Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Reexamination of Roaming Obligations of	)	WT Docket No. 05-265
Commercial Mobile Radio Service Providers	)	

REPLY TO OPPOSITIONS TO PETITION FOR RECONSIDERATION OF LEAP WIRELESS INTERNATIONAL, INC.

INTRODUCTION AND SUMMARY

Leap Wireless International, Inc. and its subsidiaries (collectively, "Leap") hereby reply to the Oppositions to its Petition for Reconsideration submitted by AT&T Inc. and Verizon Wireless in this proceeding.[1] AT&T and Verizon stand alone in arguing that the Commission should maintain the in-market exception to the automatic roaming obligation.[2] Their arguments fail to persuade.

Commenters from *every* sector of the CMRS market agree that the Commission should dispose of the in-market exception to the automatic roaming obligation. This chorus favoring reconsideration is a strong indicator that access to automatic roaming everywhere, on reasonable and nondiscriminatory terms, is vital to consumers of wireless service, and promotes the public interest. It is hardly surprising that the nation's two largest carriers urge the Commission to keep the in-market exception unchanged: They clearly have a lot to gain by protecting their market

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[1] Opposition to Petition for Reconsideration of AT&T Inc. ("AT&T Opposition") (Nov. 6, 2007); Opposition of Verizon Wireless ("Verizon Opposition") (Nov. 6, 2007). Unless otherwise noted, the documents cited herein have been filed in WT Docket No. 05-265.

[2] Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, *Report and Order and Further Notice of Proposed Rulemaking*, FCC 07-143 (rel. Aug. 16, 2007), *summarized* at 72 Fed. Reg. 50,064 (Aug. 30, 2007) ("*Roaming Order*"), at ¶¶ 46–51.

power, and the in-market exception allows them to extract supra-competitive prices from other carriers at the expense of consumer welfare, or even to deny roaming outright to the customers of other, competing carriers.

Automatic roaming is necessary to ensure that all wireless customers can obtain the ubiquitous, seamless coverage that they deserve and increasingly have come to expect as part of any wireless service package. The in-market exception to the roaming requirement opens a wide loophole, allowing and encouraging anticompetitive practices of nationwide carriers, such as denying "in-market" roaming in areas where other carriers do not—and feasibly cannot—provide service. As the attached economic report of former FCC Chief Economist Dr. Simon Wilkie confirms, the in-market exception does not foster the goals of build-out, and free riding is not a legitimate concern where host carriers are allowed to charge competitive rates for automatic roaming and can therefore obtain healthy profits. Instead, the in-market exception will discourage efficient and effective network development, reduce competition, and compound other market failures. By creating gaps in coverage, the exception runs counter to the Commission's stated goal of fostering a ubiquitous "network of networks" and expose consumers to safety concerns. And these harms will disproportionately befall low-income, underserved segments of the population. The Commission should reconsider the in-market exception and correct these problems now.

I. THE RECORD RESOUNDINGLY SUPPORTS ELIMINATION OF THE IN-MARKET EXCEPTION ON RECONSIDERATION

Carriers small and large, rural and urban, incumbent and competitive, agree that the Commission should dispose of the *Roaming Order*'s in-market exception.

Small and regional carriers have explained that the exception would effectively nullify the roaming obligation, undermining the Commission's goals of increased CMRS competition, facilities construction, and seamless coverage.[3] Rural carriers unanimously support reconsideration for the same reasons.[4] Furthermore, they emphasize that the exception would allow national carriers to deprive rural consumers of coverage,[5] and that it violates Communications Act.[6] SpectrumCo LLC, a license-holder that aspires to compete in markets across the nation, objects that home roaming does not deter facilities-construction, and cautions that the exception will discourage new entry into the wireless market.[7]

The Commission created the in-market exception because of the wholly unsubstantiated fear that home-roaming would encourage smaller carriers to "piggy-back" on the networks of carriers that invested in facilities construction.[8] But even large, national carriers that opposed *any* roaming rule[9] agree that the in-market exception makes no sense. Sprint Nextel correctly notes that the exception will distort competition and effectively deprive larger carriers of *any*

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[3] *See* Comments of the Rural Telecommunications Group, Inc. and the Organization for the Promotion and Advancement of Small Telecommunications Companies ("RTG/OPASTCO Comments") (Nov. 6, 2007); Petition for Reconsideration of MetroPCS Communications, Inc. (Oct. 1, 2007); Petition for Reconsideration of Leap Wireless Int'l Inc. ("Leap Petition") (Sept. 28, 2007); *see also* Notice of Ex Parte of United States Cellular Corporation (Nov. 6, 2007) (supporting elimination of in-market exception).

[4] *See* RTG/OPASTCO Comments; Comments in Support of Petitions for Reconsideration of Bloosten Rural Carriers ("Rural Carriers Comments") (Nov. 6, 2007).

[5] RTG/OPASTCO Comments at 9.

[6] Rural Carrier Comments at 3–4.

[7] Petition for Reconsideration of SpectrumCo LLC (Oct. 1, 2007) at 1–3.

[8] *Roaming Order* at ¶ 49.

[9] *See* Comments of T-Mobile USA, Inc. (Nov. 28, 2005); Sprint Nextel Comments (Nov. 28, 2005).

roaming rights.[10] T-Mobile, which has undertaken substantial expenditures to construct a nationwide, facilities-based network, explains that it needs home roaming to provide seamless coverage as it fills gaps in its national footprint.[11]

The only dissenters from this commonsense consensus are AT&T and Verizon, and their support for the in-market exception only reinforces the wisdom of reconsideration. It is telling that the only defenders of home-roaming discrimination are the two carriers who, by virtue of their market power, stand to benefit most from the in-market exception's anticompetitive effects.[12] The rest of the CMRS industry is apparently willing to compete for customers on a level playing field according to clear, reasonable, and non-discriminatory rules. The Commission should not subvert common carrier principles and the public interest to aid AT&T and Verizon's anticompetitive agenda.

II. ELIMINATING THE IN-MARKET EXCEPTION WILL BENEFIT CONSUMERS

A discussion of which CMRS providers support reconsideration, while relevant, should not detract from the more basic point that this proceeding concerns the interests of consumers, not carriers. Whether "in market" or not, automatic roaming is the safety net that ensures that wireless consumers enjoy ubiquitous, seamless coverage. Some carriers, however, believe it is to their advantage to deprive competitors' customers of those protections. Accordingly, they demand prohibitively high wholesale roaming rates or refuse to provide any roaming service at

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[10] Sprint Nextel Corporation Petition for Reconsideration (Oct. 1, 2007) at 9–10.

[11] Petition for Partial Reconsideration of T-Mobile USA, Inc. (Oct. 1, 2007) at 2–3.

[12] *See id.* at 3 ("the Commission has essentially put its imprimatur on a policy that gives the very largest existing facilities-based network operators—notably [AT&T and Verizon]—an overly broad right to deny roaming to competitors….").

all. The in-market exception will allow carriers to continue to undermine the public's interest in ensuring seamless, nationwide coverage.

For example, Leap has noted from the very start of these proceedings that Verizon already uses its market power to deny consumers seamless wireless coverage. Verizon is able to demand its own "in-market" exception in roaming agreements, refusing to allow automatic roaming in large geographic areas, even though Leap provides service in only a fraction of those zones.[13] As written, the *Roaming Order* would only exacerbate the problem. The *Order*'s definition of "home roaming" is even broader than Verizon's already over-inclusive no-roaming zones. The Commission would thus give its regulatory blessing to Verizon's anticompetitive practice and enlarge the black hole that Verizon can impose on consumers who leave the confines of their carrier's footprint. The end-result will be consumer confusion and a nationwide network with more gaps than before this roaming proceeding.

The "safety net" ubiquitous roaming promises is more than just a metaphor for ensuring seamless coverage. Without an automatic roaming obligation there is no guarantee that consumers traveling outside their carrier's facilities footprint will enjoy the benefits of full location-enabled E911 service.[14] This problem goes beyond communicating with first responders. Whether it is seeking help with car trouble—or even contacting family and receiving critical information in the wake of a hurricane or terrorist attack[15]—no consumer

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[13] *See* Leap Wireless International, Inc., Letter to Marlene H. Dortch (Sept. 25, 2006) at 4; Leap Comments at 15–16.

[14] *See* Wireless E911 Location Accuracy Requirements, *Notice of Proposed Rulemaking*, PS Docket No. 07-114, 22 FCC Rcd 10609, ¶ 17 (June 1, 2007).

[15] *See Roaming Order*, Statement of Commissioner Deborah Taylor Tate (roaming can benefit "public safety, or even homeland security").

"should have to see the words 'No Service' on their wireless device"[16] in a time of need. Reconsideration will help ensure that consumers will not be stranded when they travel away from "home."

Finally, anticompetitive roaming practices lead to supra-competitive prices[17] that harm all consumers but disproportionately burden disadvantaged[18] and rural populations.[19] The in-market exception encourages such practices, forcing consumers to pay more for less coverage.

III. ECONOMIC PRINCIPLES AND MARKET ANALYSIS DEMONSTRATE THAT THE IN-MARKET EXCEPTION IS CONTRARY TO THE PUBLIC INTEREST

Leap's Petition for Reconsideration offered fresh analysis of the effects that a home-roaming exception in particular would have on the CMRS market. Although the dominant carriers opposing reconsideration would like to cast Leap's response as a re-visitation of settled matters,[20] the *Roaming Order*'s reaffirmation of the common carrier obligation, paired with an exception swallowing that rule, raises distinct issues that require the Commission's attention.[21]

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[16] *Roaming Order*, Statement of Commissioner Jonathan S. Adelstein, Approving in Part, Concurring in Part.

[17] Leap Comments at 19.

[18] *Id.* at 16.

[19] *See, e.g.,* Comments of the Rural Telecommunications Group, Inc. and the Organization for the Promotion and Advancement of Small Telecommunications Companies (Nov. 28, 2005) at 10–12 (describing the effects of Verizon's anticompetitive conduct).

[20] *See, e.g.*, AT&T Opposition at 2–3.

[21] If the in-market exception were old news that did not merit further comment, one would hardly expect to see large national carriers who opposed a roaming obligation now joining small, regional, and rural carriers in seeking reconsideration of the carve-out.

The attached report of former FCC Chief Economist Dr. Simon Wilkie[22] further supports Leap's contention that the in-market exception will reduce facilities construction and raise unexpected[23] barriers to competition. Constraints on labor and capital—not to mention delays caused by zoning and environmental problems—require competitive carriers to roll-out new networks sequentially.[24] The in-market exception, however, effectively requires entrants to build out into large portions of an area before "turning on" the network for service. As a consequence, even when "*the cost of build-out is less than roaming charges*, denial of roaming will delay entry for significant periods of time, or possibly block it altogether."[25] The increase in financing costs and decrease in revenue caused by the *Roaming Order*'s eleventh-hour, "turn on" requirement will further reduce a carrier's incentives to enter and build facilities in a new market.[26]

The *Roaming Order*'s overbroad definition of "market" compounds this problem. The *Roaming Order* defines a "market" not by antitrust standards—the perspective most relevant for a rule that seeks to promote competition—but rather according to the area a license covers. These two definitions do not overlap, and a number of actual markets will exist within a large

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[22] *See* Simon Wilkie, "On the Impact of the In-Market Carve-Out of the Wholesale Roaming Requirement" (Nov. 16, 2007) ("Wilkie Report") (Attached).

[23] AT&T and Verizon contend that carriers had no reasonable expectation of in-market roaming when they purchased their licenses. *See* AT&T Opposition at 6–8; Verizon Opposition at 6–7. This objection does not take into account how the *Roaming Order* "clarifies" a preexisting obligation compelled by the text of the Communications Act and Commission precedent. Leap Petition at 14–15. Any carrier that undertook anticompetitive roaming practices, moreover, did so in the shadow of this clear statutory prohibition. The *Roaming Order* eliminates this deterrent.

[24] *See* Wilkie Report at 5–6.

[25] *Id.* at 6 (emphasis added).

[26] *Id.*

license area.[27] Consequently, as a practical matter the exception will require a carrier to be able to serve all markets in a license area before it can serve one, needlessly depriving consumers of the benefits of competition.

The *Roaming Order*'s carve-out will also discourage investment in underserved areas.[28] In some instances, entry into an actual, underserved area—say, a medium-sized city—is commercially feasible only if the carrier can offer coverage in a nearby area—say, a large city already served by a number of carriers—where the primary market's consumers work, shop, and socialize. With the *Roaming Order* incorrectly treating both cities as being within the same "market," a carrier seeking to construct facilities in the underserved city must also build out in the nearby city. Requiring duplicative construction in the nearby city can make investment in the underserved city infeasible.[29] Reconsideration of the in-market exception, however, will eliminate these barriers to investment and provide consumers in underserved areas the benefits of increased competition and coverage that they would not otherwise enjoy.[30]

The effects of this dynamic are particularly acute in low-income areas where carriers like Leap seek to provide a affordable, mobile alternative to a fixed-line product. Often the incumbent wireless carrier is affiliated with the wireline ILEC and will have a powerful incentive to deny home roaming to competitors like Leap.[31] The in-market exception will strand low-

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[27] *Id.* at 4–5.

[28] *Id.* at 6–7.

[29] *Id.* at 6–7.

[30] *Id.* at 7. This does not mean that the providing roaming to the entrant will harm coverage or network quality in the nearby market. There is no dispute that an incumbent may refuse a request for automatic roaming if it lacked capacity to carry the call or recoup a *reasonable* return on its investment in facilities construction.

[31] *Id.* at 7–8.

income consumers behind a regulatory barrier, where their only options are wireline service, less affordable wireless service from an incumbent, or—for customers whose credit is too poor for traditional telephone service—no service at all.[32]

The *Roaming Order* and the Oppositions to Leap's Petition raise the concern that smaller carriers will "piggy-back" on larger carrier's networks.[33] This focus, however, ignores how automatic roaming can increase the coverage of national firms whose build-out profile differs from carriers like Leap. Many other carriers, and ILEC affiliates in particular, are "less inclined" to construct facilities in areas with high concentrations of low-income customers.[34] These are the very areas where Leap's low-cost model is particularly well-suited. The in-market exception would stymie Leap's build-out in these low-revenue areas, thus depriving other carriers coverage of these zones through roaming on Leap's facilities.[35] Eliminating the exception will better integrate low-revenue areas into the nationwide "network of networks."[36]

These considerations demonstrate how automatic roaming is a far more efficient means of encouraging ubiquitous service than the top-down build-out requirement the in-market

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[32] *Id.* at 7–8.

[33] *Roaming Order* at ¶ 49; AT&T Opposition at 3–4; Verizon Opposition at 5. Similarly, fear that an automatic roaming rule will "eliminate the ability the ability of carriers to tout coverage distinctions," AT&T Opposition at 5, assumes that carriers use automatic roaming as a general substitute for facilities growth. That assumption, however, is simply is not true. *See, e.g.*, Leap Petition at 15–16; Comments of MetroPCS Communications, Inc. (Nov. 28, 2005), at 29–31. If automatic roaming posed such a threat, it is hard to see why two nationwide carriers would seek reconsideration.

[34] Wilkie Report at 8.

[35] *Id.* *Cf.* Sprint Nextel Petition at 9 (in-market exception will limit national carriers' access to reasonable roaming services).

[36] Automatic and Manual Roaming Obligations Pertaining to Commercial Mobile Radio Services, *Notice of Proposed Rulemaking*, 15 FCC Rcd 21628, 21634 ¶ 15 (2000).

exception imposes.[37] While Leap is more inclined than incumbent carriers to build-out in underserved, low-income areas by virtue of its business model, first generation cellular licensees are presently better-situated to serve rural areas by virtue of their first-mover advantage and economies of scale.[38] The best response to this state of play, however, is neither mandating immediate, total build-out nor giving incumbents a free hand to exploit their present niche. As other commenters have noted, the in-market exception could lead to overbuild, thus diverting resources from improved products and services.[39] Instead, to promote ubiquitous service the Commission should "encourage competition through ensuring availability of roaming"[40] as carriers expand their footprint and diversify the products and services they offer consumers.[41]

Finally, Dr. Wilkie's report concludes that the home-roaming exception will compound market failure in areas where competition is most at risk: rural, high cost, and hard-to-reach areas, as well as areas where other regulations limit entry.[42] The borders of these trouble spots do not correspond with those of the license areas that define "home roaming" under the present

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[37] *See* Wilkie Report at 8–9. The history of the CMRS market confirms this insight. National wireless carriers could not have achieved their present coverage without access to reasonable automatic roaming. *See* Leap Petition at 10. Verizon objects that the Commission did not enforce an automatic roaming rule at that time, *see* Verizon Opposition at 6–7, but the subsequent consolidation in the wholesale roaming market makes application of common carrier rules necessary to prevent anticompetitive conduct.

[38] *See* Wilkie Report at 8–9.

[39] *See* T-Mobile Petition at 5–6; *see also* Wilkie Report at 8–9.

[40] Wilkie Report at 9.

[41] The use of automatic roaming to overcome an incumbent carrier's head-start does not constitute "resale" of CMRS services. AT&T Opposition at 7. Because it is impracticable for individual subscribers to seek roaming directly from nationwide carriers, it is essential for carriers like Leap to seek roaming arrangements on behalf of its customers. A facilities-based carrier's provision of this service for its customers is not equivalent to resale. *See* Leap Wireless International, Inc., Letter to Marlene H. Dortch (May 16, 2007) at 5–6.

[42] Wilkie Report at 10–11.

Order.[43] By creating barriers to entry, the in-market exception prevents competitive carriers from reaching the stranded consumers the Commission sought to help in the *Roaming Order*.[44]

CONCLUSION

AT&T and Verizon offer no credible reason to preserve the "in market" exception. This loophole will negate the protections affirmed in the *Roaming Order*, harm competition, discourage facilities growth, and subvert seamless coverage. Leap again respectfully requests the Commission grant its petition.

Respectfully submitted,

- /s/ -

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43 *Id.* at 10.

44 Because the record demonstrates that carriers' anticompetitive roaming practices are indeed "unreasonably hindering the operation of the market to the detriment of consumers," AT&T Opposition at 8–9, applying the Communications Act's common carrier provisions here will not violate the Telecommunication Act of 1996's deregulatory mandate. The 1996 Act did not repeal Sections 201 and 202, and provides a forbearance mechanism that the Commission has not even considered employing in this proceeding.

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Attachment

Before the
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In the Matter of Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers	)))))))))	WT Docket No. 05-265

On the Impact of the In-Market Carve-Out of the Wholesale Roaming Requirement

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I. Qualifications, Introduction and Summary of Conclusions

A. Qualifications

My name is Simon J. Wilkie. I am the Executive Director of the Center for Communications Law and Policy at the University of Southern California. Previously, I was an Assistant Professor and Senior Research Associate in Economics at the California Institute of Technology. Prior to joining the faculty at the California Institute of Technology, I was a Member of Technical Staff at Bell Communications Research. I have also held the positions of Affiliated Scholar of the Milken Institute and Visiting Assistant Professor at Columbia University. Over the past fifteen years, my academic research has focused on the areas of mechanism design, regulation, and game theory. I specialize in analyses involving industrial organization, regulation, public finance, and the design of institutions, with particular applications to the economics of telecommunications and network industries. I have conducted economic research and prepared testimony on a variety of antitrust and regulatory issues in a number of industries, including the telecommunications industry. I have also consulted on matters involving mergers and acquisitions in the satellite and the cable industries, and on issues related to local service and wireless competition. My research has appeared in a number of academic journals, including the *Review of Economic Studies, Journal of Economics and Management Strategy*, and the *Journal of Industrial Economics*. I received a Bachelor of Commerce degree in Economics from the University of South Wales, Australia, and my M.A. and Ph.D. degrees in Economics are from the University of Rochester.

From 2002 to 2003, I served as Chief Economist at the Federal Communications Commission ("FCC" or "Commission"). In that capacity, I oversaw the economic analysis performed by the Commission staff and advised the Chairman and Commissioners on issues involving economic analysis. Major items before the Commission during my tenure included the EchoStar/DirecTV transaction, the Comcast/AT&T Broadband transaction, the Triennial Review of Unbundling Obligations, and the Biennial Review of Media Ownership rules.

I have been asked by Leap Wireless International, Inc. ("Leap") to consider the economic issues that arise from the recent FCC decision not to mandate roaming interconnection in markets where both parties hold spectrum licenses, or *in-market roaming.*

B. Introduction

The Federal Communications Commission (the "Commission") has recently issued a Report and Order and Further Notice of Proposed Rule Making ("RO & FNPRM")[1] addressing the roaming obligations of Commercial Mobile Radio Service ("CMRS") providers. That RO & FNPRM requires CMRS providers to offer automatic roaming to other carriers who request "out-of-market" wholesale roaming services. The RO & FNPRM imposes no similar requirement on CMRS providers to offer "in-market" wholesale roaming services.

Leap has requested that I review the economic impact of the Commission decision to permit CMRS providers to strategically withhold offering wholesale in-market roaming

[1] *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, Automatic and Manual Roaming Obligations Pertaining to Commercial Mobile Radio Services, WT Docket No. 05-265, *Report & Order and Further Notice of Proposed Rulemaking*, 20 FCC Rcd 15047 (2007).

services.   The following provides an economic and policy analysis of the impact of the Commission's decision.

C. Summary of Conclusions

The Commission should be commended for requiring a carrier to offer automatic "out-of-market" roaming services. A regional carrier, such as Leap, has no way of providing its customers with any affordable roaming service absent wholesale roaming agreements on just and reasonable terms in areas in which it does not have spectrum coverage.

The Commission's decision not to impose similar requirements on "in-market" roaming was apparently based on a presumption that such a requirement will reduce the incentives to build out a network and so reduce facilities-based competition. I believe this premise is fundamentally flawed. Indeed, the in-market exclusion on roaming obligations can, for reasons articulated below, have the opposite effect. Roaming requirements can provide incentives for a CMRS operator to expand its network into areas it would not otherwise serve. In such cases the decision not to require roaming may raise entry costs, reduce competition below otherwise sustainable levels, reduce economic efficiency, and runs counter to the public interest. Moreover, this in-market exclusion is likely to have, at least with respect to Leap's services, a disproportionately adverse effect on under-served consumers. Therefore, the Commission should require "in-market" roaming for reasons explained below.

II. In-Market Roaming, Entry Costs and Competition

In the RO&NPRM the Commission distinguished between in-market or home roaming and out-of-market roaming.[2] The Commission makes the distinction between a roaming agreement between two facilities-based carriers who compete in *the same market* (home or in-market roaming) and one in which the two carriers do not compete in the same market (out-of-market) roaming. More specifically, the Commission states that it is "not requiring a CMRS carrier to provide automatic roaming to a requesting CMRS carrier in a market where the CMRS carrier directly competes with the requesting CMRS carrier. Specifically, a CMRS carrier is not required to provide automatic roaming to a requesting CMRS carrier where the requesting CMRS carrier holds a wireless license or spectrum usage rights (*e.g.*, spectrum leases) in the same geographic location as the would-be host CMRS carrier."[3]

Implicit in this decision is the assumption that immediate and complete build-out of license areas is feasible, and that elimination of an in-market wholesale roaming requirement will cause CMRS operators to build more cell-sites. But this assumption is at odds with both market practices and the realities of facilities construction. Moreover, the Commission without explanation also seems to be applying identical criteria and requirements to differently sized license areas, including Cellular Market Areas, Basic Trading Areas, Major Trading Areas, Basic Economic Areas, and Regional Economic Area Groups, and perhaps aggregated combinations and disaggregated portions of the license areas. Wholesale roaming requirements, which address particular limitations on competition in CMRS markets, should instead be based on the type of market definition

[2] See RO&FNRPM at ¶ 48.
[3] *Ibid.*

applied in U.S. antitrust law. This approach would not always equate an antitrust market with a BTA, CMA, MTA, or REAG.

These flawed assumptions raise three particular areas of concern discussed below. At the outset is must be stressed that the solution to these problems is not for the Commission to determine prices or even propose a formula such as TELRIC, but rather a requirement that the terms for wholesale, automatic roaming be reasonable and non-discriminatory. This point is subtle but important as it has a significant impact on incentives.

First, the in-market roaming carve-out can decrease the incentives of a regional carrier to enter geographic markets it does not already serve. The reason is that such a carve-out will increase entry costs for any operator wanting to construct a network and begin offering service in a geographic area that it does not already serve. To see this, consider the case of a potential entrant that either has recently acquired spectrum that covers a particular market or is considering entering and offering service in a new geographic market that is within its license area but not yet served by the firm. In theory, an entrant having spectrum coverage can build cell-sites to ensure coverage. However, in practice the record has shown that there are a number of impediments to a theoretical build-out. In reality, service roll-out is sequential, in that a new entrant will usually expand coverage over time, and it can take several years for an entrant to achieve *complete* coverage. A new entrant usually will not build out all at once when launching service. Often it is not feasible to simultaneously build out a complete network in an area due to limited labor supply and capital requirements without delaying launch in that area. An entrant thus will build out sequentially.

To offer a comparable local service area to the incumbents during this period, a firm seeking to expand its coverage into areas in which it does not already serve has to rely on "in-market" roaming. Absent "in-market" roaming, an entrant will need to build out a larger fraction of the market to ensure coverage before "turning on" service in order to have sufficient service quality to attract customers. Thus even when it is economic to build out, that is, the cost of build-out is less than roaming charges, denial of roaming will delay entry for significant periods of time, or possibly block it all together. This, in turn, will reduce the aggregate number of cell sites operated by different carriers, as well as well as consumer choice and competition for that period of time. In addition, this need to delay launch will significantly increase financing costs due to the fact that the entrant will need to endure a longer interval between the time that it starts having to incur build out costs and the time that it starting receiving revenues from customers.

Even where it is economically feasible to build out all at once, it may not be technologically possible. In particular, entrants often face environmental and other zoning problems and delays in being able to gain access to sites for cell towers and/or back-haul facilities. These factors can impede or delay build-out in certain geographic areas. Again in this case the availability of in-market roaming does not impede build-out and actually encourages facilities-based entry where these constraints do not hold.

Second, because many CMRS customers regularly travel beyond the area any entrant might find economical to serve within a "market" as defined by the RO & NPRM, those looking for a wireline substitute product will have a higher valuation for service if they can roam locally. This, in turn, could mean that when in-market roaming is available, a firm can find it profitable to enter a geographic market that would not otherwise be profitable for it to enter. More specifically, consumers served by a new entrant in one area will want coverage in nearby locations where they travel for work, shopping, and visiting family and friends. This means that, in the absence of reasonable roaming, a firm entering a new market will need to build out both the area in which its targeted customers live and also other, adjacent areas where they roam. Reasonable access to roaming, in contrast, eliminates the ancillary costs of entering the targeted market, and thus could encourage facilities construction that would not otherwise occur.

To illustrate this dynamic, consider a firm that offers a low-cost, fixed-line substitute product. Suppose that the service area includes two markets A and B. For example consider Gary, Indiana and Chicago, Illinois. Low-income consumers may be willing to purchase the local product in market A (Gary) which has few other competitive choices if the product includes the ability to receive and send calls in nearby market B (Chicago). It is possible that if roaming in market B were available at commercial non-discriminatory rates, the entrant would recover its costs of building out its network in market A, but that if it had to build out a network in markets A and B, entry would not be profitable. In this situation, entry into market A would not occur absent an automatic roaming agreement.

This problem is more acute if the incumbent wireless provider is also affiliated with the wireline ILEC and so has the incentive not to deal to foreclose competition with its wireline products. Thus, in this case, an in-market roaming requirement:

- Will lead to more entry and more competitors in markets on average.
- Result in increased competition, greater consumer surplus, and higher aggregate social welfare.

- Prevent incumbents from denying requests for wholesale in-market roaming. Such denials can reduce competition both in the CMRS and wireline markets.

Third, ironically, incumbent coverage can also be reduced if entrants are denied "in-market" roaming. Carriers such as Leap offer service to customers who are less inclined to purchase the high-cost premium service of the nationwide incumbents, and tend to have a higher percentage of customers who use wireless service as a primary line, instead of wireline service. Indeed, many of Leap's customers do not even have the credit to obtain traditional, wireline telephone service.

Other CMRS carriers, especially ILEC affiliates, are less inclined to offer service or build out in areas having a high concentration of low-income customers and few other customers. Therefore, if a carrier such as Leap enters a market, it will have a different build-out profile than incumbent carriers that are licensed in, but do not yet fully serve, a market. This means that reciprocal roaming obligations will provide the incumbent with better coverage and service in previously underserved areas. However, if, as in the above example, the absence of roaming blocks entry, then the foreclosure of an entrant such as Leap will tend to reduce coverage and availability of service to some classes of consumers.

Overall, the Commission should foster facilities growth in the most efficient manner possible. The RO & NPRM's in-market exception fails in this respect. Even if facilities-based entry does occur in a geographic market, there may be natural economies of scale and scope that limit the scope of build-out within a license area. Duplicative investment from multiple carriers each building out cell-sites to serve remote areas with little traffic is economically inefficient. In many locations, the traffic, and the revenue derived from that traffic, can only support the costs of one, or two, cells. In other words, at competitive rates, the number of minutes of use will not cover the costs of a second or third cell site. The first-mover advantage of first-generation licensees in these areas compounds this effect, particularly given the propagation characteristics of the 850 MHz spectrum and its accompanying cost advantages (in other words, service within that spectrum may be provided at less cost than mobile wireless service on PCS or other licensed spectrum bands.

Absent in-market roaming in these areas, consumers would likely suffer. If companies like Leap are forced to build out to the corners of a license area before entering a market, there may be inefficient growth—too many towers in some areas, too few in others. Leap may be forced to delay launching service until it can provide complete coverage or divert resources away from improving products and services. Moreover, some firms having licenses could elect to abandon entry plans in some regions, or even disaggregate spectrum holdings. This latter option could be especially attractive to firms owning larger licenses, such as the REAG licenses. Other firms may decide not to acquire spectrum licenses to enter new markets that they otherwise might have acquired. Automatic roaming on reasonable terms can avoid these concerns and promote ubiquitous coverage, while allowing incumbent carriers to recoup their investments in facilities. In short, it is likely to be more efficient to encourage competition through ensuring availability of roaming rather than mandating duplicative build-out.

Finally, it is worthwhile noting that in other countries spectrum regulatory agencies have mandated that incumbents provide new licensees with roaming to accommodate entry.[4]

III. FCC Forbearance on In-Market Roaming Compounds Other Market Failure

While on a nationwide basis, retail CMRS markets may be on average competitive, the level of competition is uneven. In some rural, high cost, and other hard to serve areas competition is quite limited. In other areas, local zoning and/or environmental regulation limits the number of cell-sites, and limits the ability of entrants to obtain coverage absent wholesale roaming. Local regulation can also limit an entrant's ability to obtain back-haul facilities connecting cell-sites to its network. FCC forbearance on in-market roaming can only compound these types of market failures.

Further, merger reviews focus on aggregate license areas, such as REAGs, MTAs, BTAs and CMAs. Competition can be uneven within a license area, however, especially within larger areas such as an MTA or REAG. This is not to suggest that Commission should review market concentration at a finer level than the geographic license areas normally reviewed. Nor am I suggesting that the Commission impose more stringent merger guidelines. Rather, a much less intrusive in-market wholesale roaming requirement would limit potential harm from localized market power within the broad license areas. Access to reasonable automatic roaming will allow consumers to enjoy the

[4] For example, in the UK, the Radiocommunications Agency required incumbents to provide roaming to new 3G entrants (see http://www.ofcom.org.uk/static/archive/spectrumauctions/3gindex.htm: site visited September 25, 2007).

benefits of competition sooner, when it permits entrants to expand their networks in stages, rather than later or not at all.

Thus, there are several likely scenarios where the FCC should impose just and reasonable requirements on automatic roaming even for in-market wholesale roaming service.

IV. Conclusion

The Commission decision to require out-of-market automatic roaming should be commended. It will help ensure that the CMRS market remains competitive and provides opportunity for smaller and more innovative companies to develop new service offerings. However, the in-market carve-out can offset some of the public interest benefits of the roaming decision. There is no firm economic policy foundation for this carve-out. At an extreme, this carve-out can discourage spectrum acquisitions and entry by smaller and more innovative carriers and can encourage disaggregation of spectrum licenses. In addition, for reasons articulated above, the in-market exclusion on the wholesale roaming requirement can have the effect of reducing the average number of facilities-based competitors, and can also reduce the number of aggregate number of cell sites.

Finally, a requirement that CMRS operators offer wholesale and automatic roaming under just and reasonable terms is not rate regulation. It is only a requirement that preventing the dominant nationwide CMRS operators from exerting market power or otherwise acting in a way to increase market power. Unless the Commission wants to encourage increased concentration and discourage competitive entry, it should drop the in-market exclusion.

Appendix

Curriculum Vitae of Simon J. Wilkie

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EDUCATION

Ph.D. (Economics) University of Rochester, 1990

M.A. (Economics) University of Rochester, 1988

B.Comm. Honors. (Econ) University of New South Wales, 1984

AWARDS AND FELLOWSHIPS

California Institute of Technology Graduate Student Council: 1996-97 Mentoring Award.

California Universities for Research in Earthquake Engineering: "Social Economic and System Aspects of Earthquake Recovery and Reconstruction," co-PI with James Beck, Caltech, and Anne Kiremidjian, Stanford, $400,000 for 1997-1999.

National Science Foundation, SES Grant "Applied Mechanism Design," $38,113 for 2000-2002.

National Science Foundation, PEER Grant "A Decision Theoretic Approach to Evaluating Building Specific Losses," $75,000 for 2000-2002.

APPOINTMENTS

Executive Director, Center for Communication Law and Policy, USC Law School and: Professor of Communication, (Courtesy) The Annenberg School, University of Southern California, August 2005-

Senior Fellow, USC Annenberg Center for Communication March 2006-

Senior Research Associate, California Institute of Technology, July 2002- 2005

Chief Economist, Federal Communications Commission, Washington DC; 2002- 2003

Assistant Professor, California Institute of Technology; 1995-2002.

Lecturer, California Institute of Technology; 1994-1995.

Member of Technical Staff, Bell Communications Research; 1990-94.

Visiting Assistant Professor, Columbia University; 1992-93.

Post-Doctoral Fellow, Bell Communications Research; 1989-90.

JOURNAL ARTICLES

"Incremental Export Subsidies," with Martin Richardson, *The Economic Record*, March 1986, pp. 88-92.

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GRADUATE STUDENTS

Principal Advisor: Alvaro Gonzalez, 2000, Telcordia Technologies. Marco Casari, 2002, Ohio State University. Committee Member: Szilvia Papai, 1996, Koc University Istanbul. Robin Hanson, 1998, University of California Berkeley, School of Public Health. Peter Coughlin, 1999, Harvard Business School. Dean Williamson, 1999, U.S. Department of Justice. Jin Yu, 1999, FinEcon LLP. Leslie Fine, 2001, Hewlett-Packard Labs. Angela Huang, 2001, Carnegie-Mellon University.

PROFESSIONAL ACTIVITES

Editorial Board Member: *Journal of Public Economic Theory*, 1997- 2006.

Editorial Board Member: *International Journal of Communications*, 2006-.

Guest Editor, *Journal of Public Economic Theory* Vol 6 No. 4, October 2004.

Guest Editor, *Review of Network Economics*, "Net Neutrality Issue" 2008.

Referee: National Science Foundation, *The American Economic Review, Econometrica, Economic Design, Economic Theory, European Transactions on Telecommunications, Games and Economic Behavior*, *The International Economic Review*, *The International Journal of Game Theory*, *The Journal of Economics and Management Strategy, The Journal of Economic Theory, The Journal of Economic Behavior and Organization, The Journal of Industrial Economics, The Journal of Regulatory Economics, Telecommunication Systems, and Theory and Decision.*

Committee Memberships: Program Committee, *Telecommunications Policy Research Conference* (TPRC): 2006-2008. Organizer of CCLP Conferences: "Wireless Broadband: is the US Lagging," Washington DC, 2005, "Symposium on Net Neutrality" USC, 2006, "Summit on US Telecommunications Policy," USC, 2006, Symposium on International Approaches to Telecommunication regulation and Competition," Las Vegas 2007. Local Committee: 2002 *Social Choice and Welfare Society* Meetings, Pasadena. Session Chair: 1997 Summer Meetings of the *Econometric Society*. Member of the Organizing Committee: "Workshop on Computer Science and Game Theory," section of the *Fourth International Conference on Game Theory*, SUNY Stony Brook, July 28-30, 1993. "Workshop on Implementation," section of the *Third International Conference on Game Theory*, SUNY Stony Brook, July 8-10, 1992. "Workshop on Cost Allocation and Transfer Pricing," section of the *Second International Conference on Game Theory*, SUNY Stony Brook, July 8-10, 1991

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