

Appendix A

**AN ECONOMIC ANALYSIS OF THE RURAL
TELECOMMUNICATIONS GROUP'S PROPOSED SPECTRUM CAP**

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December 2, 2008

CONTENTS

I.	INTRODUCTION AND OVERVIEW.....	1
II.	A SPECTRUM CAP WOULD VERY LIKELY HARM COMPETITION AND CONSUMERS.....	3
III.	RTG PROVIDES NO SOUND RATIONALES FOR IMPOSING A SPECTRUM CAP.....	5
	A. THE <i>RTG PETITION</i> CONFUSES HARM TO COMPETITORS WITH HARM TO COMPETITION	5
	B. AS THE COMMISSION CORRECTLY DETERMINED IN AN EARLIER PROCEEDING, A SPECTRUM CAP NO LONGER PLAYS A USEFUL PUBLIC- INTEREST ROLE	6
	C. A SPECTRUM CAP IS NOT A USEFUL ADDITION TO THE COMMISSION'S OVERSIGHT OF COMPETITIVE CONDITIONS IN WIRELESS MARKETS.....	8
	D. EVIDENCE INDICATES THAT WIRELESS MARKETS ARE PERFORMING WELL.....	11
	E. THE DESIRE TO PREVENT WAREHOUSING IS AN UNSOUND RATIONALE	15
IV.	THE PROPOSED GEOGRAPHIC BOUNDARIES ARE UNSOUND	16
V.	CONCLUSION.....	19
	APPENDIX: QUALIFICATIONS.....	20

I. INTRODUCTION AND OVERVIEW

1. The Rural Telecommunications Group, Inc., (RTG) has petitioned the Federal Communications Commission (Commission) to initiate a proceeding with the intent to impose a 110-MHz, county-level spectrum cap that would apply to all commercial terrestrial wireless spectrum below 2.3 GHz.¹ The Wireless Telecommunications Bureau has sought public comment on RTG's petition.²

2. I have been asked by counsel for Verizon Wireless to conduct an economic analysis of whether the proposed aggregation limit would promote competition, consumer welfare, and economic efficiency. I conclude that it would not. Instead, such a cap would very likely distort competition to the detriment of consumer welfare and economic efficiency.

3. Briefly, my findings are the following:

- *A binding spectrum cap can harm competition and consumers by increasing the costs of expansion for a service provider that has developed a successful business model that requires additional spectrum to meet consumer demand for its services. A spectrum cap can punish success and, thus, discourage firms from competing to attract consumers through improved services and lower prices. As result of diminished competition, even carriers for whom the cap is not a binding constraint can be expected to raise their prices.*
- *The proposed cap does not have a sound public-interest rationale. As summarized above and discussed in greater detail below, a spectrum cap would raise the costs of expansion for successful service providers and correspondingly*

¹ Rural Telecommunications Group, Inc., *In the Matter of Rural Telecommunications Group, Inc. Petition for Rulemaking To Impose a Spectrum Aggregation Limit on all Commercial Terrestrial Wireless Spectrum Below 2.3 GHz*, Petition for Rulemaking, filed July 16, 2008 (hereinafter *RTG Petition*).

² Wireless Telecommunications Bureau Seeks Comment on Petition for Rulemaking of Rural Telecommunications Group, Inc. To Impose a Spectrum Aggregation Limit on All Commercial Terrestrial Wireless Spectrum Below 2.3 GHz, 73 Fed. Reg. 63128 (October 23, 2008).

weaken competition. In the light of these costs, it is vital that any cap have a sound public-interest basis. The proposed cap does not.

- At the most fundamental level, the *RTG Petition* confuses protecting competitors with protecting competition. The petition appears to take the view that small carriers should be entitled to obtain spectrum at less than market rates because these carriers are less efficient than their larger rivals. Such a view is manifestly anticompetitive and anti-consumer.
 - A spectrum cap had a useful role to play when the Commission first began to assign spectrum through auctions. That role was to allow potential bidders to determine with a high degree of certainty whether they would be allowed to consummate the purchases of licenses for which they were the high bidders. Industry participants now have sufficient experience with auctions and Commission policies that this rationale for a cap is no longer meaningful.
 - To the extent that the Commission is concerned about the possibility of excessive concentration in wireless markets, it already has policies in place to protect competition. Specifically, both the Commission and the Department of Justice routinely evaluate the competitive effects of wireless mergers on a case-by-case basis. These evaluations take a much more sophisticated view of competitive effects than does a mechanical calculation of whether the merging parties would have more than a certain amount of a particular input.
 - Wireless markets are performing well and there is no evidence that carriers in rural areas are unable to obtain spectrum on competitive terms.
 - There is no need for a cap to prevent “spectrum hoarding.” It generally would be uneconomic for a service provider to obtain additional spectrum in order to warehouse it and deter entry or expansion by rivals.
- *Application of the cap at a county level does not have a sound basis.* The *RTG Petition* fails to offer a reasoned rationale for the geographic boundaries of its proposed aggregation limit. County borders do not define the geographic boundaries of competition. Much of the competition in wireless markets occurs at the national level. To the extent that competitive conditions vary at the local level, relevant factors include license boundaries, the contours of media markets, and the patterns of economic activity, such as commuting and commerce—none of which generally coincide with county borders.
 - *The lack of congruence with existing licenses is problematical.* The lack of a sound rationale is particularly troubling given the difficulties that could arise because the boundaries would not correspond to existing license areas. Treatment of partial overlaps would be expected to lead to unintended consequences where overlaps constituted only a small part of the overall license areas involved.

4. The remainder of this white paper explains these findings in greater depth and provides details of the facts and analysis that led me to reach them.

II. A SPECTRUM CAP WOULD VERY LIKELY HARM COMPETITION AND CONSUMERS

5. A binding spectrum cap would distort and attenuate competition. Most fundamentally, such a cap would restrict competition by restricting output. A spectrum cap would restrict output because it would make it more difficult and costly (and, in some cases, impossible) for a service provider to expand when it had developed, or—in the case of innovation—was contemplating the development of, a service or device that required additional spectrum to meet consumer demand. A spectrum cap would thus harm consumers through the resulting combination of higher prices, lower service quality, and diminished innovation in service and handset offerings.

6. There are several mechanisms through which a binding spectrum cap would harm competition and consumers, and would lead to economic inefficiency:

- A spectrum cap would force firms constrained by the cap to use an inefficient input mix. The effect would be to raise the costs of expanding service. Economic analysis clearly indicates that raising the marginal costs of successful wireless service providers would generally induce those firms to charge higher prices and sell less of their services. Consumers who continued to subscribe to these carriers—or who would have subscribed to them at the lower prices the carriers would have charged absent the cap—would be harmed.

- Smaller wireless carriers might not find a spectrum cap to be a constraint on their behavior. However, to the extent that the significant rivals of these smaller carriers were constrained by the cap and, thus, charged higher prices or otherwise competed less aggressively, these smaller carriers could also be expected to compete less vigorously. Stated plainly, a binding spectrum cap could create a pricing umbrella for smaller service providers. The result would be lower industry output and higher equilibrium prices. While those carriers unconstrained by the spectrum cap would gain from the loss of competition, consumers would be harmed.
- The harms to competition and consumers would not be limited to static effects. Innovation would also be harmed. To see why, consider a carrier that was deciding whether to develop and introduce a new service or device that was projected to be very popular with consumers and would increase the carrier's need for spectrum. If the spectrum cap were a binding constraint on the carrier, it would find it more difficult and/or costly to introduce the new service or device. For example, introducing the new service while being unable to expand the carrier's network capacity might lead to network congestion and service degradation. The result would be to weaken innovation incentives and discourage dynamic competition.
- Lastly, in addition to the harm to consumers, there would be efficiency losses resulting from the reallocation of output from service providers that had relatively low costs (and, thus, would tend to have higher market shares and spectrum demands) to service

providers that had relatively high costs (and, thus, would tend to have low market shares and low spectrum demands).³

7. As discussed in the next section, there is no need to risk suffering these harms to competition and consumers; given other policies that the Commission already has in place, as well as market conditions, there are no offsetting public-interest benefits of a spectrum cap.

III. RTG PROVIDES NO SOUND RATIONALES FOR IMPOSING A SPECTRUM CAP

8. The *RTG Petition* fails to provide a coherent theory—let alone any supporting facts—of how its proposed spectrum cap could serve the public interest.

A. THE *RTG PETITION* CONFUSES HARM TO COMPETITORS WITH HARM TO COMPETITION

9. Competition policy (including antitrust enforcement and modern telecommunications regulation) is designed to promote competition because of the benefits that competition brings to consumers. These benefits typically come in the form of lower prices, greater innovation and variety, or higher product and service quality. In promoting economic efficiency and consumer welfare, there is a critical distinction between harm to competition and harm to competitors. The concern of competition policy is harm to former, not the latter. Consider a hypothetical example in which one supplier invests more than another and is able to develop an innovative new service that is extremely attractive to consumers. The introduction of that service harms competitors. But the innovation is part of a well-functioning competitive

³ The relative costs refer to differences in costs after taking into account any differences in service qualities.

process and benefits consumers. Antitrust policy properly favors innovation and seeks to protect competition.

10. In seeking to limit the expansion of successful wireless carriers, the *RTG Petition* is aimed at protecting specific competitors—RTG’s members—rather than the competitive process and consumer welfare. Indeed, the *RTG Petition* explicitly states its intention to use a spectrum aggregation limit to handicap more capable and efficient competitors to the benefit of its members:

RTG is deeply concerned about competitive imbalances in the provision of wireless telecommunications service in rural America. As discussed below, in the absence of a spectrum cap, the *interests of RTG’s members* will be adversely affected as they attempt to obtain spectrum and compete on an unlevel playing field against consolidated nationwide wireless carriers who possess *greater resources and economies of scale*.⁴

Although handicapping competitors might be good for RTG’s members, it would not be good for competition or consumers.

B. AS THE COMMISSION CORRECTLY DETERMINED IN AN EARLIER PROCEEDING, A SPECTRUM CAP NO LONGER PLAYS A USEFUL PUBLIC-INTEREST ROLE

11. A spectrum cap had a useful role to play when the Commission first began to assign spectrum through auctions. That role was to allow potential bidders to determine with a high degree of certainty whether they would be allowed to purchase licenses for which they were the high bidders in the first auctions of CMRS spectrum in 1994 and 1995.⁵ After 14 years of

⁴ *RTG Petition* at 6 [emphasis added].

⁵ In adopting the cap, the Commission stated,

By instituting a cap ... we can add certainty to the marketplace without sacrificing the benefits of pro-competitive and efficiency-enhancing aggregation....A cap is a

auctions and the development of a secondary market for spectrum licenses, industry participants now have sufficient experience with auctions, license transactions, and Commission policies that this rationale for a cap is no longer meaningful.

12. Moreover, there are many more wireless competitors today than there were at the time that the spectrum caps were put in place.⁶ The Commission's stated rationale when it decided to remove the spectrum cap was that, in contrast to the situation when the cap was imposed, there was "meaningful economic competition" in CMRS markets generally, and the

bright line test that provides entities who are making acquisitions with greater assurance than a case-by-case approach that if they fall under the cap, the Commission will approve the acquisition. The cap is particularly useful to entities formulating strategies and lining up financing in anticipation of the broadband PCS auctions.

(In the Matter of Implementation of Sections 3(n) and 332 of the Communications Act; Regulatory Treatment of Mobile Services Amendment of Part 90 of the Commission's Rules To Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band Amendment of Parts 2 and 90 of the Commission's Rules To Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and 935-940 MHz Band Allotted to the Specialized Mobile Radio Pool, GN Docket No. 93-252; PR Docket No. 93-144; PR Docket No. 89-553, Third Report and Order, rel. September 23, 1994 (hereinafter 1994 Spectrum Cap Order) at 233, 234.)

⁶ In its 2001 order sunseting the Spectrum Cap, the Commission noted that competition in mobile telephony markets was much more vigorous than in 1994 when the cap was instituted:

As of the end of 2000, about ninety-one percent of U.S. residents lived in a county that was served, at least in part, by three or more different mobile telephony providers, and seventy-five percent of the U.S. population lived in a county where five or more providers offered service. Furthermore, over 133 million people lived in counties with six or more mobile telephony providers, an increase of thirty-five percent over the previous year, and thirty-four million people lived in counties served by seven or more providers, a one-year increase of 170 percent. By contrast, when the spectrum cap was first promulgated in 1994, in all but the few markets where Nextel had then launched service, consumer choice was limited to two cellular providers.

(In the Matter of 2000 Biennial Regulatory Review Spectrum Aggregation Limits For Commercial Mobile Radio Services, WT Docket No. 01-14, Report and Order, rel. December 18, 2001 (hereinafter 2001 Spectrum Cap Order) at 14-15 [internal footnotes omitted].)

Commission pointed to the “presence of multiple competitors [that] is effectively restraining prices, promoting innovation and diversity, and increasing output” particularly in urban areas, as reasons for removal of the cap.⁷

13. The proportion of consumers that can choose among multiple competitors has continued to increase following the removal of the cap. In 2001, 94 percent of the population lived in counties where consumers could choose among at least three wireless carriers and 89 percent lived in counties where consumers could choose among four or more.⁸ In 2003, the corresponding figures were 97 percent and 93 percent,⁹ and in 2006 the corresponding figures were 98 percent and 94 percent.¹⁰

**C. A SPECTRUM CAP IS NOT A USEFUL ADDITION TO THE COMMISSION’S
OVERSIGHT OF COMPETITIVE CONDITIONS IN WIRELESS MARKETS**

14. RTG appears to ignore the existence of the Commission’s merger review policies and antitrust enforcement generally. Despite what RTG implies, it is simply not the case that a spectrum cap would be all that stood between consumers and unbridled monopoly.

⁷ *2001 Spectrum Cap Order*, at 25.

⁸ *In the Matter of 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*, Seventh Report, rel. July 3, 2002, at Appendix C, Table 5.

⁹ *In the Matter of 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*, WT Docket No. 04-111, Ninth Report, rel. September 28, 2004, at 13.

¹⁰ *In the Matter of 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*, WT Docket No. 07-71, Twelfth Report, rel. February 4, 2008, (hereinafter *Twelfth CMRS Competition Report*), at 26.

15. To the extent that the Commission is concerned about the possibility of excessive concentration in wireless markets, it already has policies in place to protect competition. Specifically, both the Commission and the Department of Justice routinely evaluate the competitive effects of wireless mergers and other industry practices on a case-by-case basis.¹¹ These evaluations take a much more sophisticated view of competitive effects than does a spectrum cap, which relies on a mechanical calculation of whether the merging parties would have more than a certain amount of a particular input. For example, the Commission's merger review process uses a variety of more meaningful measures of concentration, such as those based on subscribers and revenues.¹²

¹¹ Indeed, the Commission has a spectrum-based screen in place. In an earlier proceeding, I identified costs of the screen, which—from a public-interest perspective—is far preferable to the cap that the *RTG Petition* advocates. (*In the Matter of Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and De Facto Transfer Leasing Arrangements*, WT Docket No. 08-95, File Nos. 0003463892, *et al.*, ITC-T/C-20080613-00270, *et al.*, Joint Opposition to Petition to Deny and Comments, filed by Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC, August 19, 2008, Attachment 3: Declaration of Michael L. Katz.)

The Commission concluded that the costs of the screen were not significant and retained it. (*In the Matter of Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and De Facto Transfer Leasing Arrangements, and Petition for Declaratory Ruling that the Transaction is Consistent with Section 310(b)(4) of the Communications Act*, WT Docket No. 08-95, File Nos. 0003463892, *et al.*, ITC-T/C-20080613-00270, *et al.*; File No. ISP-PDR-20080613-00012, Memorandum Opinion And Order And Declaratory Ruling, rel. November 10, 2008, at 39.)

¹² This is not to say that the distribution of spectrum ownership does not matter. It is to say that, by itself, the maximum spectrum holding of a single party is a poor measure of competitive conditions.

16. In addition to its unnecessary rigidity and lack of sophistication, a spectrum cap would suffer from being based on a metric that is a poor measure of competitive conditions. For at least two broad reasons, the number of MHz covered by spectrum licenses held by entities under common ownership is not a useful measure for analyzing competitive effects.

17. First, mechanical reliance on a single statistic regarding the ownership of a single input is a poor—and likely misleading—substitute for a sound competitive analysis. To oversimplify somewhat, consumer welfare depends on outputs, not inputs. A carrier could be a weak competitor despite having a large amount of spectrum or a strong competitor despite having relatively little spectrum. If spectrum license holdings are to be a useful measure of competitive conditions, then there must be a tight link between spectrum license holdings and competition in the output market. There is no such link, particularly when different service providers use different technologies and operate in different spectrum bands. Moreover, various direct measures of output are available and are better indicators of competitive conditions.¹³

18. Second, the shortcomings of focusing on a single input as a measure of competitive conditions are made worse by focusing on the amount of the input to which a particular entity has access. To the extent one is going to focus on a particular asset to assess the state of actual or potential competition, it makes more sense to focus on the availability of spectrum for rivals than on the amount controlled by any single entity. In a static world, one might argue that—because the amount of spectrum available for use by rivals is equal to the total

¹³ That said, even output measures should be used with care.

amount available minus the amount controlled by the entity under consideration—it makes little difference whether the policy threshold is based on the amount held by one entity or the amount available for use by others. But when technological developments and the release of additional spectrum licenses are constantly changing the availability of spectrum that can be used to compete, it makes little sense to focus on a specific amount held by a given enterprise.

D. EVIDENCE INDICATES THAT WIRELESS MARKETS ARE PERFORMING WELL

19. RTG asserts that recent wireless mergers have harmed competition and led to spectrum “stockpiling.”¹⁴ In doing so, the petition appears to equate increased concentration as measured by the Hirschman-Herfindahl Index (HHI) with competitive harm.

20. At the outset, it is worth observing that there are three large, logical gaps in the argument that, because the HHI has increased, the Commission should institute a cap on the amount of spectrum for which any one entity can hold licenses:

- First, before concluding that an increase in concentration corresponds to a competitive problem, it is important to understand what is driving the increase in concentration. To the extent that concentration is increasing because service providers are increasing their market shares by using advantages of scale and scope to provide more attractive offerings to consumers, increases in concentration can be the result of *increased* competition.
- Second, in antitrust analysis, the HHI is commonly applied to measures of output, not inputs. Indeed, this is the case with the figures cited by the *RTG Petition*. The

spectrum cap would apply to an input. As discussed above, there is a very tenuous link between competition and the maximum amount of spectrum for which any given enterprise is allowed to hold licenses in a given geographic area.

- Third, the mergers referred to in the *RTG Petition* were reviewed by the Commission, as well as the Antitrust Division of the U.S. Department of Justice. These merger reviews considered changes in HHIs as well as many other factors. At best, a showing that recent, approved mergers have led to competitive harms would suggest that the Commission and the U.S. Department of Justice might want to recalibrate their case-by-case analyses. In fact, RTG has made no such showing.

21. In its most recent report on competition in wireless markets, the Commission found that the wireless telecommunications marketplace is performing well and that “U.S. consumers continue to benefit from effective competition in the CMRS marketplace.”¹⁵ As the Commission reported, subscriber penetration and minutes of use have grown, call quality has improved, and use of phones for text messaging has expanded.¹⁶ Increased use of phones for both voice and text messaging is attributed in part to low prices for those services.¹⁷ The Commission described competition in the CMRS market as “flourishing” with providers continuing to build out and upgrade their networks.¹⁸

¹⁴ *RTG Petition* at 11.

¹⁵ *Twelfth CMRS Competition Report* at 122.

¹⁶ *Twelfth CMRS Competition Report* at 122.

¹⁷ *Twelfth CMRS Competition Report* at 122.

¹⁸ *Twelfth CMRS Competition Report* at 123.

22. RTG also implies that small and rural carriers are unable to obtain spectrum on sufficiently attractive terms.¹⁹ Yet, it offers no evidence of a spectrum shortage in rural areas or that smaller rural carriers cannot obtain spectrum on normal, commercial terms. RTG points to recent experience in Auctions 66 and 73 as evidence that a cap is needed to prevent large wireless carriers from acquiring large amounts of spectrum and allegedly engaging in anticompetitive behavior.²⁰

23. However, a closer look at the results of these auctions reveals a story that is different in at least two important respects.²¹ First, far from being evidence of anticompetitive harm, the fact that large, national carriers acquired additional spectrum reflects the fact that these carriers continue to expand their services as they compete to attract consumers. Second, smaller carriers have successfully participated in recent auctions to obtain additional spectrum.

24. In Auction 66, for example, the Commission put 1,122 licenses in the 1710-1755 MHz and 2110-2155 MHz (AWS-1) bands up for bid. The 734 Block A licenses were for 20-MHz segments broken into Cellular Market Areas (CMAs). The other Blocks were for licenses with geographic boundaries defined by Economic Areas (EAs) or Regional Economic Groupings (REAs).²² Of these three different types of license areas, CMAs were the most

¹⁹ *RTG Petition* at 13.

²⁰ *RTG Petition* at 14.

²¹ In addition, the assertion that increased spectrum holdings by national carriers is leading to increased anticompetitive activity is unsupported.

²² “Auction 66 Fact Sheet,” available at http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=66, site visited December 1, 2008.

likely to appeal to small and rural wireless providers because they cover smaller areas than either EAs or REAs.²³ Of the CMA licenses offered in the auction, 416 were for RSAs, where small and rural carriers focus their businesses.²⁴ Of the 406 Block A, RSA licenses actually awarded in the auction, 353 went to a total of 81 different small carriers.²⁵

25. More recently, in Auction 73 the Commission put 1,099 licenses in the 700 MHz band up for bid. The 734 Block B licenses were for 12-MHz segments broken into Cellular Market Areas (CMAs). The other Blocks were for licenses with geographic boundaries defined by Economic Areas (EAs), Regional Economic Groupings (REAs), and one nationwide license.²⁶ Of the 416 Block B licenses offered in RSAs, 413 licenses were awarded, and 208 went to small carriers; a total of 72 different small carriers won at least one Block B license in an RSA.²⁷

²³ For a comparison of different geographic areas used by the Commission, see “Geographic Licensing Schemes,” *available at* <http://wireless.fcc.gov/auctions/default.htm?job=maps>, site visited December 1, 2008.

²⁴ CMAs numbered between 307 and 722 correspond to RSAs. (*See, http://wireless.fcc.gov/auctions/default.htm?job=maps*, site visited December 1, 2008.)

²⁵ I categorize as “small bidders” all bidders except Verizon Wireless, AT&T (Cingular), Sprint, T-Mobile, Alltel, Leap (Cricket), MetroPCS, and US Cellular (Barat Wireless).

Auction results are available at http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=66, site visited December 2, 2008.

²⁶ “Auction 73 Fact Sheet,” *available at* http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=73, site visited December 1, 2008.

²⁷ I categorize as “small bidders” all bidders except Verizon Wireless, AT&T (Cingular), Sprint, T-Mobile, Alltel, Leap (Cricket), MetroPCS, and US Cellular (King Street).

Auction results are available at http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=73, site visited December 2, 2008.

E. THE DESIRE TO PREVENT WAREHOUSING IS AN UNSOUND RATIONALE

26. RTG asserts that a spectrum cap is necessary to prevent spectrum warehousing or hoarding.²⁸ This argument fails on two counts. First, it ignores the existence of other Commission policies, as well as the federal antitrust statutes, designed to ensure that carriers do not engage in anticompetitive exclusion.

27. Second, the RTG claim ignores the fact that any attempt to warehouse spectrum would be costly to an incumbent and subject to free riding by other incumbents. Attempts to warehouse spectrum to prevent the entry of competitors are especially costly when an entrant needs only a small fraction of the available spectrum in order to be a viable competitor. This is so because the incumbent would have to purchase licenses to all of the blocks of spectrum that the entrant might utilize, while the entrant need purchase a license to only one. A numerical example illustrates this point. Suppose that there are 270 MHz of suitable spectrum available for license in blocks of 30 MHz each. Also suppose that a service provider needs one such block in order to be a viable competitor. Lastly, suppose that incumbents currently hold licenses to 150 MHz of spectrum in some geographic market. Any one of the four remaining 30-MHz blocks could be used by an entrant to become a new competitor. Hence, an incumbent would have to purchase licenses for all four remaining blocks in order to deter entry. Thus, if an entrant were willing to bid up to \$50 million in order to obtain a 30-MHz license, the incumbent would have to spend \$200 million to block entry through spectrum warehousing.

²⁸ See, for example, *RTG Petition* at 19.

28. Of course, as the total amount of spectrum available rises, it becomes even more costly for an incumbent to attempt to deter entry by warehousing spectrum. For example, if the total spectrum available is 650 MHz, then even if incumbents held 250 MHz of spectrum and an entrant needed 100 MHz to be a viable competitor, an incumbent would have to buy licenses for four times as much spectrum as would an entrant in order to deter entry. Moreover, for the right price, another incumbent might be willing to sell some its licenses to a potential entrant, thus increasing the amount of spectrum that an incumbent attempting to deter entry through warehousing would have to purchase.

IV. THE PROPOSED GEOGRAPHIC BOUNDARIES ARE UNSOUND

29. The *RTG Petition* requests that the Commission define the relevant geographic area for application of the proposed spectrum cap to be the county level.²⁹ In doing so, the petition fails to offer a reasoned rationale for the geographic boundaries of its proposed aggregation limit. The lack of a sound rationale is particularly problematic given the likely difficulties that the proposed boundaries would cause. These problems would arise because county boundaries correspond neither to license areas nor to relevant markets.

30. As RTG itself recognizes, the Commission has used a wide range of license areas (including RSAs, BTAs, MTAs, and EAs) and the proposed geographic boundaries do not correspond to existing license areas.³⁰ Moreover, transactions on secondary markets can, *de facto*, create new license areas. The treatment of partial overlaps based on different license

²⁹ *RTG Petition* at 21.

³⁰ *Id.*

areas could thus raise complex issues and lead to unintended consequences where overlaps constituted only a small portion of the overall license areas involved yet were still blocked by the cap.

31. Even if these administrative problems and unintended consequences could somehow be avoided, a larger problem with the RTG proposal would remain: wireless competition does not begin and end at county boundaries. Much of the competition is driven at the national level, as carriers compete by offering rate plans with national coverage on terms that are standardized nationally. That said, not all competition is at the national level. However, analyses of several different factors all point to the same conclusion: country boundaries generally do not define relevant markets.

32. County boundaries do not reflect the actual service footprints of competitors, the services areas that consumers seek, or the geographic areas over which competitors typically price their services uniformly.

33. It is widely recognized that consumers purchasing mobile wireless telecommunications services desire services that offer coverage where they are located on a regular basis, such as where they live, work, and commute. The Department of Commerce's Bureau of Economic Analysis defines Economic Areas. According to the Bureau,

BEA economic areas define the relevant regional markets surrounding metropolitan or micropolitan statistical areas . . . These economic areas represent the relevant regional markets for labor, products and information. They are mainly determined by labor commuting patterns that delineate local labor markets and that also serve as proxies for local markets where businesses

in the areas sell their products.³¹

Economic Areas, in turn, comprise Component Economic Areas.³² In its ALLTEL-Western Wireless decision, the Commission stated:

CEAs [Component Economic Areas] were designed to represent consumers' patterns of normal travel for personal and employment reasons and should replicate areas within which groups of consumers would be expected to shop for wireless service. [Internal footnotes omitted.]³³

These areas do not correspond to counties.³⁴

34. To the extent that prices differ across geographic areas, such differences are potentially influenced by differences in the sets of suppliers, local demand conditions, and several factors that drive the geographic scope of a carrier's marketing strategy, including media market boundaries, the locations of distribution channels, and the scope of billing systems. For example, a firm with a unified customer billing system will find it easier to offer

³¹ Kenneth P. Johnson and John R. Kort, "2004 Redefinition of the BEA Economic Areas," *Survey of Current Business*, November 2004, at 68. Available at <http://www.bea.gov/scb/pdf/2004/11November/1104Econ-Areas.pdf>, site visited December 2, 2008.

³² Kenneth P. Johnson and John R. Kort, "2004 Redefinition of the BEA Economic Areas," *Survey of Current Business*, November 2004, at 69-71. Available at <http://www.bea.gov/scb/pdf/2004/11November/1104Econ-Areas.pdf>, site visited December 2, 2008.

³³ Memorandum Opinion and Order, *In the Matter of Applications of Western Wireless and Alltel Corporation For Consent to Transfer Control of Licenses and Authorizations*, 20 F.C.C.R. 13053 (2005) at ¶ 45.

³⁴ See, for example, <http://www.fcc.gov/oet/info/maps/bea/cntyname2.txt>.

The use of county boundaries to define markets in New England is particularly inapposite. The U.S. Office of Management and Budget generally keeps statistical data only on a county basis for the United States, except in New England. There it uses the New England City and Town Areas, as well as counties, because "within states in New England, cities and towns are administratively more important than counties, and... a wide variety of data are compiled for those areas." (Alternative Approaches to Defining Metropolitan and Nonmetropolitan Areas, 63 Fed. Reg. 70526, 70527 (December 21, 1998).)

uniform prices within the area served by that billing system. Similarly, to the extent that a service provider would otherwise find national or regional advertising to be the most cost-effective form of marketing, localized pricing would raise marketing costs and possibly create consumer confusion. None of the geographic boundaries for the factors identified above (*e.g.*, television and radio advertising) generally correspond to those of counties.

V. CONCLUSION

35. The proposed cap does not have a sound basis in economic theory or marketplace facts. The Commission already has the tools and policies necessary to protect competition and consumers in the CMRS marketplace. Rather than protecting competition, the proposed cap would distort competition and harm consumers, while potentially benefiting certain wireless carriers.

I declare under penalty of perjury that the foregoing is true and correct



Michael L. Katz

Executed December 2, 2008

APPENDIX: QUALIFICATIONS

36. I am the Harvey Golub Professor of Business Leadership at New York University's Stern School of Business. I also hold the Sarin Chair in Strategy and Leadership at the University of California, Berkeley, where I have a joint appointment in the Haas School of Business Administration and the Department of Economics. I have served on the faculty of the Department of Economics at Princeton University. I received my A.B. from Harvard University *summa cum laude* and my doctorate from Oxford University. Both degrees are in Economics.

37. I specialize in the economics of industrial organization, which includes the study of antitrust and regulatory policies. I regularly teach courses on microeconomics and business strategy. I am the co-author of a microeconomics textbook, and I have published numerous articles in academic journals and books. I have written academic articles on issues regarding the economics of network industries, systems markets, antitrust enforcement, and telecommunications policy. I am recognized as one of the pioneers in extending the theory of network effects to competitive settings. I am a co-editor of the *Journal of Economics & Management Strategy* and serve on the editorial boards of *Information Economics and Policy* and the *Journal of Industrial Economics*. I recently completed a term on the Computer Science and Telecommunications Board of the National Academies.

38. In addition to my academic experience, I have consulted on the application of economic analysis to issues of antitrust and regulatory policy. I have served as a consultant to both the U.S. Department of Justice and the Federal Communications Commission on issues

of antitrust and regulatory policy. I have served as an expert witness before state and federal courts. I have also provided testimony before state regulatory commissions and the U.S. Congress.

39. From January 1994 through January 1996, I served as the Chief Economist of the Federal Communications Commission under the Clinton Administration. I participated in the formulation and analysis of policies toward all industries under Commission jurisdiction. As Chief Economist, I oversaw both qualitative and quantitative policy analyses.

40. From September 2001 through January 2003, I served as the Deputy Assistant Attorney General for Economic Analysis at the U.S. Department of Justice under the Bush Administration. I directed a staff of approximately fifty economists conducting analyses of economic issues arising in both merger and non-merger enforcement. Our principal professional focus was on understanding and projecting the impacts of various business practices and public policy decisions on consumers' economic welfare. My title as Deputy Assistant Attorney General notwithstanding, I am not an attorney.