015
GSM				
Cellular	850MHz	5	5	5
PCS	1900 MHz			
GSM TL		5	5	5
WCDMA				
Cellular	850MHz	20	20	20
PCS	1900 MHz	30	20	
WCDMA TL		50	40	20
LTE				
700	700MHz		10	30
AWS	1700MHz			
Cellular	850MHz			
PCS	1900 MHz		10	30
WCS	2300MHz			
LTE TL		0	20	60
Unused				
WCS	2300MHz			
700	700MHz	30	20	
Unused TL		30	20	0
Used TL		55	65	85
Used % Improvement		100%	118%	155%
Total		85	85	85

Figure 13: Spectrum deployment for AT&T's New York market as modeled by SMC to support the case study

45. Spectrum utilization measurements, which are described in section XIV, demonstrate that AT&T has allocated 40 MHz out of its total 55 MHz of PCS and Cellular band spectrum to its UMTS network with the remaining 15 MHz on its GSM network. Although the SMC model for New York shows AT&T using 5 MHz for GSM and 50 MHz for WCDMA in 2011, the actual measurements SMC conducted indicate that the capacity improvements for 2013 and 2015 would be even greater because SMC's spectrum use measurements indicate that AT&T uses less efficient GSM technology for more of its spectrum than SMC had anticipated. Migrating subscribers to the more efficient LTE network and repurposing spectrum to the LTE

network will be most beneficial in this market and, for maximum benefit, should be conducted in a more expeditious and comprehensive fashion. Under the model, AT&T would deploy a 10 MHz by 10 MHz channel with the 700 MHz's B-Block and C-Block in 2013 to provide substantial relief. Through improved spectral efficiencies, this deployment would increase spectrum usage and capacity to 118% and 155% of 2011 levels, respectively. By 2015, AT&T would deploy its entire 700 MHz spectrum reserve to reach 155% of 2011 spectrum usage and more than 260% of 2011 capacity.

B. Lever 2: Upgrade networks to LTE to gain greater spectral efficiencies

46. By 2015, the LTE network would be supported by a total of 60 MHz spectrum. LTE-A Release 10's carrier aggregation standard permits AT&T's remaining 10 MHz in the 700 MHz in the D-Block and E-Block to be combined with 10 MHz from PCS to form a 10 MHz by 10 MHz carrier channel. Finally, the remaining PCS spectrum would be re-farmed as a 10 MHz by 10 MHz channel to provide LTE service. By 2015, the spectrum distribution would maintain 5 MHz for GSM, 20 MHz for WCDMA and 60 MHz for LTE, providing an improvement of over 350% of 2011 capacity.

C. Lever 3: Deploy a heterogeneous network of macro and small cells

47. AT&T would gain further capacity increases by deploying smaller cells in the network, particularly when macrocell densification can no longer be effective due to decreasing inter-site distances and increasing interference. A heterogeneous network is well-suited to New York City and its urban environment, which is characterized by a dense population base and towering physical structures. Network design analysis would undoubtedly support the potential to use small cells to offload capacity from the macro network. Capacity in those highly dense

New York City areas that benefit from a heterogeneous network would be over 700% of 2011 capacity levels.

Band	Technology	2011	2013	2015
GSM				
Cellular	850MHz	0.5	0.5	0.5
PCS	1900 MHz	0	0	0
GSM TL		0.5	0.5	0.5
WCDMA				
Cellular	850MHz	5	5.6	6
PCS	1900 MHz	7.5	5.6	0
WCDMA TL		12.5	11.2	6
LTE				
700	700MHz	0	4.8	45.36
AWS	1700MHz	0	0	0
Cellular	850MHz	0	0	0
PCS	1900 MHz	0	4.8	45.36
WCS	2300MHz	0	0	0
LTE TL		0	9.6	90.72
Used TL		13	21.3	97.22
Used % Improvement		100%	164%	748%

Figure 14: Average Downlink Mbps for AT&T's New York market as modeled by SMC showing project improvement through the use of all three levers

IX. CASE STUDY SUMMARIES

48. With capacity gains in excess of 500% by 2015, AT&T will be able to satisfy its forecasted data capacity demands by employing the three network and spectrum management levers described above. The model results are conservative and provide much opportunity for AT&T to accelerate the execution of any levers to gain additional capacity in an accelerated fashion. Beyond 2015, AT&T can expect additional capacity gains in both Los Angeles and New York City by continuing to exercise these capacity levers and deploying its LTE network on its remaining spectrum still used for GSM and WCDMA.

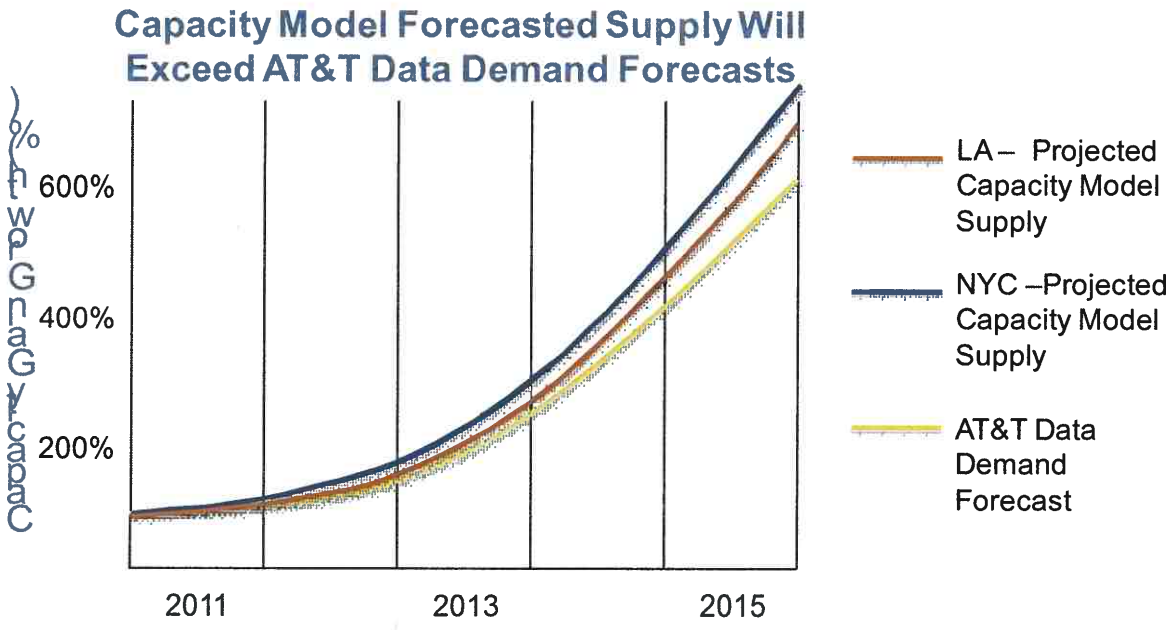

Figure 15 : Market case study analysis depicting the projected gains from proper execution of capacity model levers[46]

X. CONTRARY TO AT&T'S ASSERTIONS, HETEROGENOUS NETWORKS AND NETWORK SHARING ARE WELL-ACCEPTED SOLUTIONS FOR INCREASING NETWORK CAPACITY

49. AT&T seems to take a very simplified view of Heterogeneous Networks and their benefits for WCDMA and LTE networks. In its Opposition, AT&T describes its use of DAS and WiFi hotspots. While DAS and WiFi offload are viable elements of a comprehensive heterogeneous network strategy, they are but a few of the many options available to network planners. Heterogeneous Networks also include picocells, femtocells, and relays to increase overall spectrum reuse and thus increase the capacity of the macro network.

50. In curious ways, AT&T has claimed that Wi-Fi hotspots and femtocells are not

[46] Estimated based on AT&T's projected volume growth, available at AT&T's own website dedicated to supporting T-Mobile acquisition. *See* Know the Facts, AT&T, Inc., *Data Volumes*, *available at*: <http://www.mobilizeeverything.com/datavolumes.php> (last visted June 19, 2011).

designed for capacity offload, but rather for coverage enhancement.[47] While other operators deploy these very solutions to offload demand on their networks, AT&T has failed to maximize the use of these effective solutions in maximizing network capacity. For example, AT&T has deployed a total of 1,800 DAS systems.[48] This amounts to more than roughly 52,000 subscribers per DAS on AT&T's network. AT&T could be far more aggressive in deploying these solutions.

51. AT&T's dismissal of femtocells is equally puzzling, especially after rolling out its residential femtocells last summer and openly admitting an interest in enterprise femtocells. While femtocell deployments have not matched original forecasts, they remain a viable solution for data traffic offload. Even more so, enterprise and metro femtocell deployments serve to provide further relief with an anticipated $4.5 billion sales by 2014.[49] These business femtocells increase capacity and coverage, and support SONs, integrated Power over Ethernet (PoE), and Wi-Fi access points.[50] The Femto Forum concluded, "If a consumer has a femtocell at his home and office then a large portion (81%) of his total usage will disappear from the macro-cellular network."[51]

52. AT&T has also dismissed the idea of network sharing that was proposed in my initial Declaration as impractical, citing governance issues in making the arrangement work

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47 *See* Reed – Tripathi White Paper at 54.

48 Opposition at 70.

49 Yankee Group, *Yankee Group's 2010 Femtocell Forecast: Look for a Growth Spurt in 2012* (Sept. 1, 2010).

50 Lyndon Campbell-Black, *What is a Femtocell*, UBIQUISYS (Dec. 3, 2010), *available at:* <http://ubiquisys.com/femtocell-blog/what-is-an-enterprise-femtocell-2/>.

51 Femto Forum, *Femtocells – Natural Solution for Offload* at 12 (June 2010), *available at:* <http://www.4gamericas.org/documents/016+Femtocells+Natural+Solution+for+Offload%5B1%5D.pdf>.

between two or more mobile network operators.[52] AT&T discusses network sharing that stops short of the active Radio Access Network ("RAN") sharing, limiting itself to analyzing mostly passive (cell tower and space only) sharing. In tune with a number of other statements in the Hogg Declaration, AT&T's network engineering, optimization, spectrum usage and cost containment mindset is locked in the early 2000s. Today, operators have a wide range of network sharing options at their disposal, ranging from cell site (passive sharing), to backhaul link sharing, to more extensive RAN equipment and frequency sharing (active sharing). Operators may:

- Share towers only;
- Share other passive network elements such as site cabinets and space;
- Share sites, both passive and active network equipment;
- Share the entire RAN networks of two companies, but not their core networks;
- Share core network elements, regardless of whether and to what extent they share the RAN networks;
- Share RAN only on certain frequency bands; and
- Share anything or all of the above only in certain markets.

53. While active sharing provides the biggest benefits in terms of cost reduction, improved coverage, and spectrum efficiency, it also requires a deeper integration between operators. Nevertheless, sharing is a successful business model for operators around the world. Within the past four years, successful wireless infrastructure sharing agreements have been reached in key European and North American markets: Bell Mobility and TELUS in Canada; Telefónica O2 and Vodafone in Germany, Ireland, Spain and the UK; and France Telecom and

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[52] *See* Hogg Opp. Decl. ¶ 66.

Vodafone in Spain. Such agreements have already solved various governance related and other obstacles cited by AT&T. All the benefits AT&T claims it will gain through acquiring T-Mobile can also be achieved by RAN sharing.

54. SMC has reviewed the list of CMAs where AT&T claims to lack cellular and PCS spectrum to deploy additional UMTS carriers. However, given the dearth of necessary information – such as site density, network parameter settings, traffic data, subscriber penetration, etc. – SMC cannot validate AT&T's conclusion that these markets face spectrum exhaust. The list prepared by AT&T along with additional analysis performed by SMC is provided in Exhibit A.

55. Market population, population density, and spectrum position are indicators of the potential for a market to reach spectrum exhaust (i.e., dense markets with limited spectrum are the most challenging). Instead the CMA markets identified by AT&T do not exhibit commonality; they are both large and small, have relatively high or low population density, and have spectrum ownership of varying depth. In the absence of data that could indicate otherwise, SMC cannot attribute spectrum exhaust to subscriber density or spectrum depth in the market.

XI. WHILE OTHER MOBILE NETWORK OPERATORS CONTINUE TO EMBRACE CAPACITY ENHANCEMENT OPTIONS, AT&T CONTINUES TO IGNORE THEIR FULL POTENTIAL

56. AT&T has claimed that its engineers understand recent advances in mobile network technology, yet it continues to lag in adopting these very advances. Reed and Tripathi dismiss every available network improvement as too little, too complex, or too costly. Yet, as SMC's analysis has shown above, these solutions would deliver more than enough capacity to meet the projected data demand on AT&T's network well into the future. It is difficult to

understand how these solutions could be too complex for AT&T as other providers in the U.S. and worldwide are embracing them. Similarly, Professor Reed and Dr. Tripathi claim that advanced antenna techniques such as MIMO and six-sector configurations are not solutions for AT&T's capacity issues.[53] By their own admission, "finer sectorization [including six-sector sites] can increase capacity."[54] This technique has also been used extensively by mobile network operators worldwide over the last 15 years and is immediately applicable to GSM and WCDMA networks. Contrary to claims made by Professor Reed and Dr. Tripathi, six-sector sites do *not* increase the complexity of the mobile network. Professor Reed and Dr. Tripathi recognize that MIMO gains are achievable on HSPA+ networks, but curiously, they discount the benefits of MIMO by saying that they are only applicable to dense areas while capacity gains are needed everywhere.

57. Meanwhile, AT&T continues to contradict itself. For example, Professor Reed and Dr. Tripathi claim that finding new space for additional cell sites or entering into a tower sharing and RAN sharing agreement with T-Mobile will be costly, complex and time consuming; however, Professor Reed and Dr. Tripathi seem to regard integrating a large network of approximately 50,000 cell sites with more than 30,000,000 active units into its own network of roughly 70,000 cell sites with more than 90,000,000 active units as less of a challenge. The claim that tower or RAN sharing that is implemented successfully throughout the world would require more expense, complexity, or time than a large scale network integration strains credulity.

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[53] *See* Reed – Tripathi White Paper at 35.

[54] *Id.* at 36.

PART C

AT&T claims that acquiring T-Mobile will allow it to gain additional spectrum to meet the projected demand for data communications on its network. SMC's analysis demonstrates that while spectrum availability is a strong driver of capacity availability, it is but one of many drivers, and in AT&T's case, not a significant one.

XII. ANALYSIS OF AT&T'S NETWORK PERFORMANCE ACROSS MARKETS DEMONSTRATES THAT AT&T'S SPECTRUM AVAILABILITY IS NOT CORRELATED TO AT&T'S NETWORK PERFORMANCE

58. AT&T offers no empirical evidence to support or quantify the ostensible spectrum and capacity constraints that AT&T claims it faces in response to growing subscriber demand for mobile voice and data services.[55] Instead, AT&T cites internally developed, nationwide projections of data growth from 2011 until 2015 and then extends these generic demand increases across every market segment and geographic area regardless of size, density, technology, topography, subscriber makeup, and consumer usage patterns.

59. AT&T's top-down approach to establishing its purported spectrum crunch not only ignores real-world conditions, but fails to establish any relationship between spectrum-constrained markets and actual capacity limitations. Rather than project estimated demands onto individual markets, it seems far more empirically valid and verifiable to compare *actual* performance among similarly sized markets in which different carriers hold different amounts of spectrum. Comparing AT&T's network performance with that of other carriers offers meaningful insight into the role, if any, that spectrum plays in AT&T's purported capacity

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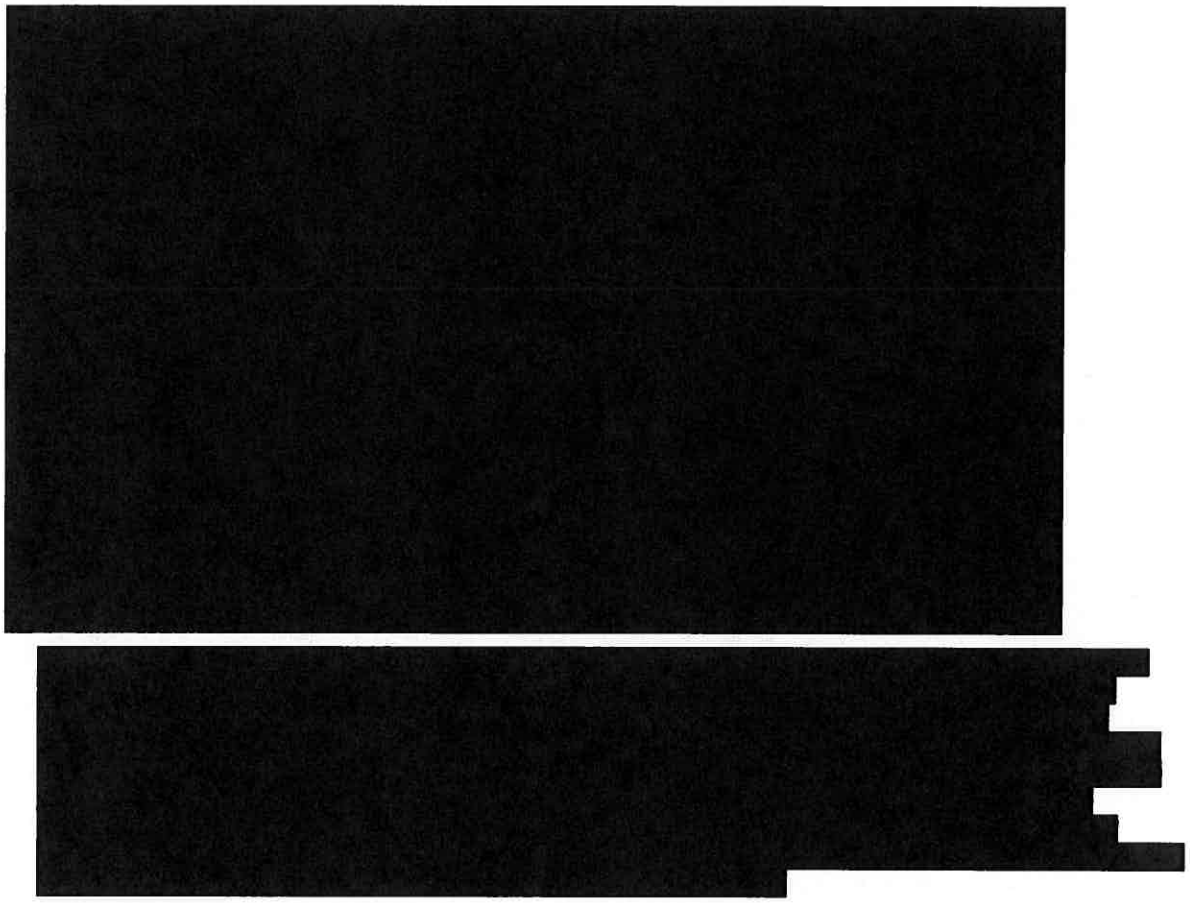
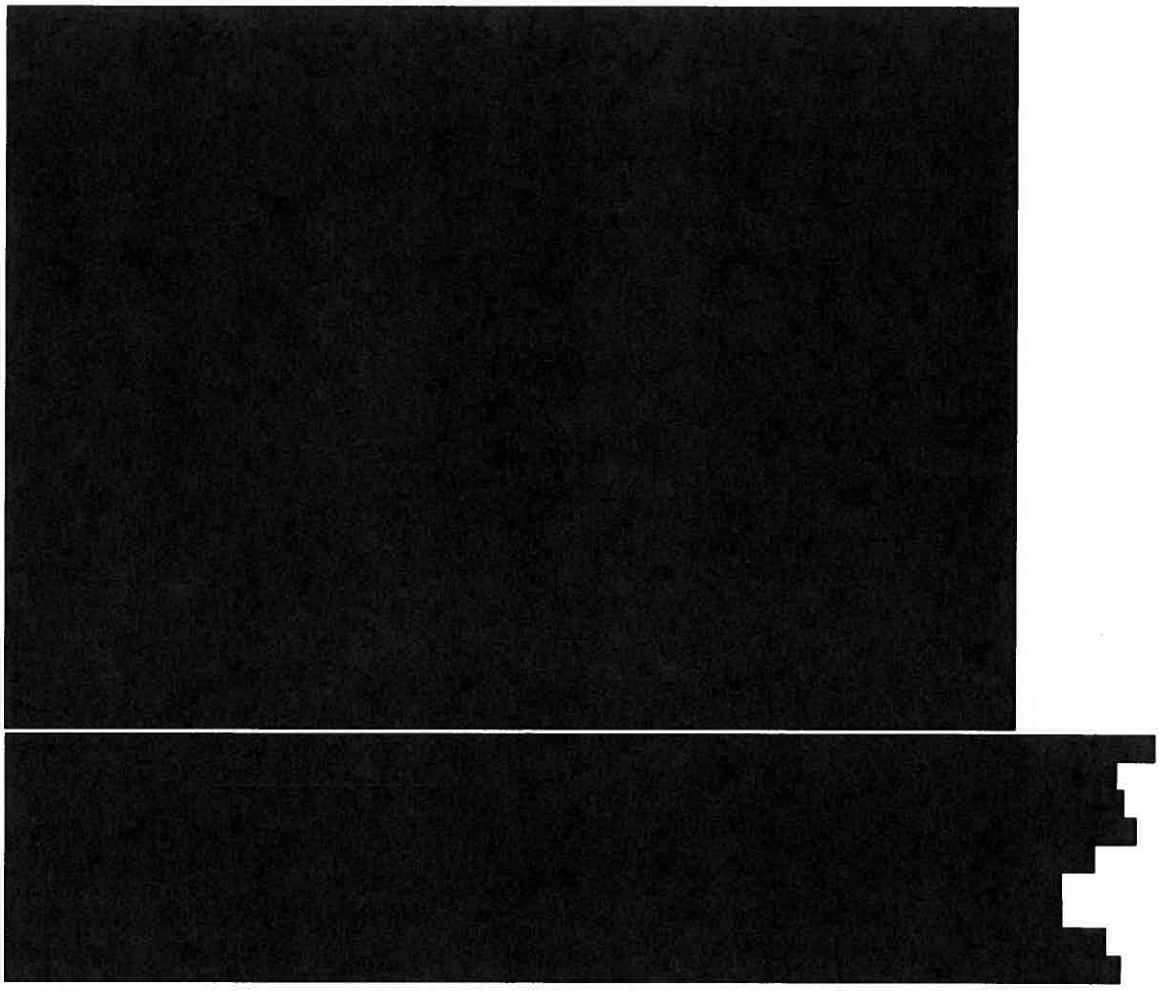
[55] *See* Opposition at 20 ("As set forth in the Public Interest Statement, AT&T's mobile broadband volumes surged a staggering 8,000 percent from 2007 to 2010. AT&T expects that growth to continue, with mobile data traffic on its network projected to increase by a factor of eight to ten by 2015. That growth is placing unprecedented strains on AT&T's network and is impairing its ability to continue to meet explosive mobile broadband demands."(citations omitted)).

constraints.

60. To that end, SMC conducted a series of analyses looking at network performance data over a series of metrics obtained from **[begin confidential information]** [redacted] **[end confidential information]** SMC then assessed these results for any relationship with the spectrum position of the top three mobile network operators. SMC found no dependence between network performance and spectrum holdings. Indeed, the results shown in **[begin confidential information]** [redacted]





61. [redacted] **[end confidential information]** network performance appears to be primarily a function of signal strength, which depends upon various factors, including sound network design, location of cell sites, and fine tuning of various network parameters. While additional spectrum naturally helps improve network performance at some basic level, additional spectrum is not a primary or even secondary indicia of improved network performance for AT&T. AT&T, however, repeatedly asserts that the network efficiencies and additional spectrum it would acquire by taking over T-Mobile would improve the customer

experience on the AT&T network.[56] **[begin confidential information]** [redacted]

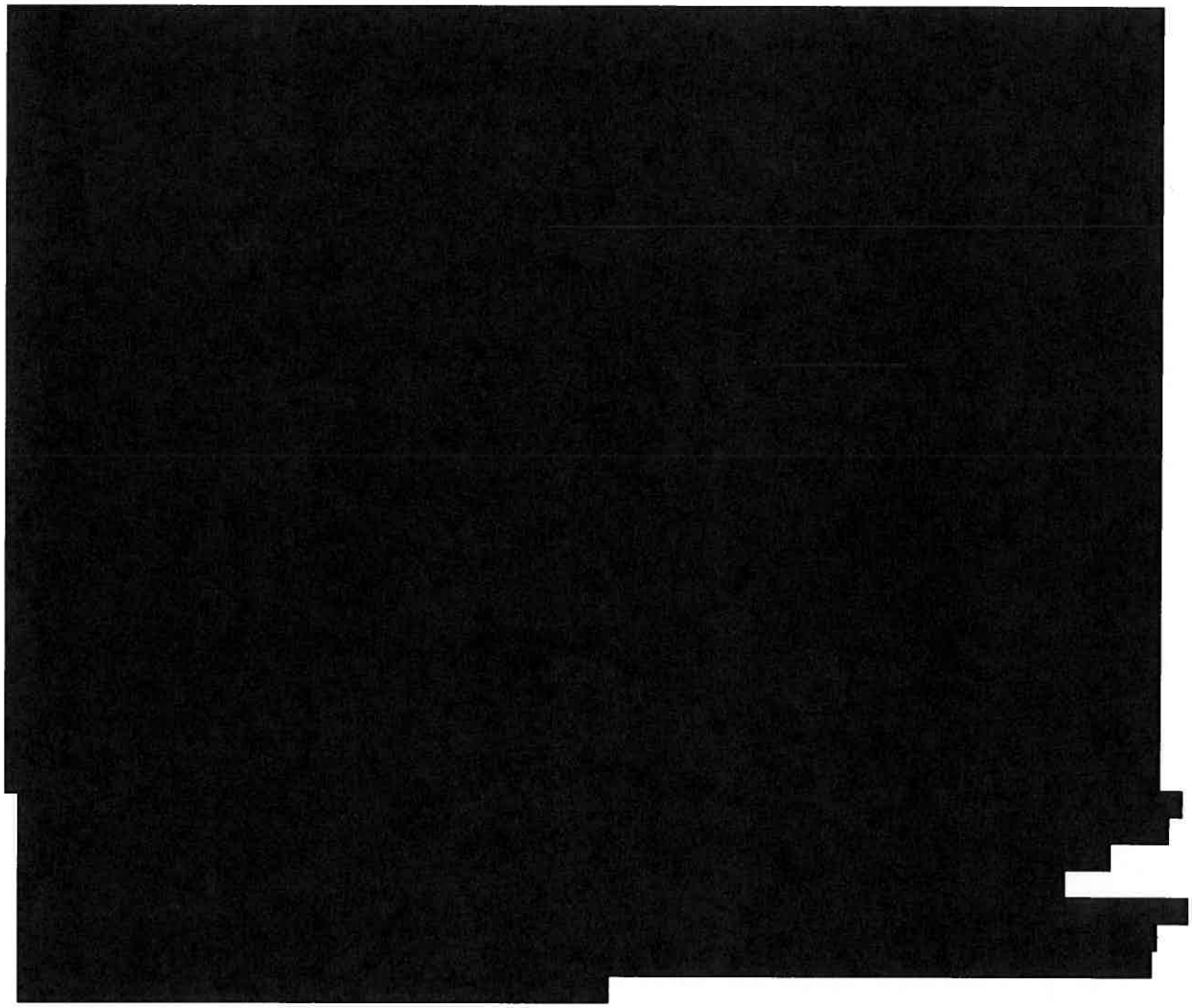
[end confidential information]

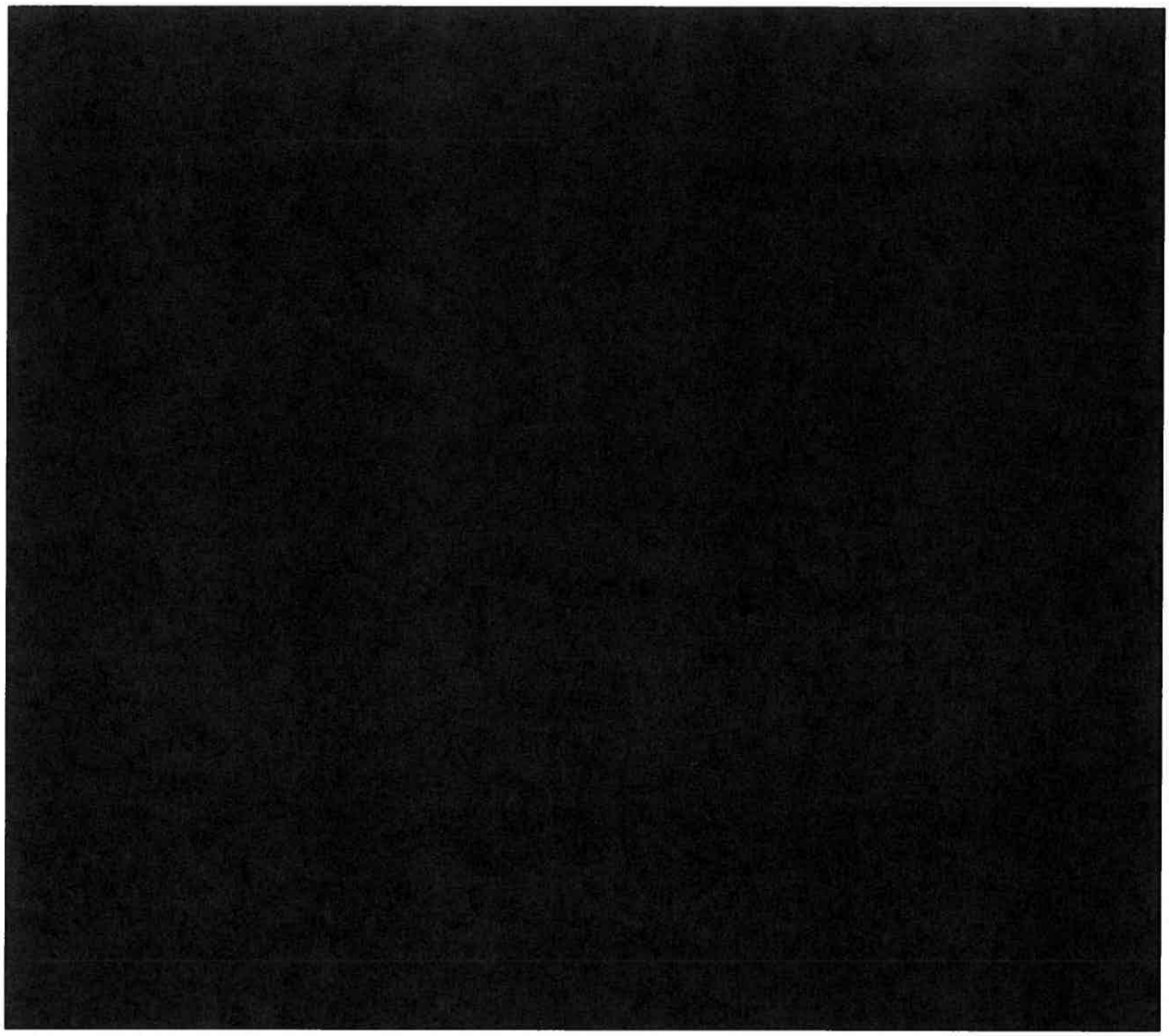
62. Of course, any number of factors aside from spectrum holdings influence network performance, not the least of which are subscriber loading, market topology, and cell density. Nonetheless, if AT&T's claims are to be given any merit, AT&T should be able to demonstrate that it currently provides a higher quality consumer experience when it has access to more spectrum.

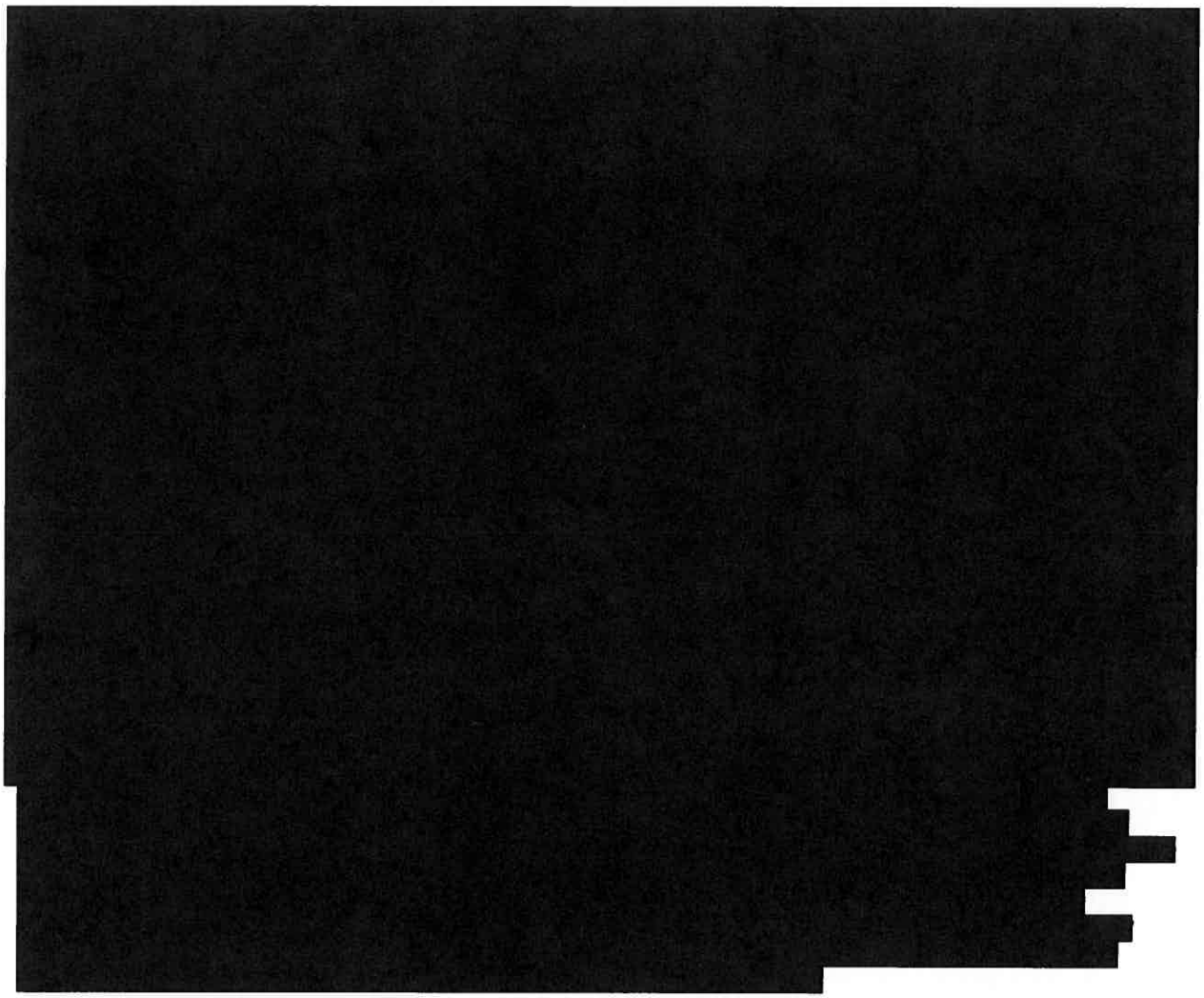
63. Once again, however, my analysis shows just the opposite. **[begin confidential information]** [redacted]

[56] *See* Hogg Opp. Decl. ¶ 36.

[redacted]







[end confidential information]

XIII. AT&T SHOULD MORE AGGRESSIVELY MIGRATE ITS GSM SUBSCRIBERS TO NEWER TECHNOLOGIES TO ENHANCE THE EFFICIENCY OF ITS NETWORK

65. Deutsche Telkom's Larson suggests GSM remains a dominant mobile network technology around the world.[57] While this statement is factually correct, it misrepresents the point being made here. Just because GSM is a dominant use technology, it does not mean it is the most efficient. GSM, a technology invented in the late 1980s, is spectrally inefficient and the

[57] Reply Declaration of Dr. Kim Larsen attached to Opposition, WT Docket No. 11-65, ¶ 15 (June 9, 2011).

mobile networks are better off moving out of it as soon as possible, particularly in the face of the limited spectrum availability AT&T claims. AT&T can take a range of steps to migrate its GSM subscribers more quickly to WCDMA or LTE service. GSM subscribers are primarily voice customers, but UMTS/HSPA+ technology also supports voice and in a much more spectrally efficient fashion. If AT&T were to offer its customers new UMTS/HSPA+ handsets, which have more features and functions, at a reduced price or at prices comparable to the rates it is currently (and inexplicably) subsidizing for highly inefficient GSM-only devices, its customer migration to more efficient technologies would proceed far more rapidly than is currently the case. Mr. Hogg's claim that many subscribers "simply do not wish to" upgrade their handsets flies in the face of simple economics and incentives that drive consumer behavior patterns.[58]

66. To illustrate the inefficiencies that result from AT&T's continued reliance on GSM technology, SMC commissioned third-party spectrum utilization measurements in the Washington DC and New York markets for AT&T and T-Mobile. SMC analyzed full spectrum scans of the cellular, PCS, and AWS bands from two locations in each metropolitan area.[59] The scans were performed using a digital scanning receiver capable of detecting and identifying all of the 2G/3G technologies currently in use today by AT&T and T-Mobile.[60] The spectrum band

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58 *See* Hogg Opp. Decl. ¶ 18.

59 Test locations in Washington DC metropolitan area included Tysons Corner, VA and Dupont Circle, Washington DC. In New York the test locations were Midtown Manhattan and the Financial District.

60 An Anite Nemo FSR1 Scanner with Nemo Outdoor software was used for the spectrum utilization tests. The Anite scanner is a modular digital scanning receiver that provides accurate and reliable high-speed RF measurements of wireless networks supporting measurements on WCDMA, HSDPA, and GSM networks. Each relevant technology and all applicable bands were scanned by the operator to determine what active channels (per technology type) were active in a given location.

scan data was then analyzed to capture the utilization of spectrum by technology type for each operator.[61]

67. For both AT&T and T-Mobile, SMC reviewed the amount of spectrum in use by network technology, the total amount of used spectrum from all technologies, the amount of unused spectrum, and the total amount of spectrum licensed. Results from the drive tests show that, in New York City, AT&T uses 15 MHz of its 55 MHz spectrum holdings in Cellular and PCS bands for GSM network. In Washington DC, the share of GSM goes up to 25 MHz of 75 MHz total, while 10 MHz of 75 MHz remain unused.

68. The FCC's licensing data show that AT&T has warehoused substantial quantities of broadband spectrum throughout the country. The third-party drive tests SMC commissioned on my behalf provide empirical evidence for the proposition that, in the bands, such as cellular and PCS, where AT&T has actually deployed service, AT&T uses the spectrum far less efficiently by allocating more than one-fourth and one-third of its spectrum to its GSM network in New York City and Washington DC area, respectively. Indeed, the third-party drive test data show that ***AT&T consistently used more spectrum for its GSM network than expected for a mobile network claiming capacity constraints.***

69. While migrating users is not cost free, migrating users is a matter of routine operation for mobile network operators not only in the United States, but also worldwide.[62] Like most carriers, AT&T has demonstrated that it knows how to migrate users when it wants or

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[61] Analysis of the data was conducted as follows: (a) UMTS channels were identified through a valid scrambling code and Ec/Io that exceeded -18 dB; and (b.) GSM channels were identified as channels with a valid BSIC within the scan.

[62] *See* Opposition at 32.

needs to do so. For instance, when AT&T decided to migrate customers from its TDMA network to GSM, it was able to move approximately 9% of that subscriber base in just one quarter.[63]

70. As pointed out in my initial Declaration, AT&T continues to sell GSM-only phones. Contrary to what it claims in the Opposition, AT&T sells such phones to its prepaid customers but also allows them to be used for postpaid service. This practice adds to the GSM traffic on the network and promotes the misallocation of available radio spectrum for inefficient GSM technology. Currently, three feature phones and one smartphone with GSM-only support are available via the AT&T online store:[64]

- Samsung SGH-a107
- Samsung SGH-a197
- AT&T R225
- LG Prime GoPhone

71. AAT&T's marketing and pricing encourages the use of these GSM-only phones. For as low as $9.99, a customer can get a Samsung SGH-a107 phone and pay as little as $2 per day for voice and SMS service (and only pay for the days when they actually make calls) if they selected to buy this phone for prepaid service. If the customers convert to postpaid service using the phones, they can get 450 minutes of voice minutes for $39.99 per month. For the phones listed above, customers can order prepaid service over AT&T's Web store, or call AT&T's sales

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63 *Cingular Wireless Posts Solid First Quarter Results*: *– Net subscriber additions of more than 1.4 million.*, PR NEWSWIRE (Apr. 20, 2005), available at: <http://www.highbeam.com/doc/1G1-131744945.html>.

64 *See* Shop, Wireless, *Cell Phones and Mobile Devices*, AT&T, *available at*: <http://www.wireless.att.com/cell-phone-service/cell-phones/cell-phones.jsp?feacondition=allphones&feaavailable=allphones&feapaytype=prepaid&startFilter=false&allTypes=on&allFeatures=on&allManus=on#fbid=UEKBbVEQzBJ> (last visted, June 19, 2011).

or customer support phones and use these phones for postpaid service.

72. On the one hand, AT&T claims spectrum poverty due to the large number of GSM subscribers it claims to have on its network, but on the other hand, it continues to actively sell GSM only phones to *both* its prepaid and postpaid subscriber base for less than $10. If AT&T were to migrate the majority of its GSM customers to its UMTS/HSPA network, let alone migrating them to an LTE network, it will immediately gain capacity. For an average consumer using a UMTS/HSPA device, the overall experience will be better than using a GSM-only device, and will be totally seamless and transparent.

73. A study of AT&T's coverage map shows that AT&T has lagged other providers in deploying the latest technology on its network[65] and continues to cover 20% of the US landmass and 10% of the population with GSM-only network. AT&T's lack of investment in the network prevents it from migrating those customers in GSM-only coverage area to UMTS/HSPA devices. GSM is still a dominant technology on AT&T's network seven years after it began deploying its UMTS network.

[65] AT&T has been late in deploying true 4G technologies such as LTE and WiMAX compared to its competitors; it has instead chosen to re-brand its existing HSPA+ network a 4G network.

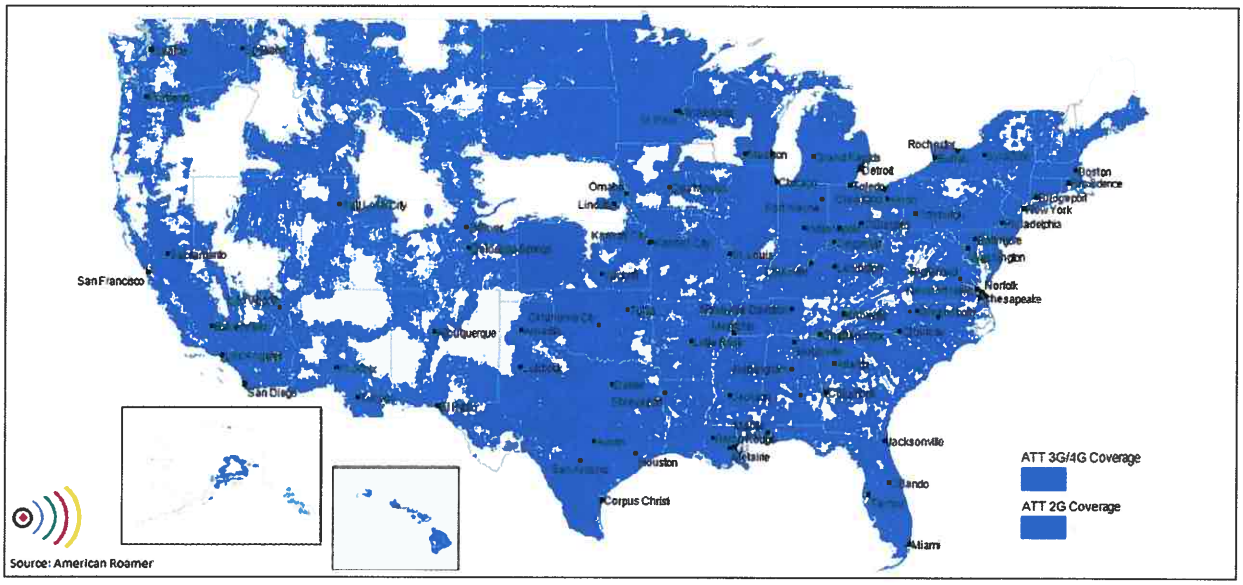

Figure 22: AT&T's coverage map showing significant areas with 2G only coverage. *American Roamer, LLC is the creator and copyright holder of the coverage mapping data used in this analysis.*

PART D

AT&T's arguments that the proposed transaction will result in efficiency gains ignore various cheaper and sounder engineering alternatives, and are based on academic theories that do not meet the test of practical application in this particular situation.

XIV. THE APPLICANTS' EFFICIENCY CLAIMS IGNORE MORE FUNDAMENTAL SOLUTIONS TO AT&T'S ALLEGED CAPACITY CONSTRAINTS AND ALSO IGNORE PROVEN TECHNIQUES TO INCREASE THE EFFICIENCY OF ITS GSM NETWORK

74. The Opposition argues that AT&T can achieve certain efficiencies by combining the AT&T and T-Mobile networks, including their GSM networks. These arguments ignore a more fundamental point: placing so much reliance on a GSM network platform makes no sense in a world of far more efficient technologies. While surely there is a place for a GSM network running on a smaller portion of AT&T's spectrum to continue to support a declining legacy GSM subscriber base, there is no place for a large GSM network in the face of the impending spectrum crunch claimed by AT&T.

75. Moreover, worldwide, mobile network operators continue to make their GSM

networks more efficient by doing things that do not require acquiring another competitor. As the table below from Plum Consulting's report to the Telecom Regulatory Authority of India suggested in 2008,[66] there are a number of means available to improve the efficiency of GSM networks. These are standard network engineering practices that have been implemented worldwide over the past 5 years and can easily be replicated in AT&T's network. Rather than attempting to acquire T-Mobile, AT&T should deploy these techniques.

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[66] *See* David Lewin, Val Jervis, Chris Davis, and Ken Pearson, *An assessment of spectrum management polic in India: A final report to the GSMA*, (Dec. 2008), *available at*: <http://www.aegis-systems.co.uk/download/2021/spectrum%20management%20(india).pdf>.

Figure 3.7: The deployment of advanced technologies in India

Technology	Potential capacity gain		Costs	Deployment in India[8]
	Claim	Likely gain		
Synthesised frequency hopping	No claim made	Substantial - provided 2x6 MHz or more spectrum is available to each operator[9]	Upgraded BTS and handsets	Widespread
Discontinuous transmission and power control	No claim made	Substantial	Upgraded BTS and handsets	Widespread
AMR codec	~150%	Up to 100% dependent on AMR handset penetration. Gains may be smaller if GSM half-rate is already used.	BTS software + AMR enabled handsets	Widespread
Micro cells and in building solutions	Substantial	Limited by the tight spectrum assignments in India which makes use of micro-cells as well as macro-cells difficult in many circles. IBS is primarily used for coverage in places like airports, high rise buildings etc.	Capex for micro cells	Limited
Six sector BTS	Up to 100%	Limited by cell characteristics. Also limited by the availability of antennas. Only 1 antenna vendor is available whose antennas are under trial.	Upgrades of antennae and masts	Trials
SAIC	50 to 60%	Uncertain but probably substantially less than claim	SAIC enabled handsets	Not yet
Synchronised networks	20%	Trials have yet to confirm	BTS upgrade and GPS cost for the sites.	Trials
DFCA	60 to 90%	Capacity gain uncertain while limited availability of DFCA handsets and network equipment	Network upgrade + DFCA enabled handsets	Trials planned to assess the gains

Figure 23: Plum Consulting's Report to TRAI on GSM spectrum situation in India. The report, authored in 2008, describes techniques for GSM network capacity enhancement that have been in use for the past 5 years.

76. As a result of these efficiency measures, Indian mobile network operators have the highest mErlangs per megahertz of spectrum per square kilometer.

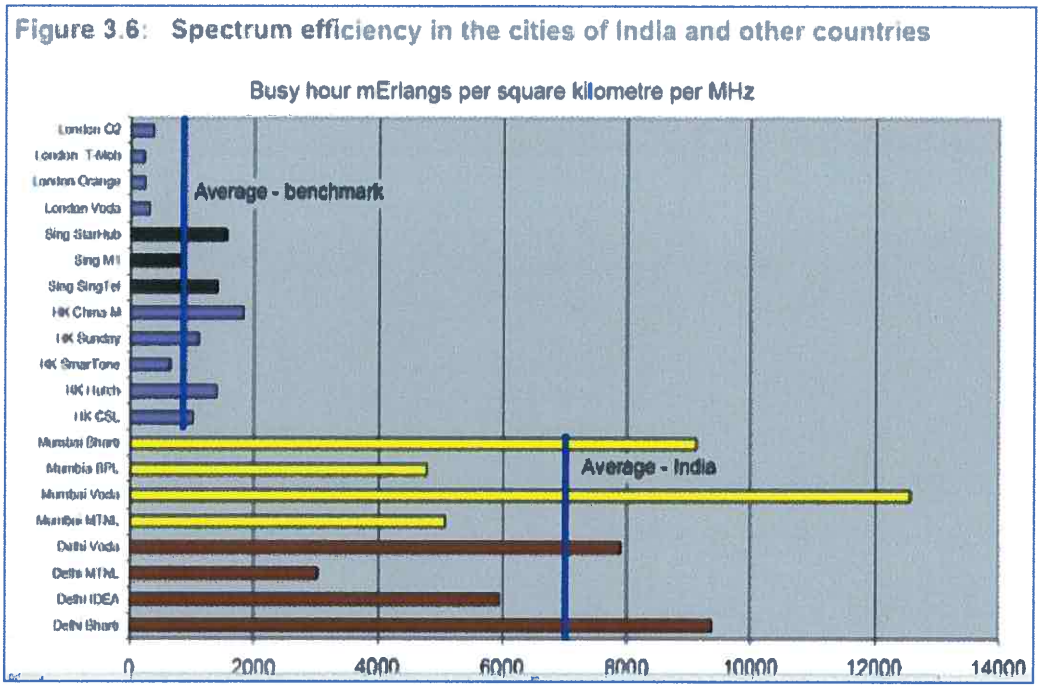

Figure 24: Spectrum efficiency as mErlangs per MHz per sq. km for Indian cities compared with other international cities

XV. WHILE AT&T'S ADVISORS HAVE USED SOUND ACADEMIC THEORIES IN THEORETICAL SITUATIONS TO DEMONSTRATE EFFICIENCY GAINS FROM THE INTEGRATION OF TWO GSM NETWORKS, THEY HAVE NOT MET THE TEST OF PRACTICAL APPLICATION

A. Channel Pooling

77. Professor Reed and Dr. Tripathi contend that "the merger would achieve significant capacity gains through channel pooling"[67] and, in reaching this conclusion, rely upon rudimentary examples in the use of the Erlang B model for voice traffic engineering. To be sure, SMC agrees with the application of the Erlang B model for voice traffic engineering, and with Professor Reed's and Dr. Tripathi's claim that channel pooling, under certain circumstances, can provide capacity gains. However, Professor Reed and Dr. Tripathi fall short in demonstrating

67 Reed – Tripathi White Paper at 17.

whether the *specific* gains are achievable in the *real world condition* of the proposed acquisition and if the gains will be substantial, much less achievable at all.

78. The following is a re-creation of the table provided by Professor Reed and Dr. Tripathi as an example of the gains that can be achieved through channel pooling. Additional data, in the shaded column below, has been added to the table to illustrate that the example provided is not a reasonable example for AT&T and T-Mobile's GSM operations, particularly in urban markets.

Table 1: Re-creation of "Erlang Capacity Gain for the Combined Networks due to Trunking or Pooling Efficiency" from Reed – Tripathi White Paper at Page 21, with additional columns added by SMC

Number of TRXs per Operator	Total GSM Spectrum in Use per Sector	Erlang Capacity per Operator[68]	Total Erlang Capacity for the Two Operators as Separate Networks	Total Erlang Capacity for the Two Operators as a Combined Network	Difference in Erlang Capacity
1	200 kHz	7.4	14.8	18.35	24%
2	400 kHz	18.35	36.7	41.35	12%
3	600 kHz	29.15	58.3	65.8	12%
4	800 kHz	41.15	82.3	89.9	9%

Given the high subscriber density and usage that AT&T and T-Mobile face in urban markets, they allocate considerably more spectrum to GSM, and need to serve thousands of subscribers

[68] The assumption that 60% of users are using half rate speech is questionable; given the voice quality impact, SMC expects that half rate speech is used very selectively. In addition, there was no allocation of GSM timeslot capacity to control channel overhead. Despite these oversights and academic simplifications, the assumptions from the original analysis are carried forward.

per sector.[69] A practical scenario would instead examine the configurations where more transceivers (TRXs), as Professor Reed and Dr. Tripathi define that term, are used in a cell, as shown in the Table below:

Table 2: Erlang Capacity Gain for the Combined Networks due to Trunking or Pooling Efficiency based on Real World Examples

Number of TRXs per Operator	Number of Trunked Channels per Operator	Erlang Capacity per Operator	Erlang Capacity for the Combined Operator Without Trunking Efficiency	Number of Trunked Channels for the Combined Operator	Achievable Erlang Capacity for the Combined Operator	Erlang Capacity Gain (= Trunking Efficiency Gain) for the Combined Operator
6	76.8 (76)	64.9	129.8	152	138.8	7%
8	102.4 (102)	89.9	179.8	204	190.1	6%
10	128	115.2	230.4	256	239.8	4%

79. The use of six to eight TRXs per sector are often necessary to supply sufficient capacity in dense urban settings where AT&T and T-Mobile have the greatest capacity challenges. Advanced interference mitigation measures, such as frequency hopping, power control, and discontinuous transmission (DTX), enable tighter frequency reuse scheme, such as "1 x 1" or "1 x 3" reuse, permitting a greater number of GSM channels to be allocated per sector than would otherwise be possible with more traditional frequency reuse schemes. With 10 to 15 MHz of total spectrum allocated to GSM,[70] these reuse schemes can support an allocation of 6 to

[69] For example, SMC's measurement of spectrum utilization in the Washington DC market indicates that AT&T uses 25 MHz and T-Mobile USA uses 20 MHz of spectrum for GSM.

[70] My original model assumed that AT&T deployed relatively little inefficient GSM in its network; however, the actual measurements that SMC conducted indicate that AT&T uses two to three times as much inefficient GSM technology as I initially projected. Thus, the original model was overly conservative in projecting the gains AT&T will enjoy upon implementing more efficient technologies.

10 GSM carriers per sector.[71] As demonstrated in the table above, the capacity gains for channel pooling are likely to be considerably less than 10% for the conditions where capacity gains are needed most – areas with greater usage and higher number of carriers or TRXs. These gains decrease considerably as the number of carriers increase on the network. Thus, AT&T's claims that it will achieve 10-15% increase in capacity due to channel pooling will really only be achieved in areas where customer traffic is relatively light and available spectrum is not a constraint. Channel pooling would deliver significantly less capacity gain in the urban areas where use demands are greatest. *As a result, the benefits of channel pooling from the proposed merger are minimal in those areas where AT&T has the highest need for additional capacity.* As discussed previously, several alternative approaches already available to AT&T will yield far greater capacity increases.

80. In its initial Application and Opposition, AT&T has attempted to illustrate channel pooling gains through experience drawn from daily life. The latest example, the "grocery store check-out"[72] provides no further clarity. Unlike the example, AT&T and T-Mobile provide substantially the same products – voice minutes of use and data megabytes of use – and the subscriber load at the "store" (e.g., a sector in the network) is influenced predominantly by the relative concentration of subscribers, and not the "demographic appeal," "better automotive access," or "unique items" offered. AT&T's attempts to provide an intuitive understanding of channel pooling gains do not serve as a substitute for conducting the engineering analysis to quantify the *actual* gains that will accrue. There is no argument that the

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[71] Assuming a channel hopping ratio of 50% or less and 4 x 3 frequency reuse pattern for control channels.

[72] *See* Reed – Tripathi White Paper at 19.

theories of the Erlang B model apply to wireless voice traffic engineering. However, due to the nonlinear behavior of Erlang B model, the gains can be substantial or insignificant.

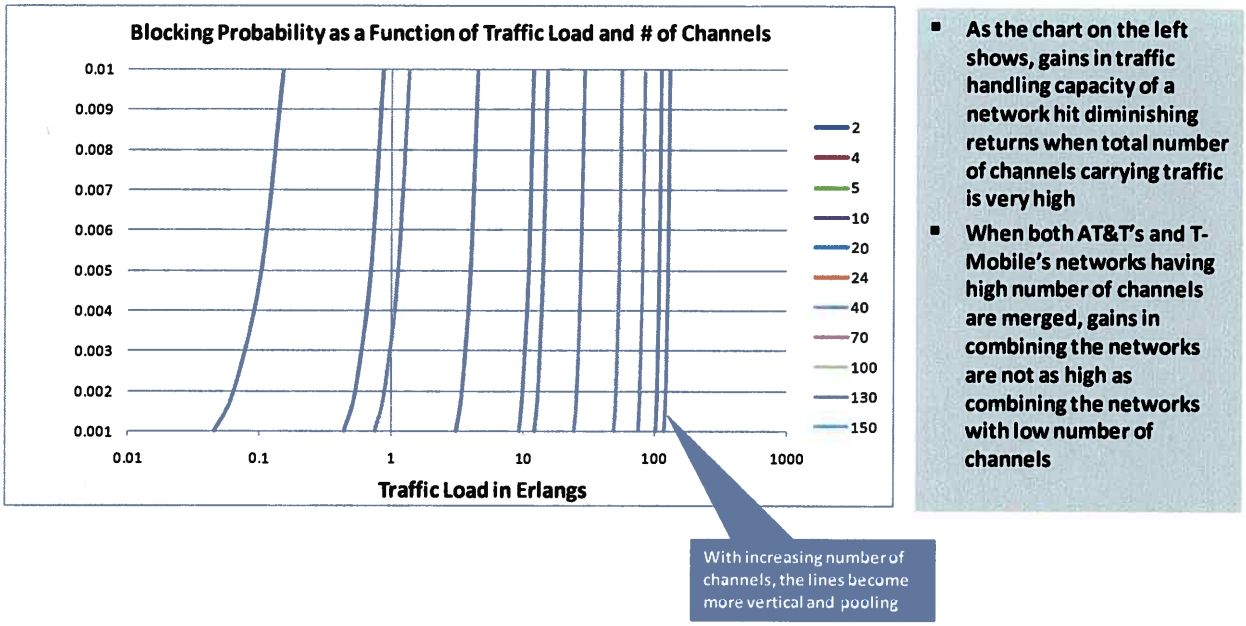

Figure 25: Erlang B chart showing blocking probability as a function of traffic load and number of available channels

B. Cell Splitting

81. To support their claim that AT&T and T-Mobile networks complement each other well, and thus will yield significant cell-splitting opportunities, AT&T and Professor Reed and Dr. Tripathi point to a visual inspection analysis[73] of AT&T's and T-Mobile's cell site grids in Washington DC and San Francisco. Without more, mere visual inspection – or more colloquially, "eyeballing it" – is inadequate to demonstrate purported efficiencies with any degree of certainty or reliability. Due to heavy network build-out that all the mobile network operators have undertaken during the previous decades, both operators are likely to have a dense network of highly proximate cell sites in large metropolitan areas. In addition, there is reason to

[73] Reed – Tripathi White Paper at 11-12

believe that many of the cell sites would be co-located. Those AT&T and T-Mobile cell sites that are not co-located would still likely to be very near to each other simply because both networks would strive for similar coverage in densely populated areas. As a result, AT&T would not be able to use nearby or co-located T-Mobile cell sites for cell splitting. Moreover, AT&T already enjoys access to a large number of sites from third-party tower vendors and rooftop management firms, many of which already host T-Mobile sites. If AT&T desires to use those few T-Mobile sites that are not prohibitively near to AT&T's existing cell sites, it could work with the owners of those cell sites to obtain access.

82. The distance-based metric that AT&T has adopted for its visual inspection of T-Mobile sites provides little insight into whether these sites are any better suited to provide the needed capacity relief than others that may be located within the market. Use of such a metric would suggest that AT&T and Professor Reed and Dr. Tripathi assume that the traffic load within the network is generally uniform and the layout of AT&T's existing sites follows a regular layout according to a classic, textbook-style, hexagonal grid. On the contrary, in *real world situations,* traffic is not uniformly distributed and the construction of new sites is governed by external factors, such as the willingness of a property owner to lease space or zoning regulations; as a result, sites no longer follow the textbook-style hexagonal grid pattern. Today, operators focus on locating sites as close as possible to high traffic generation locations like big shopping malls to maximize their performance and capacity benefits.

83. The notion of a uniform "cell grid" is even less relevant given the current state of technology development and tools that are available to RF network planners. The technologies in AT&T's network operate with a frequency reuse factor of N=1, leaving the network planner with considerable flexibility in the placement of sites given that performance is no longer a

function of carrier-to-interference measures of co-channel frequency assignments at different cells.

84. So long as new sites can be integrated and optimized in the network plan (regardless of whether they are halfway between some perfectly spaced grid) they add to network capacity meaningfully. Based on visual inspection alone, T-Mobile sites cannot be deemed better for AT&T than other site alternatives that may exist. Further, as AT&T continues to evolve its network, it can implement Self Organizing Network ("SON") technology for even greater flexibility in acquiring and integrating new sites. SON enables newly deployed base stations to self-configure in a "plug and play" manner, and all operational base stations will regularly self-optimize operating parameters in response to observed network performance and radio conditions.

85. As per Mr. Hogg, AT&T's current estimate of **[begin confidential information]** [redacted] **[end confidential information]** T-Mobile sites which will be integrated post-transaction was reached by using a "distance-based metric for synergistic gains."[74] Mr. Hogg cites Professor Reed and Dr. Tripathi, stating that their analysis "strongly confirm[s] AT&T's distance-based metric for synergistic gains."[75] In point of fact, however, Professor Reed and Dr. Tripathi did not perform the analysis themselves, but rather agreed with AT&T's methodology from the theoretical point of view.

86. The argument that adding T-Mobile sites will benefit the capacity, coverage and end user experience seems to be based on the methodology which is largely simplistic, and

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74 Hogg Opp. Decl. ¶ 32-33.

75 *Id.* ¶ 33 (quoting Reed – Tripathi White Paper at 11).

appears to comprise a rudimentary geospatial analysis of drawing circles of fixed radii with site locations plotted on a flat Earth map, and counting number of sites falling within the radii corresponding to urban and rural environments. This methodology is very far removed from even the simplified methods of cellular systems modeling.

87. To understand the capital and operational expenditures involved, an operator's modeling of cellular systems typically involves a complex interaction of a very large number of parameters. In the case of the proposed transaction, AT&T should be solving the equation for the resulting system site count based on given coverage and capacity characteristics. To derive an operationally correct site count, the operator will use four main interacting components to derive a cellular plan:

- A link budget, using equipment and RAN technology-specific data to show the minimum signal level the mobile device can cope with and still provide desired quality of service or data throughput to the user, and a specific load of the network;
- Site/cell range calculation which will depend on environment-specific inputs such as topology, building placements, tower and antenna heights;
- A capacity calculation engine which will use specific traffic modeling parameters such as subscriber services which the operator intends to provide (e-mail, Web browsing, video) and their requirements, blocking rates and peak traffic requirements; and
- A load factor calculation which will translate the capacity calculation and various equipment performance measures into a maximum traffic projection and provide feedback into the link budget calculation.

88. This design, analysis and simulation process is complex. In general, the process could be reasonably simplified, by narrowing the number of the output parameters to study – in this case, the site count, limiting the number of input parameters used to vary the output parameter, and by applying a large number of generalized assumptions to the remaining variables

in the model. However, the "analysis" performed by AT&T assumes a constant load factor irrespective of network capacity estimation. This is a gross simplification, and it has a large impact on the site density output of the model. Additionally, it is a simple base-station-to-mobile model, as it assumes that the initial coverage radius is designed to enable mobile to base station service by default.

89. As performed by AT&T – and verified by Professor Reed and Dr. Tripathi – the calculation of the number of sites is based upon the fixed cell radius and a flat earth environment model. However, in practice this is extremely inaccurate because it does not address the coverage, quality, and capacity-affecting issues seen in urban environments:

- Cell blockage due to high buildings;
- Three dimensional nature of cell deployments in dense urban areas; and
- Required extensive in-building coverage.

90. The site count estimate obtained in this manner cannot be used to quantify the alleged benefits of the proposed transaction. SMC conducted an analysis of AT&T's Washington, DC and San Francisco markets based on the maps provided in Mr. Hogg's Declaration and using the evaluation criteria specified by Professor Reed and Dr. Tripathi. The analysis revealed that just 5% of T-Mobile's cell sites in the Washington, DC market and none in the San Francisco market met the criteria. Maps provided in Exhibits B and C support this finding.

91. As an additional step, SMC analyzed whether even those T-Mobile sites that did not meet the distance-based criteria might nevertheless present an opportunity for AT&T to acquire a site in markets like San Francisco or Washington DC. To investigate this, SMC obtained a tower site and rooftop database from the largest and most accurate vertical on-line

asset site exchange in North America. The site locations were mapped on top of the T-Mobile and AT&T site grids to see if, through visual inspection, the T-Mobile sites appeared to be in unique locations with no other sites nearby. These maps are presented as Exhibit D. Based on visual inspection, T-Mobile's sites in Washington, DC and San Francisco do not appear to be in areas where alternative sites cannot be located. In many instances, existing sites are within close proximity of the T-Mobile sites and could likely serve as an alternative to a T-Mobile site.

C. GSM Control Channels

92. SMC recognizes that it should be possible to eliminate redundant control channels over time as the GSM networks of AT&T and T-Mobile USA networks are combined. AT&T's provides no compelling evidence as to the actual amount of spectrum that can be reclaimed under real world conditions or whether the process is as straightforward as claimed. AT&T's academic advisors correctly describe the basic function of the Broadcast Control Channel ("BCCH") in a GSM network. In keeping with its name, the BCCH broadcasts system configuration information, including the location and cell identity, a list of frequencies used in the cell, neighbor lists, and other system configuration data that a mobile station requires to communicate with the network. In this sense, the BCCH acts as a "beacon" by transmitting the same information continuously. That is, the BCCH is assigned to a unique RF carrier from a pool of available channels allocated for control channel messaging and that the frequency reuse plan for RF carriers assigned to BCCH control traffic and voice traffic differ.

93. It is possible to eliminate redundant control channels from the network as the channel pools of two networks are combined, *so long as the total control traffic of the combined network can be carried over fewer control channels.* Professor Reed and Dr. Tripathi provide no analysis to suggest that this assumption holds true for the combined networks of AT&T and T-

Mobile. They do not conduct the analysis necessary to verify the claim and instead look only to the BCCH frequency reuse patterns for the individual networks to conclude that a substantial number of control channel assignments already in use can be categorically eliminated.

94. Along with the BCCH, the allocated GSM carrier also carries Common Control Channel ("CCCH") information. The CCCH transfers control information related to the paging of a mobile station and the call origination process between the base station, and to perform this function it needs to communicate with each mobile station within the sector. The logical channels associated within the CCCH include:

- Random Access Channel ("RACH"), which is used by the mobile when it attempts to gain access to the system, such as when the mobile station initiates a call or responds to a page;
- Paging Channel ("PCH"), which is used by the base station to page a specific mobile station;
- Access Grant Control Channel ("AGCH"), which is used by the BTS to assign a dedicated control channel to a mobile station in response to an access message received on the RACH. The mobile station will move to the dedicated channel in order to proceed with either a call setup, respond to a paging message, perform a Location Area Update or complete Short Message Service (SMS); and
- Cell Broadcast Channel ("CBCH") which is used to broadcast messages to all mobile stations in the sector.

95. The traffic on the CCCH is a function of the number of subscribers within a given sector. Just like voice traffic channels, control traffic channels can experience congestion. In active networks, GSM base stations are associated with specific base station controllers to balance not only the voice traffic, but control traffic load. Before control channels can be deemed redundant, control channel traffic engineering needs to be completed, using the same engineering rigor as would be applied to voice traffic. As AT&T has provided no evidence of any detailed control traffic engineering, its claims as to how much spectrum can be recovered

remain unsupported and unproven. Once the analysis work is complete, considerable effort including frequency planning and retuning, reconfiguration of BSC boundaries, and 're-homing' of base stations to BSCs is needed before the spectrum can be repurposed.

96. Finally, Professor Reid and Dr. Tripathi claim that it would not be possible for T-Mobile to achieve the tighter control channel reuse scheme that AT&T employs on its own. *This claim seems to conflict with observations made elsewhere by AT&T and Reed and Tripathi regarding the ideal site placement, higher density, and complementary nature of the T-Mobile site grid.* If AT&T is able to accomplish a tighter control channel reuse scheme by using largely its 850 MHz spectrum for control channel carriers, then why is it not possible for T-Mobile to achieve the same at 1900 MHz? Here too, AT&T provides only broad generalizations and conclusory statements as to why this result cannot be achieved.

XVI. AT&T HAS ENOUGH SPECTRUM TO DEPLOY A NATIONWIDE LTE NETWORK

97. AT&T has suggested that acquiring T-Mobile would give AT&T additional spectrum to enable it to launch nationwide LTE network. While it is true that AT&T would gain additional AWS spectrum in some areas where it does not have AWS spectrum, overall gains for the deployment of AT&T's LTE network would be minimal. Under SMC's analysis of AT&T's spectrum holdings, *AT&T can already deploy LTE to more than 70% of the US population in a 10 MHz x10 MHz configuration.* Additionally, *AT&T can use a 5 MHz x 5 MHz configuration to deploy LTE network to greater than 95% of the US population. AT&T also can re-purpose some of its Cellular and PCS band spectrum to deploy LTE in 10 MHz x 10 MHz configuration to virtually all of the US population without acquiring any additional spectrum at all.*

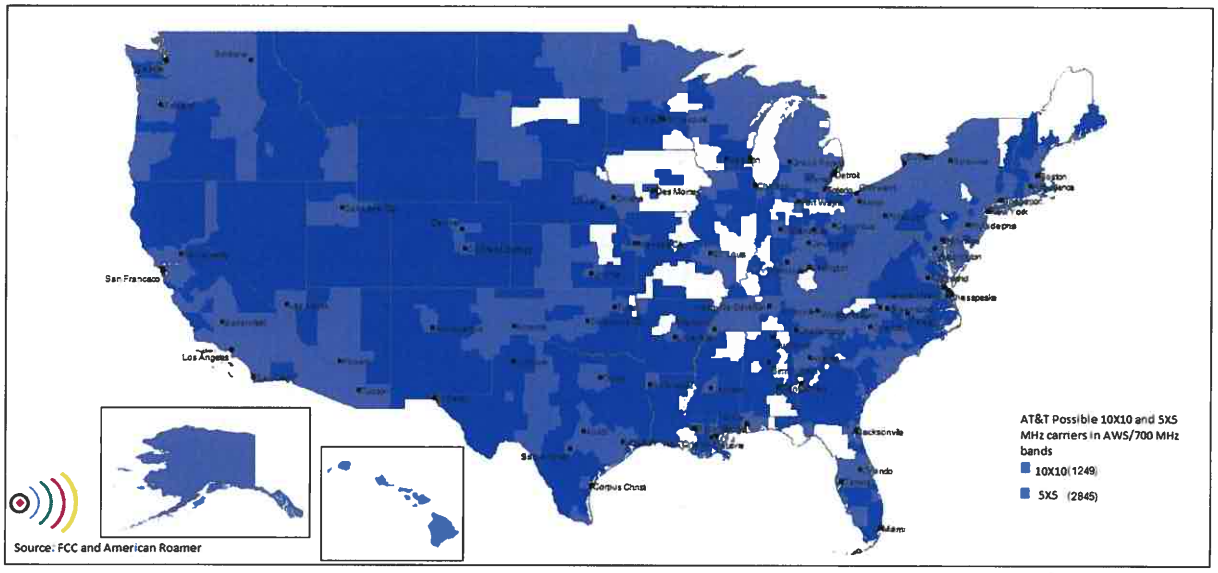

Figure 26: AT&T's coverage of US with 10MHz x 10MHz LTE channels (wherever available) and remaining areas with 5MHz x 5MHz channels with its current AWS and 700MHz spectrum holdings. ***American Roamer, LLC is the creator and copyright holder of the coverage mapping data used in this analysis.***

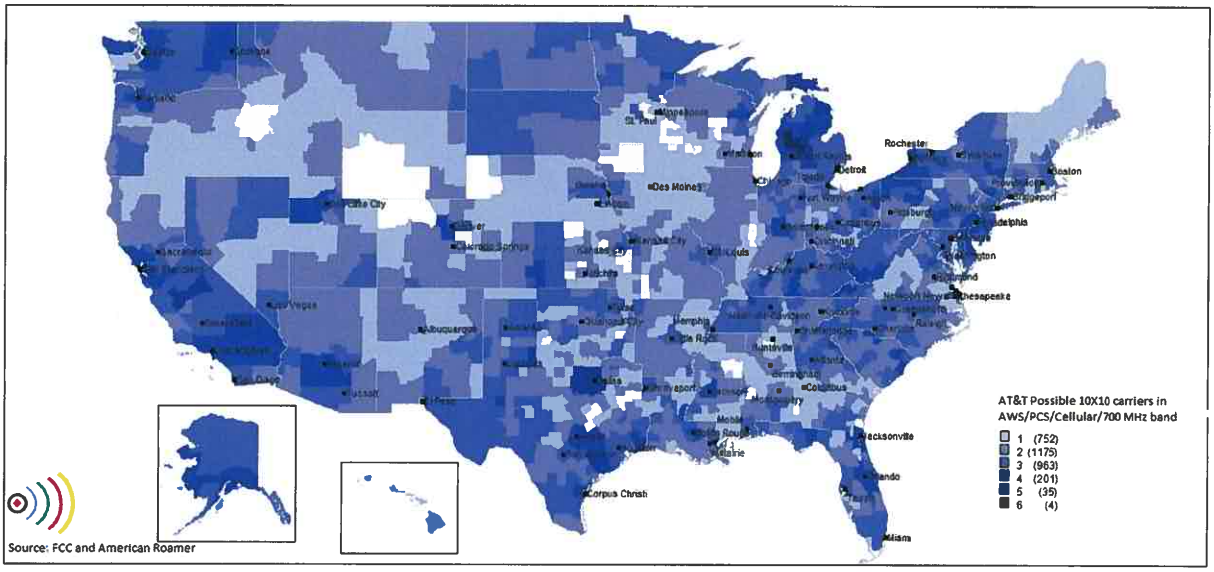

Figure 27: Number of 10MHz x 10MHz LTE channels AT&T can deploy in its current AWS, 700MHz, and PCS spectrum holdings. ***American Roamer, LLC is the creator and copyright holder of the coverage mapping data used in this analysis.***

98. As LTE deployment is supported on 25 spectrum bands, with expectations of further increases to this number in the future, AT&T not only has freedom to deploy its LTE network on the PCS and Cellular bands, but also the prospect of incorporating additional spectrum it can potentially purchase from the secondary market. Indeed, with carrier

aggregation becoming available in 2014 consistent with AT&T's representations,[76] AT&T will have the largest downlink spectrum holdings of any mobile network operator in the US.

99. Options available to AT&T to deploy LTE do not rely solely on use of its spectrum reserves. Given its available technology options, 3GPP technology migration path, industry leading spectrum position, and the carrier aggregation developments under development for LTE Release 11, AT&T is very well positioned to rollout a robust LTE service over the coming years. Through its recent deployment of HSPA+ service overlaying its existing 3G network, AT&T can accelerate the process of repurposing existing cellular and PCS spectrum to expand the future reach and capability of its LTE network.[77]

100. AT&T suggests that the spectrum available through its proposed T-Mobile takeover is critical as it would provide access to contiguous blocks of spectrum it allegedly needs to deploy LTE. With this approach, AT&T discounts the apparent benefits that carrier aggregation will provide as it rolls out LTE. The benefit of carrier aggregation is that it allows for fragmented spectrum to be aggregated, termed component carriers, to effect capacity and throughput benefits that are derived from larger bandwidth carriers. Fragmented spectrum can be aggregated within a specific band of operation, such as the PCS band, or across multiple

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[76] *See* Lynette Luna, *Carrier aggregation: How AT&T will use Qualcomm's MediaFLO spectrum to double LTE speeds,* FIERCEBROADBANDWIRELESS (Mar. 31, 2011), *available at:* <http://www.fiercebroadbandwireless.com/special-reports/carrier-aggregation-how-att-will-use-qualcomms-mediaflo-spectrum-double-lte#ixzz1PLb0s7cd>. ("Kris Rinne, senior vice president of architecture and planning with AT&T Mobility, said during *FierceWireless*' Path to 4G event March 22 in Orlando, Fla., that the operator is 'very interested' in trialing carrier aggregation technology in the 2012 timeframe, with a goal of deploying it in 2014.").

[77] As explained in my first Declaration, by not pre-seeding the market with HSPA+ devices, requiring OEMs of its most popular smartphone devices to support HSPA+, and providing incentives to subscribers to convert to HSPA+ devices, AT&T has failed to take advantage of the most data capable spectrally efficient technology in its network.

bands (eventually up to a frequency span of 100 MHz and up to 5 component carriers).

101. AT&T leads other providers in terms of the depth of spectrum it owns.[78] In the near future, carrier aggregation will provide the flexibility it needs to fully utilize all its spectrum assets for LTE – even on a fragmented basis – as it continues to evolve away from GSM and UMTS. Further, the 700 MHz spectrum that AT&T intends to acquire from Qualcomm will allow AT&T to aggregate two carriers downlink with one uplink to allow for an approximate doubling of downlink throughput.[79] Some example configurations that AT&T will be able to utilize with carrier aggregation are shown in the Table below.

Table 3: Carrier Aggregation Configurations Available to AT&T with LTE Advanced

Bands	17(Lower B&C 700 MHz)	716-728 MHz	5 (Cellular US)
4 (AWS US)	X	X	X
2 (PCS US)	X	X	
5 (Cellular US)	X	X	

102. As the table above illustrates, almost every combination of bands owned by AT&T is being looked at by the 3GPP RAN 4 group for carrier aggregation. These study items are expected to be finished in Release 11 with an anticipated completion date of June 15, 2012. After the completion date, additional time will be required for formal ratification and incorporation into chipsets and products.

103. Finally, AT&T's assertion that most T-Mobile customers have handsets that will

[78] AT&T's nationwide weighted average spectrum depth is 99 MHz whereas Verizon has a weighted average depth of 88 MHz. Stravitz Decl. at Figure 2.

[79] AT&T's appears to discount the benefits of carrier aggregation with the Qualcomm 700 MHz spectrum because "the spectrum will provide only a supplement to downlink capacity" despite common knowledge that wireless broadband is downlink-centric.

work on AT&T's network ignores the fact that almost none of the AT&T's customers have handsets that will work on T-Mobile's network. This will create problems in the short-term. As AT&T migrates T-Mobile's customers to AT&T's network, AT&T will not have flexibility to hand off AT&T's customers on T-Mobile's HSPA+ network temporarily during the transition. This type of one-way migration of T-Mobile's customers to AT&T's Cellular and PCS bands will cause congestion in these already congested bands. AT&T has not demonstrated how it plans to handle this mass migration of subscribers from T-Mobile's network, particularly in the light of its failure, by its own admission, to migrate its GSM customers to more efficient UMTS/HSPA+ network.

PART E

AT&T's other arguments supporting this Transaction simply do not meet the burden of proof required of AT&T.

XVII. THE APPLICANTS' CLAIM THAT T-MOBILE NEITHER HAS AN INVESTMENT PATH TO LTE NOR THE SPECTRUM TO SUPPORT THE LAUNCH IS NOT SUPPORTED BY SPECTRUM POSITION OF T-MOBILE

104. As the maps below demonstrate, T-Mobile currently has spectrum available in its AWS band, which will allow T-Mobile to launch LTE in 10 MHz x 10 MHz configuration for more than 76% of the US population without any additional spectrum needed. If T-Mobile was serious about launching a LTE network, it has a technical path to launch a LTE network with a much bigger footprint than the LTE network of MetroPCS.

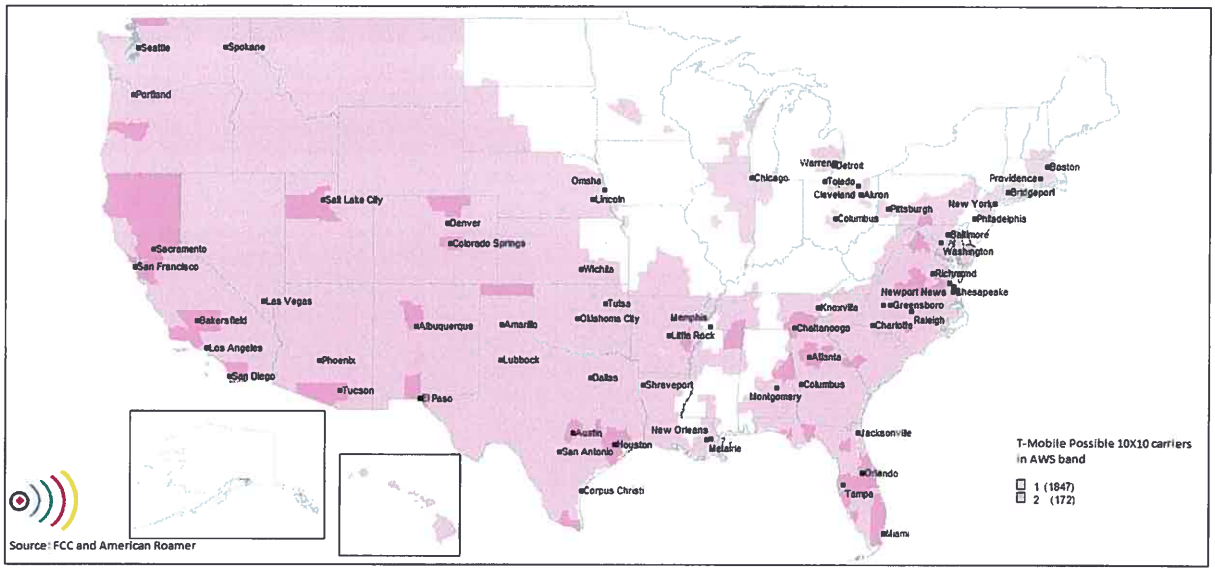

Figure 28: Number of 10MHz x 10MHz LTE channels T-Mobile USA can deploy in its current AWS spectrum holdings. ***American Roamer, LLC is the creator and copyright holder of the licensing data used in this analysis.***

105. If T-Mobile decided to launch a nationwide LTE network by using a 5 MHz x 5 MHz configuration in its current AWS and PCS spectrum holdings (leaving at least one 5 MHz x 5 MHz channel for its UMTS/HSPA+ network), it can still launch a robust nationwide network with a competitive footprint. It must be noted that while a 5 MHz x 5 MHz configuration is smaller than Verizon Wireless's planned LTE deployment, it is still a similar capacity network compared to MetroPCS's LTE network launched with 5 MHz x 5 MHz configuration. The figure below illustrates the total number of 5 MHz x 5 MHz LTE channels T-Mobile can deploy in specific markets. *In light of the Applicants repeated statements that T-Mobile has "no path" to LTE, it is remarkable that, upon examination, T-Mobile has sufficient spectrum to launch an LTE network to virtually 100% of the US mainland with a 5 MHz x 5 MHz configuration.*

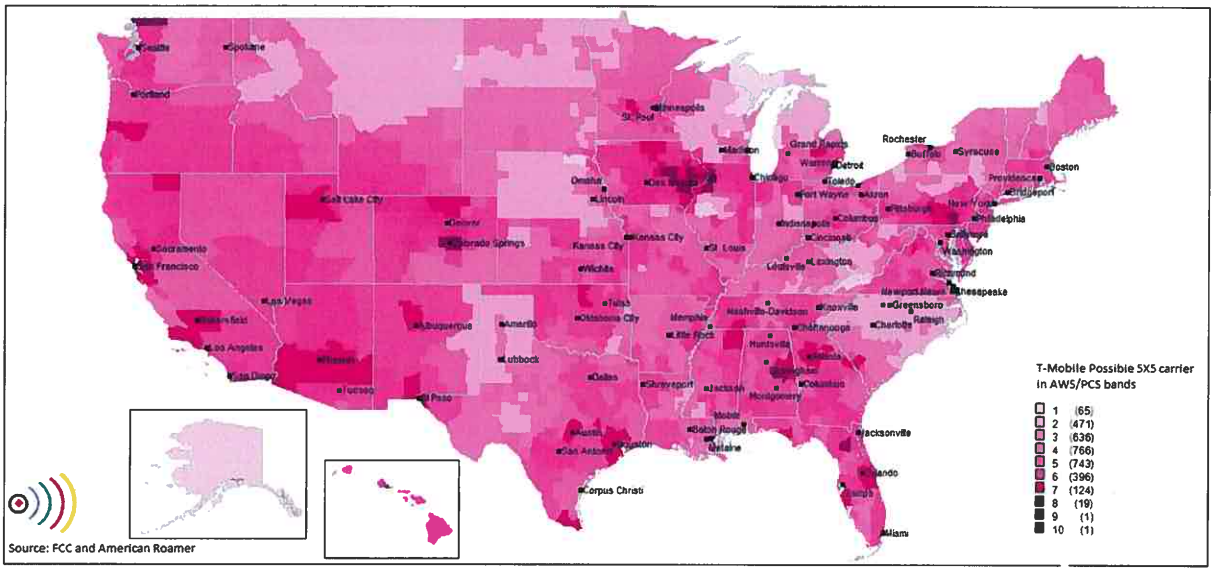

Figure 29: Number of 5MHz x 5MHz LTE channels T-Mobile USA can deploy in its current AWS and PCS spectrum holdings. ***American Roamer, LLC is the creator and copyright holder of the licensing data used in this analysis.***

XVIII. AT&T'S THREAT THAT IT WILL NOT DEPLOY ITS LTE NETWORK BEYOND 80% OF THE US POPULATION, IGNORES COMPETITIVE REALITY AND TECHNOLOGICAL POSSIBILITIES

106. The initial Hogg Declaration suggests that the "With the efficiencies associated with the transaction, the combined company will deploy LTE to over 97% of the U.S. population, including in rural and smaller communities, thereby reaching approximately 55 million more Americans than under AT&T's current LTE deployment plans."[80] This assertion ignores the fact that, in the absence of the proposed transaction, AT&T likely would still deploy LTE to almost all Americans to compete with Verizon. Also, Mr. Hogg's claim that AT&T's 4G HSPA+ network is capable of matching with Verizon's LTE network capabilities in the remaining 17% of the US population that AT&T would not have covered absent this merger contradicts many of AT&T's claims:

- If AT&T considers its HSPA+ network a 4G network and a significant competitor to Verizon's LTE network, why could T-Mobile not compete with others with its

80 Hogg Decl. ¶14.

current HSPA+ network?[81]

- If AT&T's HSPA+ network will be a good match for Verizon's LTE network for the remaining 17% of the US population, why is it not possible for AT&T to use its HSPA+ network to compete with Verizon's LTE network nationally?

107. Mr. Hogg claims that AT&T needs to spend **[begin confidential information]** [redacted] **[end confidential information]** to deploy its LTE network to additional an 17% of the US population.[82] It is unclear what methodology was used by AT&T to arrive at this cost number, but SMC performed a rudimentary calculation to understand the magnitude of the deployment cost for AT&T and produced a different number. To ensure a robust calculation to cover multiple scenarios, SMC also did a sensitivity analysis on the deployment cost and calculated that the total cost will be less than $2 billion, with potential to be even lower than $1 billion.[83] This calculation was made with an assumption that AT&T will deploy its LTE network as an overlay on its existing 2G/3G network since all the tower infrastructure is already available for it. Replicating AT&T's more costly spending projection would require AT&T to better demonstrate how the company arrived at its own cost of deployment.

108. The statements in AT&T's Application and Opposition notwithstanding, it seems

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81 Lynette Luna, *Updated: T-Mobile USA launches Dual Carrier HSPA+ in 41 New Markets*, FierceWireless (June 16, 2011), *available at:* <http://www.fiercebroadbandwireless.com/story/t-mobile-usa-launches-dual-carrier-hspa-47-new-markets/2011-06-16#ixzz1PdpqLcht>.

82 Hogg Opp. Decl. ¶ 40.

83 Calculation assumptions: covering dense population areas first, a mobile network operator needs to cover total landmass of 1.58 million square miles to cover 97% of the US population and 510 thousand square miles to cover 80% of the US population. This difference of about 1.07 million square miles can be covered with 13,500 sites of 5 mile radius or 6900 sites of 7 mile radius. With the cost of deploying a single site as $50,000, AT&T will have to spend only about $350 million to deploy all its sites as 7-mile radius sites, whereas the same cost will be about $2 billion if AT&T deployed its sites as 5-mile radius site and spent $150,000 per site.

highly implausible that AT&T has chosen or will continue to choose not to offer wireless broadband services to some 15% of the United States population when Verizon – using the s e LTE technology and faced with the same basic economic calculus – intends to deploy wireless broadband service to much the same population.

XIX. MIGRATION OF VARIOUS MOBILE NETWORKS TO LTE TECHNOLOGY WORLDWIDE WILL MAKE BOTH DOMESTIC AND INTERNATIONAL ROAMING MORE DIFFICULT AND GIVE AT&T AND VERIZON EVEN MORE BUYING POWER FOR EXCLUSIVE HANDSETS

109. The Applicants' economists have argued[84] that migration of both 3GPP and 3GPP2 families of technologies to LTE has created a unique situation where the whole world will be able to interoperate on LTE technology, and there will be no problems with roaming either domestically or internationally. This claim is simply not true. As AT&T's Kris Rinne herself has demonstrated,[85] LTE technology has been approved by standards bodies to operate in 25 band classes of spectrum, 12 of which are in the United States (slides from Rinne's presentation are reproduced below in Figures 30 and 31). This proliferation of band classes has been partly driven by AT&T's and Verizon's desire to launch their LTE networks in their respective 700 MHz and AWS bands, in addition to worldwide allocation of multiple spectrum bands, including 2 GHz bands. Today's handset chipsets can support a maximum of five spectrum bands with some planning to support a maximum of eight spectrum bands in 2015.

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84 Reply Declaration of Robert D. Willig Jonathan M. Orszag And Jay Ezrielev, attached to Opposition, WT Docket No. 11-65, at ¶¶ 69, 77 (June 9, 2011) ("Willig Opp. Decl.").

85 Rinne Spectrum Presentation at 16-17.

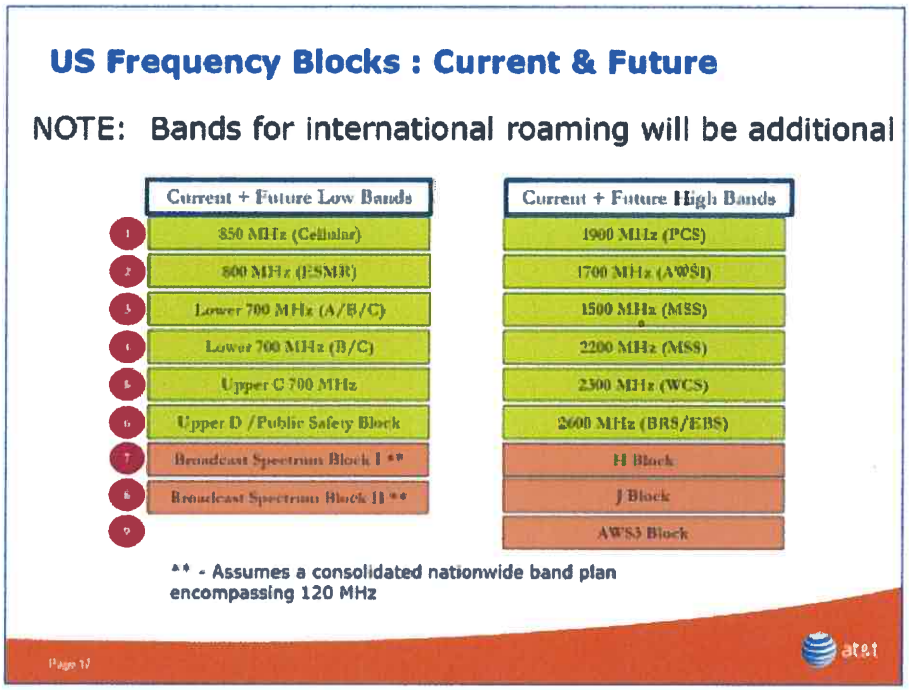

Figure 30: Spectrum blocks designated for LTE deployment as presented by AT&T

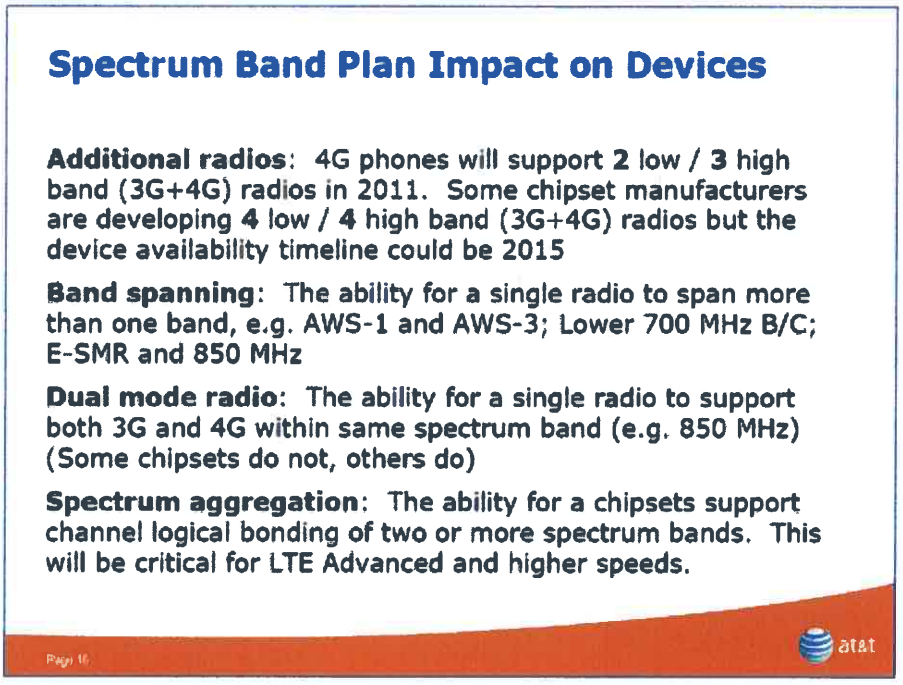

Figure 31: AT&T's discussion on impact of LTE spectrum band plan on devices as presented by AT&T

110. Handsets will thus support a maximum of eight spectrum bands in the foreseeable future, making it easy to see how this will create a competitive imbalance in the

industry. *This will create an artificial barrier to entry for the mobile network operators who have deployed LTE on spectrum bands that are not common with AT&T's or Verizon's LTE.* Due to the buying power of AT&T and Verizon, they will be able to dictate support of specific spectrum bands to the handset vendors. This arrangement of exclusive "band classes" will not only create barriers to seamless domestic roaming but also to international roaming. Many of these issues were raised and discussed in the Commission's workshop on 700 MHz spectrum interoperability.[86]

111. While AT&T and Verizon will gain significant power in the LTE roaming market, AT&T's acquisition of T-Mobile will also eliminate the choice of a viable GSM/UMTS based roaming partner for other mobile network operators. AT&T's claim that it does not compete with T-Mobile for 3G data roaming[87] is also incorrect. AT&T's experts suggest that, "GSM-based carriers that do not own or use AWS spectrum within their footprint do not likely view T-Mobile as a reasonable source of services that substitute for AT&T's GSM roaming services."[88] But, T-Mobile's 3G (UMTS/HSPA) handsets *already* support roaming on AT&T's 3G network.[89] Thus, any mobile network operator planning to enter into roaming agreements with both AT&T and T-Mobile needs to provide its customers handsets supporting T-Mobile's 3G AWS band. Since the devices supporting T-Mobile 3G network have already been

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86 *See* FCC, Interoperability Workshop (Apr. 26, 2011), *available at*: <http://www.fcc.gov/events/700-mhz-interoperability-workshop > (providing video of the workshop and panelists' presentations).

87 Willig Opp. Decl. ¶ 63.

88 *Id.*

89 Although T-Mobile and AT&T market their HSPA+ offering as 4G, Willig has rightly characterized them as 3G in the declaration.

developed for T-Mobile, there is no extra handset development cost to the smaller and regional carriers who would want to procure such handsets.

112. Moreover, there are already some handsets with "penta-band" support, which means they will support both AT&T's and T-Mobile's 3G network.[90] More of such handsets are coming, and will enable the smaller and rural mobile network operators to choose between T-Mobile and AT&T when it comes to 3G roaming.

113. In the course of refuting the feasibility of cross-carrier GSM roaming in the United States, Willig has inadvertently also pointed to the root cause of any impediment to GSM roaming. The lack of interoperability between AT&T's and T-Mobile's 3G bands is a direct result of AT&T's decision to slow-roll its own 3G rollout in AWS spectrum band. AT&T chose not to deploy its 3G network in AWS band, thus encumbering T-Mobile with all the development costs. Had AT&T deployed its 3G network in AWS spectrum as rapidly as T-Mobile, small and rural carriers would have two potential national roaming partners in the same AWS band. To the extent that T-Mobile does not compete for 3G roaming with AT&T due to the different bands that the two carriers use, AT&T was responsible for erecting those competitive barriers in the first instance by failing to deploy on AWS.

114. The same dynamic of increasing the costs of remaining rivals and potential new entrants can be expected to occur in the future despite – and to some degree *because of* – the global market for handsets and other end-user devices. For its part, AT&T responds by stating that AT&T could never successfully "lock up" the handset market because the device market is large, complex and global in scope.

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[90] Chris Davies, *2011: The Year of Pentaband?* SLASHGEAR (Dec. 29, 2010), *available at:* < http://www.slashgear.com/2011-the-year-of-pentaband-29121741/>.

115. The concern, however, is not about AT&T somehow "locking up" handsets or the large, international supply chain for these devices. The concern arises due to AT&T's ability to deprive the non-Bell "ecosystem" of sufficient scale to make any of the huge international manufacturers interested in serving the non-Bell market at the same time or at the same price as AT&T. In the most simplistic terms, international manufacturers tend to go around the world filling the "buckets" of the biggest and most influential groups of purchasers first. Once all the big "buckets" are full, then the manufacturers return to fill the smaller buckets within those markets. So long as multiple carriers can lay claim to the same "bucket," all carriers can benefit from the same basic order fulfillment priorities and can divide the costs associated with costly research and design, chipset development, and factory-line retooling of the global supply chain for the wireless industry.

116. As explained earlier, AT&T has already used the international standards-setting process to create a customized band class 17 (lower 700 MHz B and C blocks only, no A block) in the 700 MHz band that creates a large device ecosystem in portions of the 700 MHz band for AT&T, but denies any of the positive externalities of that scale, such as the development of a domestic or international "ecosystem" of suppliers, manufacturers, equipment, research, to any of its competitors. This is exactly what happened to the A block operators who thought that band class 12 (lower 700 MHz A, B &C) would give them the ecosystem prior to the auction and the development of this sub-band class. AT&T's proposed acquisition of T-Mobile would accomplish much the same thing, but on a far grander scale. *Eliminating T-Mobile, in effect, allows AT&T to deny any competitor or group of competitors from achieving the scale necessary to develop an ecosystem of product support sufficient to interest the large global manufacturers without incurring an inordinately large per-user cost or encountering material manufacturing*

and provisioning delays. Stated differently, by eliminating T-Mobile, the non-Bell "bucket" for order fulfillment in the United States would become a lot smaller and less influential, meaning that every non-Bell operator will have an even greater challenge securing cutting-edge handsets from the international manufacturers during the first-run than they would have faced otherwise.

117. In sum, the widespread adoption of LTE simply does not "solve" the interoperability hurdles facing carriers. Of course, GSM roaming does exist, LTE roaming could, too – but at a price and in a time frame that may prove impractical and uneconomic to pursue. Worse, as the U.S. non-Bell bucket in the international device ecosystem becomes smaller, the challenge for smaller US carriers to secure cutting-edge handsets from international manufacturers at a low price during the first-run will increase. Exclusivity arrangements would be less relevant and, frankly, less necessary if the proposed acquisition were approved because the international manufacturers will simply place higher priority on foreign carriers with larger potential markets than on the remaining small and fringe players remaining in the United States.

XX. CONCLUSION

118. AT&T has not provided empirical evidence to support its assertions of exceptional demand for, or peculiar effect on, its networks. Moreover, AT&T's argument that the proposed integration of AT&T's network with that of T-Mobile is the *best and only* cure for AT&T's claimed capacity crunch is sharply at odds with the feasibility of spectrum, technology, and network investments that AT&T could use to improve network capacity. AT&T has numerous other, readily available solutions to close the ostensible capacity gap that AT&T has brought upon itself by its slow introduction of new technologies and under-investment in its network.

Furthermore, the benefits, such as capacity enhancements, that AT&T claims it will receive are impossible to substantiate given the limited data and analysis in AT&T's Application and Opposition.

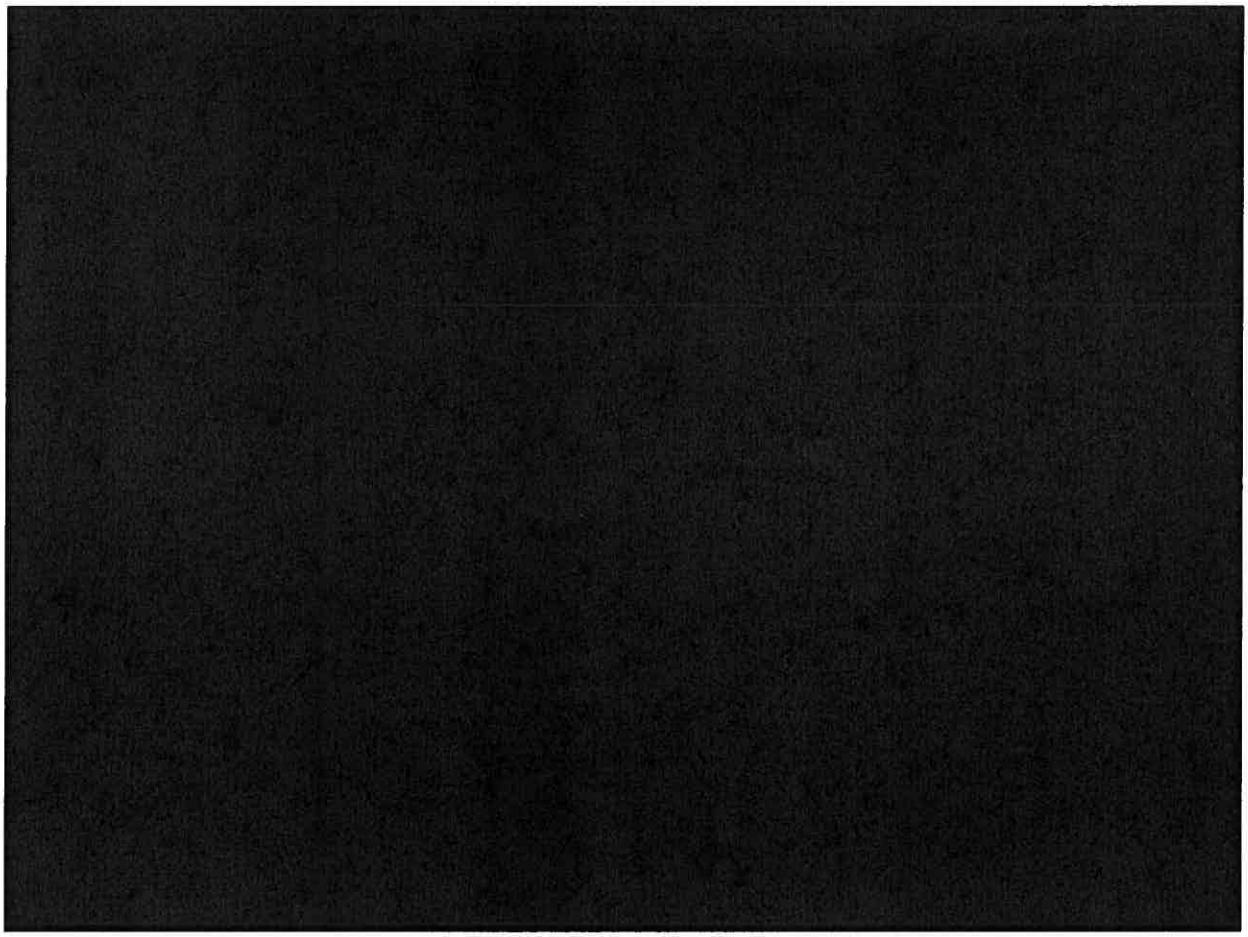
119. As in its Application, AT&T's Opposition ultimately relies on generalities and conjecture, not empirical data. AT&T has not demonstrated why it cannot embrace the alternative methods for capacity enhancement. My analysis demonstrates that AT&T can more than meet its projected capacity through any number of comparatively simple steps, including: (1) using the spectrum it has; (2) upgrading its technology; (3) investing in network infrastructure; and, last but not least; (4) ending subsidies for inefficient, twenty-year old GSM technologies as part of a migration strategy to more modern, efficient technologies.

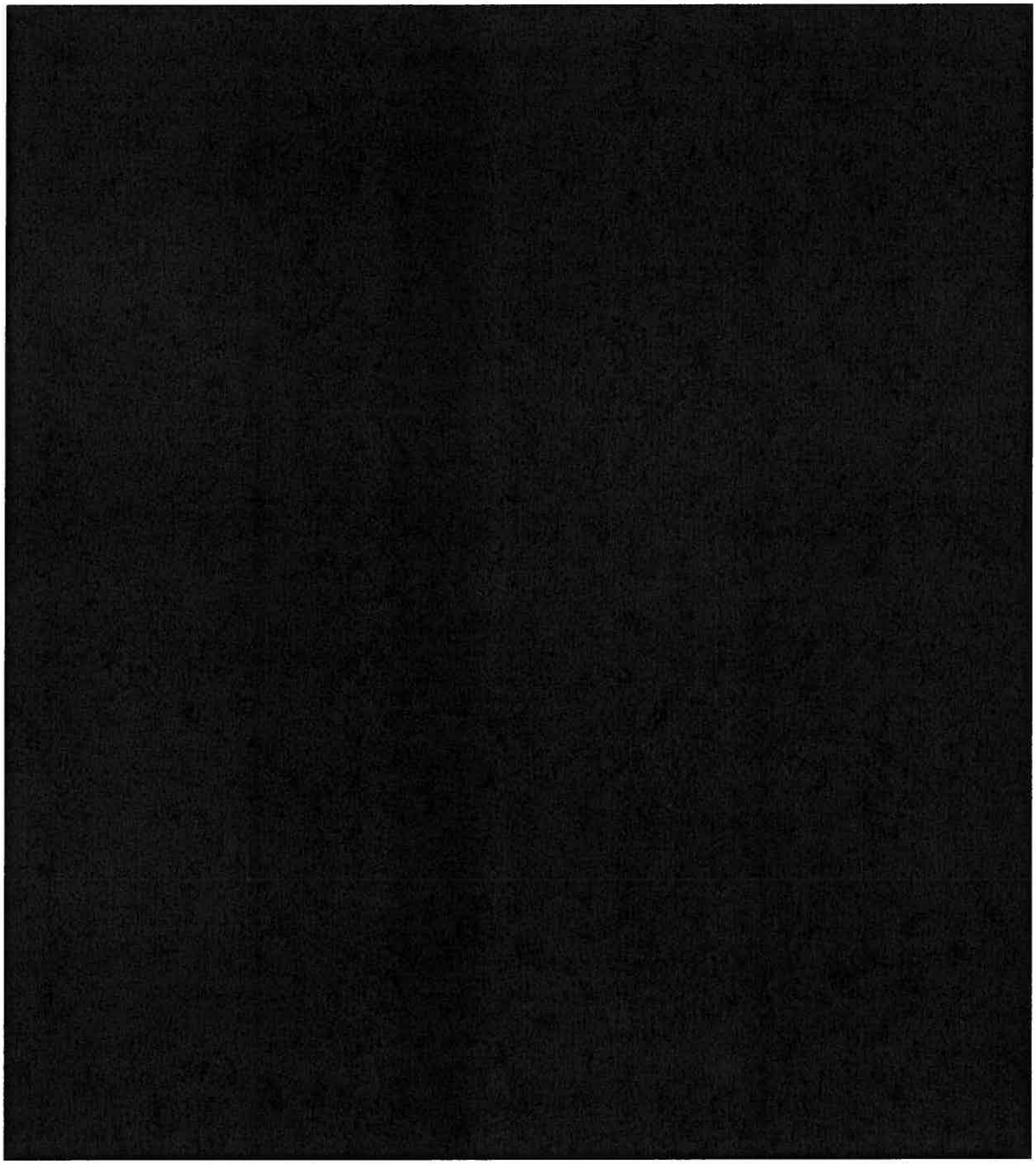
Exhibit A

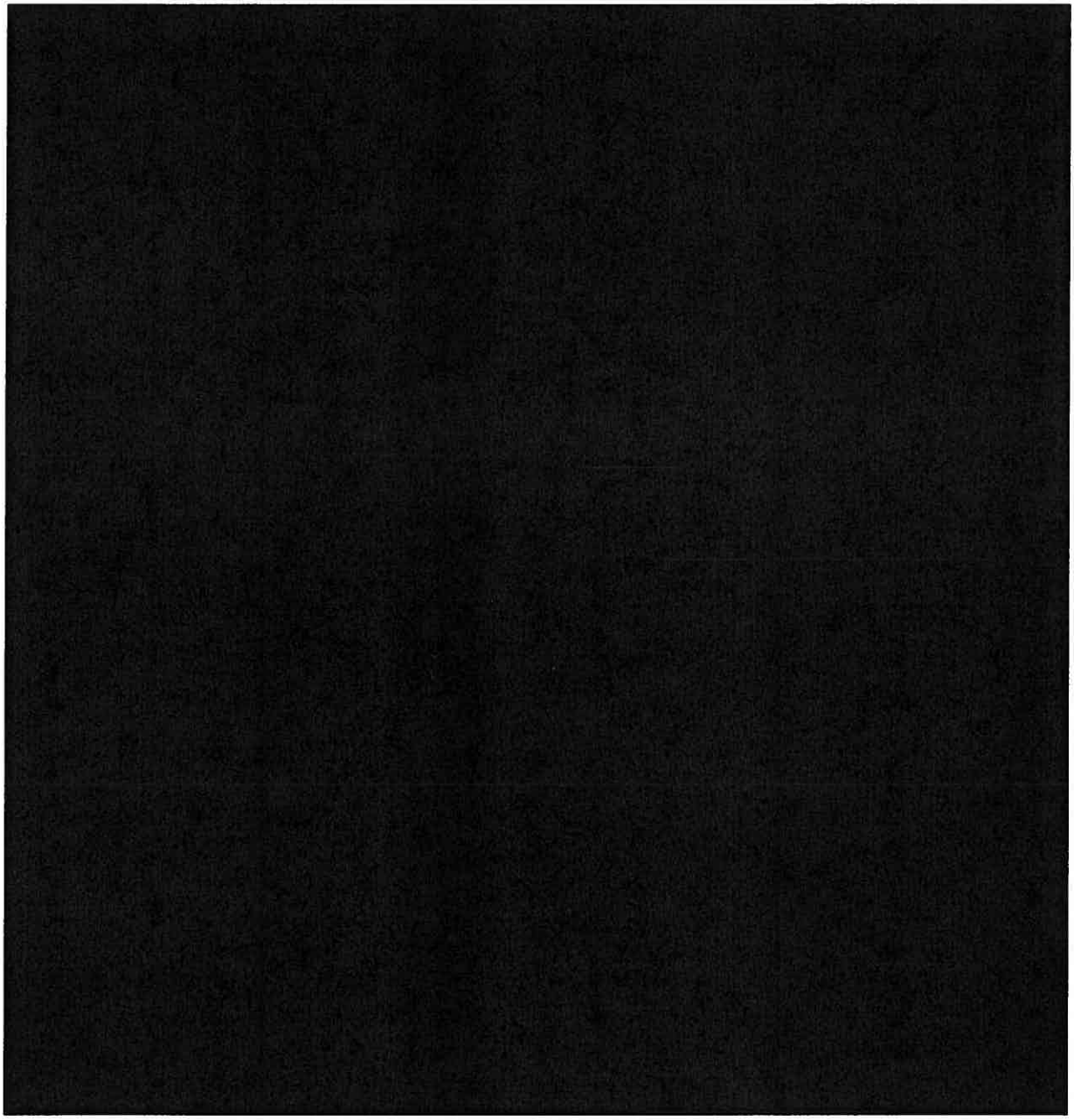
CMAs Where AT&T Projected as of April 2011 It Will Require, But Lack, the Cellular and PCS Spectrum to Deploy Additional UMTS Carriers[1]

[1] Re-created from Reply Declaration of William Hogg, WT Docket No. 11-65, (April. 21, 2011) at Exhibit A, with additional analysis from SMC.

[begin highly confidential information]







[redacted]

[redacted]

[redacted]

[end highly confidential information]

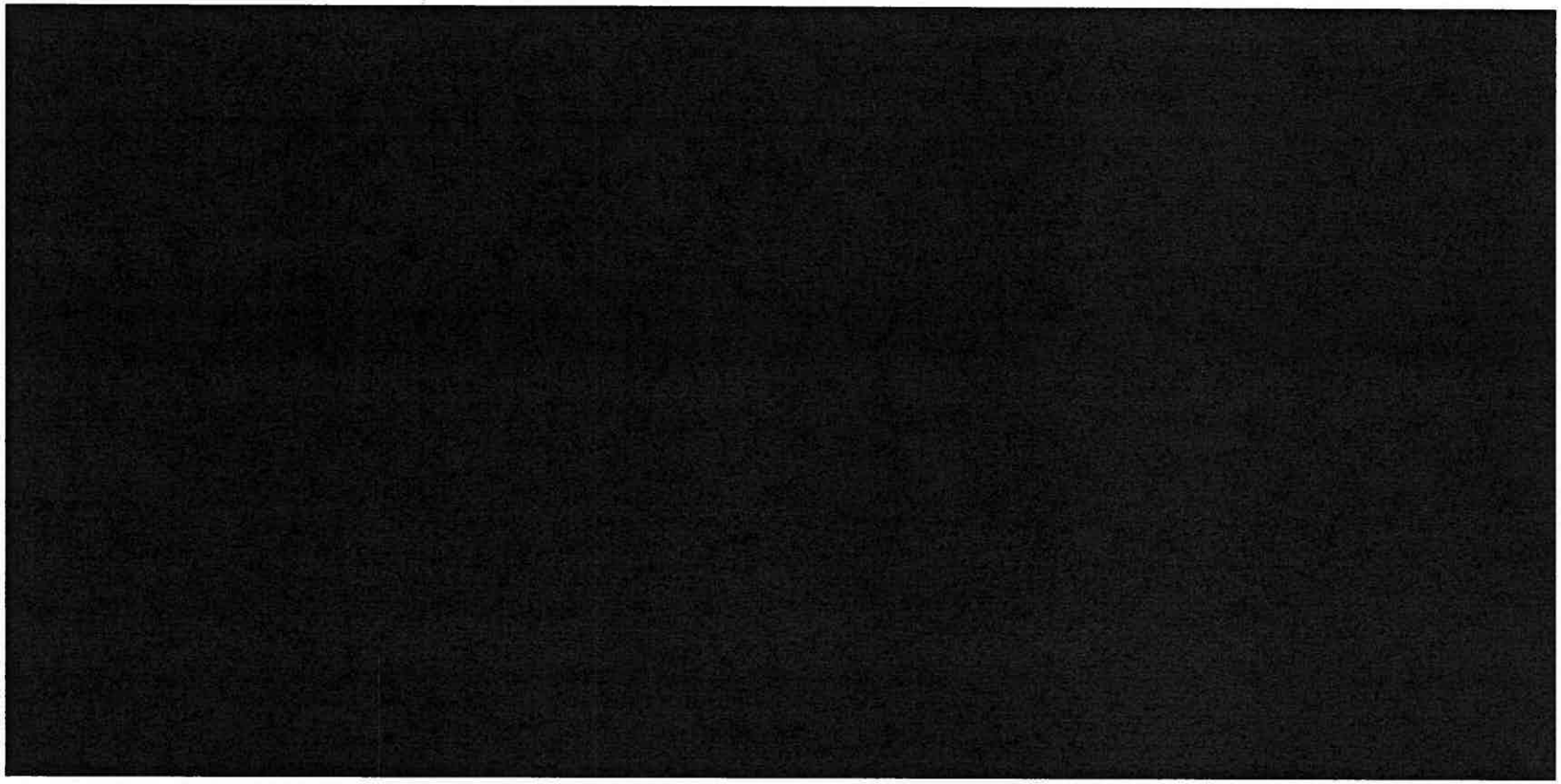
Exhibit B

Maps of Existing AT&T and T-Mobile Sites for Washington D.C., and San Francisco, CA[2]

[2] Re-created from Reply Declaration of William Hogg, WT Docket No. 11-65, (April. 21, 2011) at Exhibit B, with additional analysis from SMC.

Map of AT&T and T-Mobile Sites: Washington, D.C.

[begin highly confidential information]



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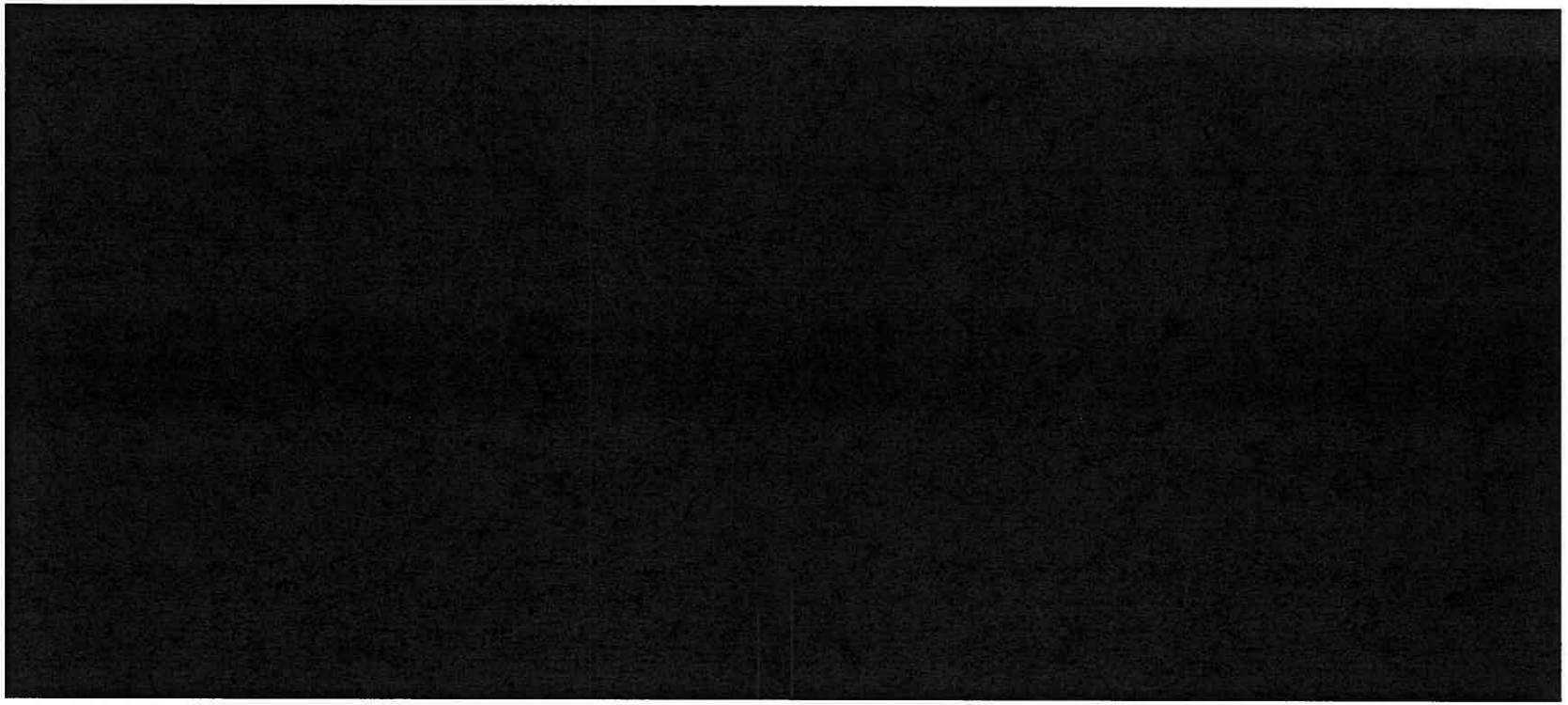
Map of AT&T and T-Mobile Sites: San Francisco, CA

[begin highly confidential information]



[end highly confidential information]

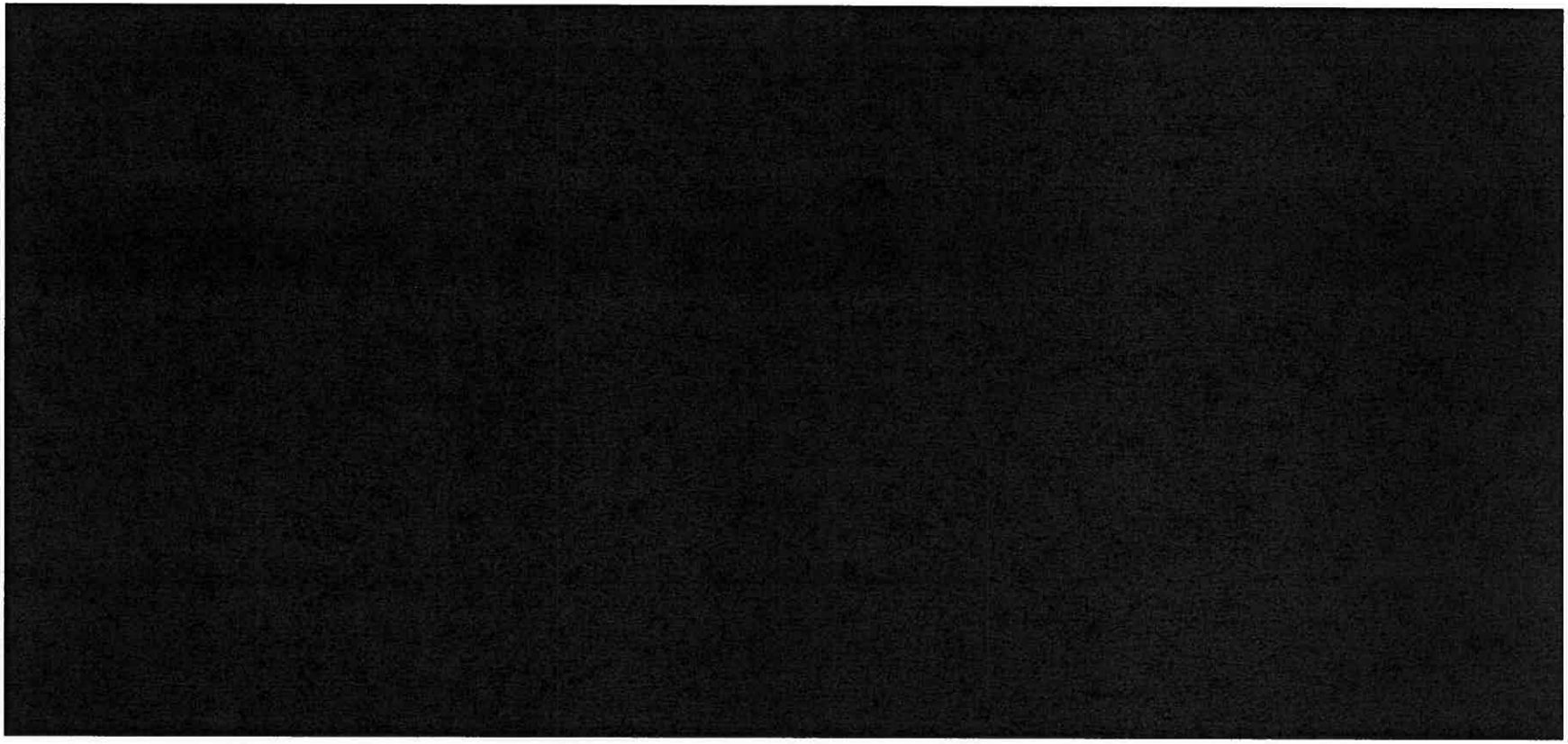
Exhibit C

Maps of Existing AT&T and T-Mobile Sites for Washington, DC and San Francisco, CA Where Sites Meeting AT&T's Distance-Based Metric are Identified[3]

[3] Re-created from Reply Declaration of William Hogg, WT Docket No. 11-65, (April. 21, 2011) at Exhibit B, with additional analysis from SMC.

Map of Existing AT&T and T-Mobile Sites for Washington, DC Where Sites Meeting AT&T's Distance-Based Metric are Identified

[begin highly confidential information]



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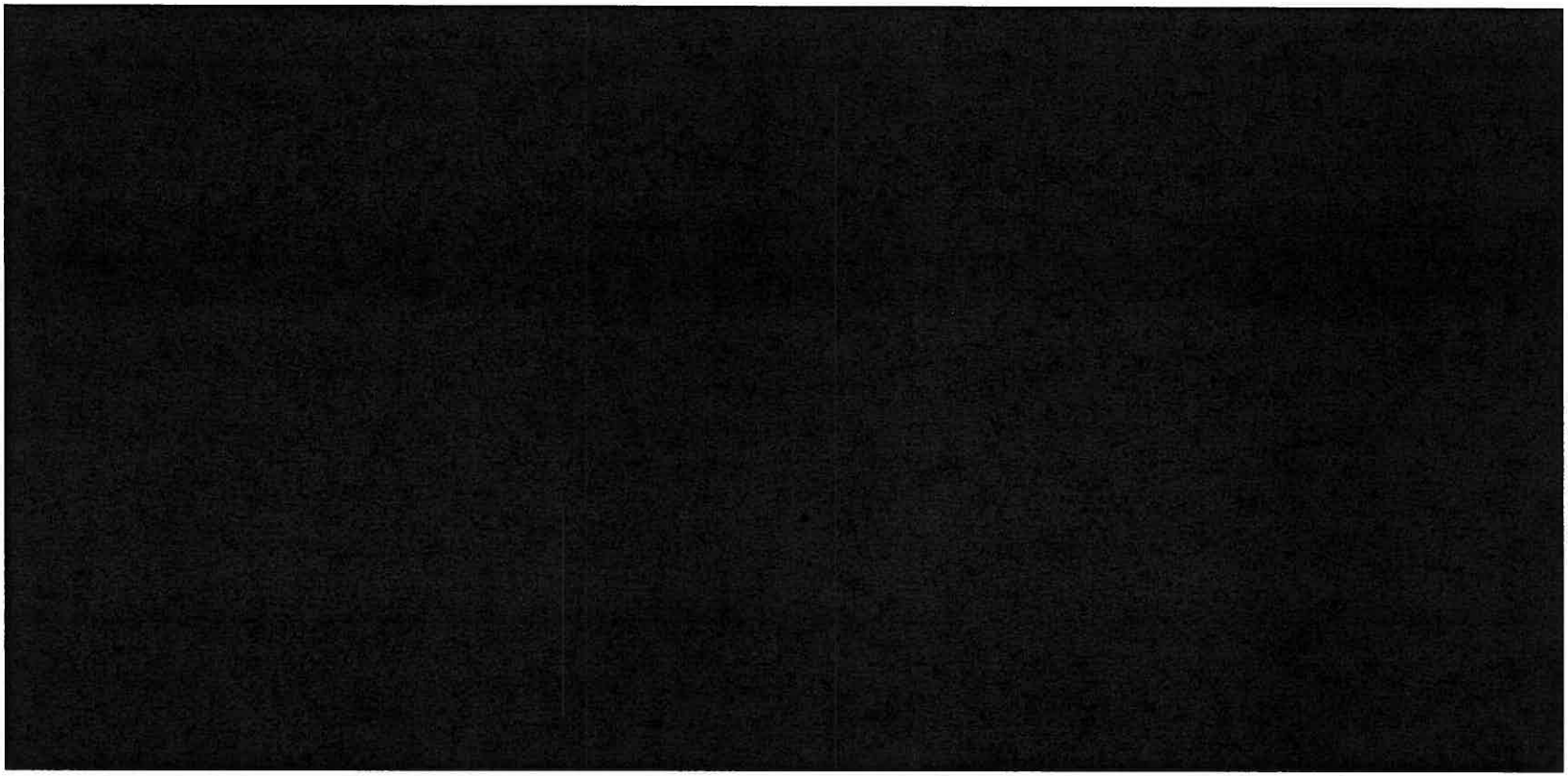
Map of Existing AT&T and T-Mobile Sites for San Francisco, CA Where Sites Meeting AT&T's Distance-Based Metric are Identified

[begin highly confidential information]



[end highly confidential information]

Exhibit D

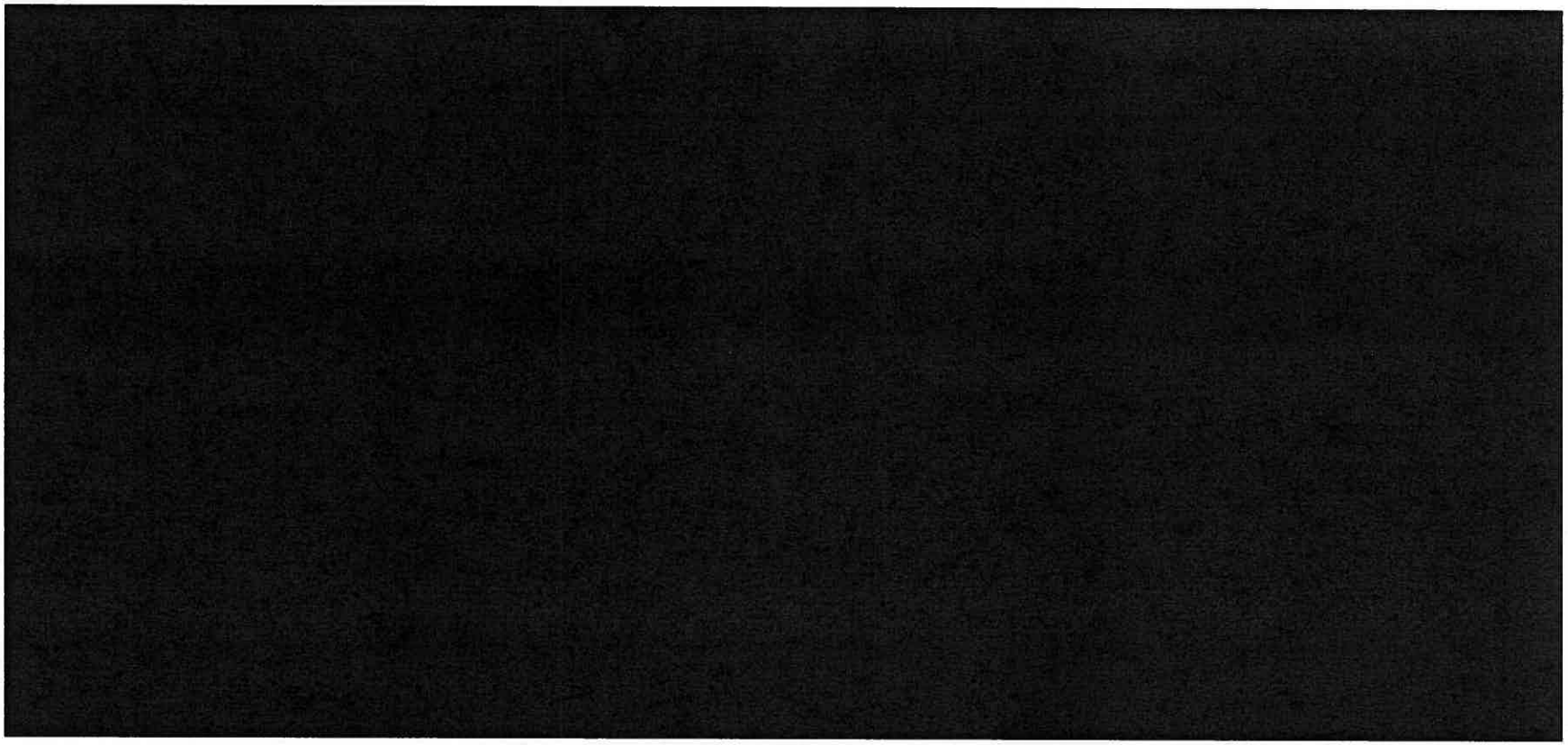
Maps of existing AT&T and T-Mobile Sites for Washington, DC and San Francisco, CA with Additional Available Site Inventory Mapped[4]

[4] Re-created from Reply Declaration of William Hogg, WT Docket No. 11-65, (April. 21, 2011) at Exhibit B, with additional analysis from SMC.

REDACTED – FOR PUBLIC INSPECTION

Map of existing AT&T and T-Mobile Sites for Washington, DC with Additional Available Site Inventory Mapped

[begin highly confidential information]



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Map of existing AT&T and T-Mobile Sites for San Francisco, CA with Additional Available Site Inventory Mapped

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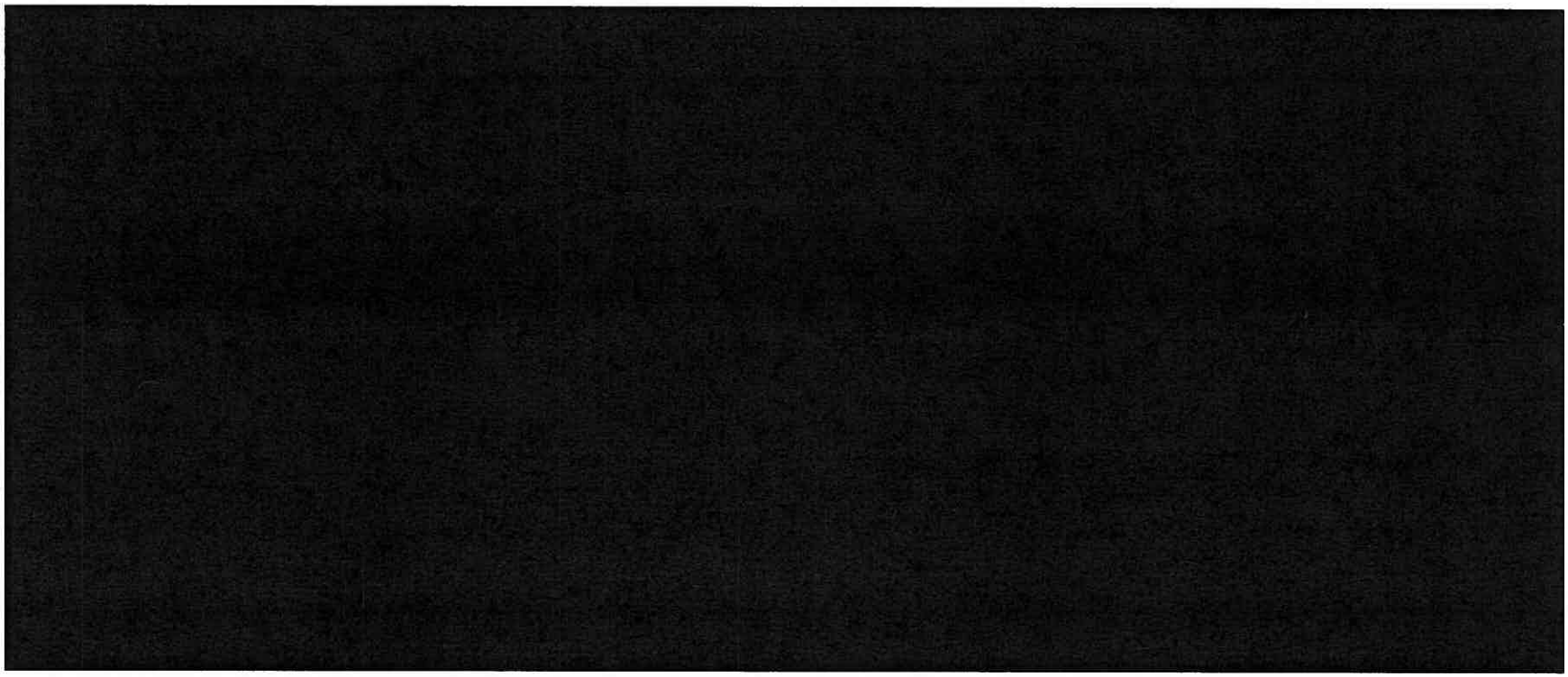

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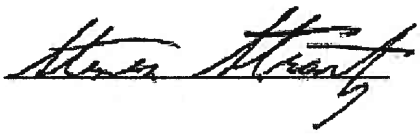
I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 20, 2011.



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