PUBLIC NOTICE
FEDERAL COMMUNICATIONS COMMISSION
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WTB SEEKS COMMENT ON CMRS MARKET COMPETITION
WT Docket No. 07-71

Comments Due: May 7, 2007
Reply Comments Due: May 22, 2007

In 1993, Congress created the statutory classification of Commercial Mobile Services[1] to promote the consistent regulation of similar mobile radio services.[2] At the same time, Congress established the promotion of competition as a fundamental goal for Commercial Mobile Radio Service ("CMRS") policy formation and regulation. To measure progress toward this goal, Congress required the Commission to submit annual reports ("*CMRS Reports*") that analyze competitive conditions in the industry.[3]

This Public Notice solicits data and information in order to evaluate the state of competition among providers of CMRS for its Twelfth Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services ("*Twelfth Report*"). The statute requiring the Commission to submit annual reports providing an analysis of competitive market conditions with respect to CMRS stipulates that this analysis shall include, among other things, "an analysis of whether or not there is effective competition."[4] In this proceeding, the Wireless Telecommunications Bureau ("Bureau") seeks to update and improve the indicators of competition for the Commission's next report to Congress and to determine whether or not there is effective competition in the CMRS market. The Bureau seeks public input to facilitate this determination.

The Commission is constantly striving to improve and refine the way it collects, analyzes, and reports industry data. Accordingly, for the *Twelfth Report*, the Bureau is seeking to increase the level of detail employed by the Commission in its review and analysis of the provision of service and competitive market conditions, particularly with regard to service in rural and other hard-to-serve areas including

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[1] The term "commercial mobile service" is defined by the Communications Act of 1934, as amended ("the Act"), as "any mobile service … that is provided for profit and makes interconnected service available (A) to the public or (B) to such classes of eligible users as to be effectively available to a substantial portion of the public, as specified by the Commission." Communications Act § 332(d)(1), 47 U.S.C. § 332(d)(1). "Mobile service" is defined at Section 3 of the Act. Communications Act § 3(27), 47 U.S.C. § 153(27). The term "commercial mobile service" came to be known as the "commercial mobile radio service". 47 C.F.R. § 20.3.

[2] The Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002(b), amending the Communications Act of 1934 and codified at 47 U.S.C. § 332(c).

[3] 47 U.S.C. § 332(c)(1)(C).

[4] *Id*.

tribal lands. Among other things, the Bureau is examining ways to analyze service provision at a more granular level than on a county-by-county basis, the basis on which the *CMRS Reports* have analyzed service for the past several years. Therefore, this *Public Notice* contains a new series of questions asking for data and analytic recommendations related to that effort. In addition, the *Public Notice* also includes new questions covering Mobile Satellite Services ("MSS") and Wireless Local Area Networks ("WLANs") such as Wi-Fi.

In the three most recent *CMRS Reports*, the Commission has reviewed competitive market conditions using a framework that groups indicators into four categories: (1) market structure; (2) carrier conduct; (3) consumer behavior; and (4) market performance.[5] Accordingly, when submitting responses to this Public Notice, commenters should, to the extent possible, present materials addressing these four categories of indicators. In addition to these issues and the specific matters discussed below, the Bureau seeks comment generally on which indicators are useful for analyzing competitive market conditions with respect to CMRS. We also request comment on what specific criteria should be used to determine whether there is effective competition among CMRS providers.[6]

Industry members, members of the public, and other interested parties are encouraged to submit information, comments, and analyses regarding competition in the provision of CMRS. Commenters desiring confidential treatment of their submissions should request that their submission, or a specific part thereof, be withheld from public inspection.[7] In order to facilitate its analysis of competitive trends over time, the Commission requests that parties submit current data as well as historic data that are comparable over time.

I. MOBILE TELECOMMUNICATIONS MARKET STRUCTURE

The Bureau's analysis of market structure will focus on the current level of concentration and the ease or difficulty with which new providers can enter the market. The Bureau invites commenters to address the sources of data and the analysis of metrics relating to both aspects of market structure in the sections below.

A. Service Availability and Deployment

1. Service Deployment, Granularity of Data, and Coverage Maps

In keeping with the Commission's goal of improving and refining the way it collects, analyzes, and reports industry data, the Bureau is looking to improve the granularity of its data and analysis of coverage and service provision, particularly in rural and other hard-to-serve areas including tribal lands. Since the

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[5] 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, *Ninth Report*, 19 FCC Rcd 20597 (2004); 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, *Tenth Report*, 20 FCC Rcd 15908 (2005); 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, *Eleventh Report*, 21 FCC Rcd 10947 (2006) ("*Eleventh Report*"). The reports can also be found on the FCC's web site at <http://wireless.fcc.gov/cmrsreports.html>.

[6] In view of a separate ongoing proceeding on roaming obligations of CMRS providers, this *Public Notice* omits questions about roaming. *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, WT Docket No. 05-265, *Memorandum Opinion & Order and Notice of Proposed Rulemaking*, 20 FCC Rcd 15047 (2005).

[7] 47 C.F.R. § 0.459.

F*ifth Report,*[8] the Commission has tracked service coverage on a county-by-county basis, examining the number of competitors operating in every U.S. county and determining the percentage of the U.S. population living in counties with a certain number of competitors. For example, in the *Eleventh Report* the Commission found that, in 2005, 98 percent of the U.S. population lived in counties with three or more providers; 94 percent of the U.S. population lived in counties with four or more providers; and, 51 percent of the U.S. population lived in counties with five or more providers.[9] The Commission, however, recognizes that its county-based analysis overstates to some degree the total coverage in terms of both geographic areas and population covered.[10] Therefore, as part of the effort to collect data and analyze CMRS competition using more detailed information, the Bureau this year requests data and comment on method(s) to analyze service provision at geographic areas smaller than counties.

In addition, the Bureau asks service providers to submit as part of their comments, in electronic format, the CMRS coverage maps that they already make available to the public. Specifically, the Bureau requests carriers to submit the maps they employ to advertise their coverage areas in brochures and on their web sites in a geo-referenced, mapable format, such as MapInfo table (.tab), Tagged Image Format (.TIF), or Shapefile (.shp) files. In the alternative, the Bureau asks carriers to provide a list, at the smallest geographic area they have available,[11] indicating where they provide facilities-based services. The Bureau uses the contours filed by 800 MHz cellular licensees to estimate the availability of analog mobile telephone service, and therefore does not require additional maps showing analog coverage from cellular licensees.[12] However, the Bureau requests that cellular licensees submit, as part of their comments, their publicly available maps in the aforementioned formats showing where they offer reliable digital service, or to provide a list, at the smallest geographic area they have available, showing where they provide facilities-based services. In addition to employing more accurate coverage maps, the Bureau seeks comment on other ways its analysis of service availability can be improved.

2. Mobile Data and Broadband Deployment

The Bureau seeks comment on deployment of newer network technologies such as EDGE ("Enhanced Data Rates for Global System for Mobile Communications Evolution"), WCDMA ("Wideband Code Division Multiple Access"), HSDPA ("High-Speed Downlink Packet Access"), EV-DO ("Evolution Data – Optimized") or EV-DO Rev A, and WiMAX. The Bureau is particularly interested in changes that have occurred in mobile data and broadband network deployment since the *Eleventh Report*. For example, in what portion of their license and network footprints have wireless service providers deployed

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8 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, *Fifth Report*, 15 FCC Rcd 17660 (2000) ("*Fifth Report*").

9 *Eleventh Report*, 21 FCC Rcd at 10964 ¶ 41.

10 In order to be considered as "covering" a county, an operator need only be offering service in a portion of that county. In addition, multiple operators shown as covering the same county are not necessarily providing service to the same portion of that county. Lastly, the figures for POPs and land area in the county-by-county analysis include all of the POPs and every square mile in a county considered to have coverage. POPs is an industry term referring to population, usually the number of people covered by a given wireless license or footprint. One POP equals one person. *Eleventh Report*, 21 FCC Rcd at 10956 ¶ 14.

11 In previous years, the Bureau has requested that carriers provide a list of counties. *See*, e.g., WTB Seeks Comment on CMRS Market Competition, WT Docket No. 06-17, *Public Notice*, 21 FCC Rcd 211 (2006), January 18, 2006. As noted above, the Bureau is requesting this information in geographic areas smaller than counties.

12 Cellular licensees have submitted maps of their service contours as part of the filings required to establish Cellular Geographic Service Area boundaries. *See* 47 C.F.R. §§ 22.947(c), 22.953(a)(1)-(2).

these technologies, and what advanced wireless applications are being offered using these technologies? Specifically, the Bureau requests wireless service providers to submit as part of their comments the maps they employ to advertise their mobile data coverage areas in brochures and on their web sites in a geo-referenced, mapable format, such as MapInfo table (.tab), Tagged Image Format (.TIF), or Shapefile (.shp) files, and to indicate on these maps the type of mobile data services being offered at each location. In the alternative, the Bureau asks wireless service providers to provide a list on the smallest geographic area they have available indicating where they provide mobile data services. We note, for instance, that wireless broadband service providers are required, as part of the Commission's Local Telephone Competition and Broadband Reporting requirements (Form 477), to submit information on a zip code basis regarding the areas in which they offer service, although the information is submitted on a confidential basis.[13]

3. Service Deployment in Rural Areas and Tribal Lands

To obtain a better understanding of the state of competition in rural areas and tribal lands, the Bureau requests comment on the extent of mobile voice and data service in these areas. To what extent are advanced wireless services being offered in rural areas and tribal lands? Are there noteworthy trends in regarding the state of competition in rural areas and tribal lands?

Furthermore, regarding rural areas and tribal lands, do carriers provide coverage only in certain parts of these areas, such as near major roads, where they do not market service to residents of those areas? If this is true, could the Bureau's analysis be further improved if carriers indicated the parts of their coverage areas in which they compete to offer service and the parts that are used only to provide coverage to traveling subscribers based in other locations? Also, in what respect do infrastructure sharing agreements, such as those between carriers along highways in low-population areas, affect service availability in rural areas? Do such agreements effectively increase the number of competitors in those areas? Do these arrangements increase wireless usage in areas adjacent to such areas?

B. Other Competitors to Terrestrial CMRS Providers

1. Mobile Satellite Service Providers

We ask for information about the current provision of CMRS by MSS companies, including the frequency bands they are employing.[14] We ask for data on prices (of both service and handsets) and coverage. We also request data on the number of subscribers as well as phone usage, such as minutes of use and whether there is a difference in phone usage between rural and urban areas, in order to obtain a greater understanding of the MSS market. In addition, we ask for comment on the extent to which CMRS provided by MSS functions as a substitute for terrestrial CMRS services.[15]

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[13] *See* Local Telephone Competition and Broadband Reporting, *Report and Order*, WC Docket No. 04-141, 19 FCC Rcd 22340 (2004) at 22393, App. D (Mobile wireless broadband service provider must list the 5-digit Zip Codes in which its service is advertised and available to actual and potential subscribers). The Commission currently is seeking comment on ways it could deepen and refine its understanding of broadband availability and deployment. *See* Written Testimony of The Honorable Kevin J. Martin, Chairman, Federal Communications Commission, Prepared for the Subcommittee on Telecommunications and the Internet, Committee on Energy and Commerce, U.S. House of Representatives, March 14, 2007.

[14] In addition to terrestrial mobile services, CMRS also includes MSS that provide CMRS directly to end users. 47 C.F.R. § 20.9(10).

[15] "The *Satellite Flexibility Order* noted that since CMRS and MSS ATC [ancillary terrestrial components] are expected to have different prices, coverage, product acceptance and distribution, the two services appear, at best, to be imperfect substitutes for one another that would be operating in predominately different market segments."

2. Resale/MVNO Providers

To what extent are resellers/MVNOs ("Mobile Virtual Network Operators") creating competitive pressures in the mobile telecommunications sector? Who are the major resellers/MVNOs in the United States? How many subscribers do they have? From the consumer's perspective, what are the benefits of buying from a reseller/MVNO versus a facilities-based provider? Are resellers/MVNOs selling to specific demographic segments?

C. Horizontal Concentration

1. NRUF Data and Output Market Concentration

The main source of data the Bureau uses to calculate output market concentration statistics for the purpose of this report is the Numbering Resource Utilization / Forecast ("NRUF") data that are submitted to the Commission on a rate center basis.[16] Are the NRUF data a reasonable proxy for output in the mobile telephone market? The Bureau also seeks comment on how to determine which geographic area or areas should be used to calculate mobile telecommunications concentration measures based on NRUF data. In particular, the Bureau seeks comment on the appropriateness of various geographic market delineations given the limitations of the NRUF data.

2. Mobile Data Subscriber Shares

One limitation of NRUF data for the purpose of measuring concentration levels in the mobile data market is that they do not reveal whether mobile telephone subscribers use their handsets for mobile data services as well as to make and receive calls. We request sources of information on the number of mobile data subscribers that individual carriers serve, or the percentage of their customer base that uses mobile data services as well as mobile voice. Do individual carriers' mobile data market shares differ significantly from their mobile telephony market shares, and if so, to what extent?

D. Consolidation and Exit

The Bureau seeks comment on the effects of consolidation in the mobile telecommunications market. Has consolidation affected mobile data services differently than mobile telephone services? Has consolidation affected pricing, roll-out of new services, or equipment offerings? Has consolidation affected rural areas differently than urban areas? Are the effects of consolidation or exit different for mergers and acquisitions, swaps, joint ventures, and bankruptcies?

Eleventh Report, 21 FCC Rcd at 10958 ¶ 24.; *see* also Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, *Report and Order and Notice of Proposed Rulemaking*, 18 FCC Rcd 1962, 1964 (2003) ("*Satellite Flexibility Order*"), *modified sua sponte*, *Order on Reconsideration*, 18 FCC Rcd 13590 (2003), *on reconsideration*, *Memorandum Opinion and Order and Second Order on Reconsideration*, 20 FCC Rcd 4616 (2005), *further recon pending*.

[16] Rate center boundaries are much smaller than, and not coextensive with, mobile telecommunications license boundaries such as Cellular Market Areas ("CMAs"), Metropolitan Trading Areas ("MTAs"), or Basic Trading Areas ("BTAs"). Due to their relatively small size, rate centers are not necessarily indicative of where a mobile telecommunications subscriber lives, works, or uses a mobile telecommunications device. In addition, in order to protect the confidentiality of the companies submitting NRUF data, the Commission does not report the number of subscribers for geographic areas in which there are three or fewer carriers.

E. Barriers to Entry

Barriers to entry in the mobile telecommunications market may include first-mover advantages, large sunk costs, and access to spectrum. [17] The Bureau seeks comment on these and other types of barriers to entry in the mobile telecommunications market. What are the most significant barriers to entry in the mobile telecommunications market? Are barriers to entry different in rural and urban areas?

The Bureau seeks comment on whether there is access to sufficient spectrum, either through Commission auctions or through secondary market transactions, to prevent spectrum from becoming a significant barrier to entry in the CMRS industry. Are existing service providers spectrum constrained? If so, in which geographic markets are carriers most likely to be constrained? Have these carriers become more spectrum constrained after rolling out advanced wireless services? Do potential entrants have sufficient opportunities to access spectrum? As advanced wireless technologies become more prevalent, will potential entrants have more or fewer opportunities to access spectrum?

We ask about the impact of the recent auction of Advanced Wireless Services ("AWS") spectrum on competition in the CMRS market. Has the recent auction of AWS spectrum helped existing carriers access additional spectrum? Will it be used to augment current voice and/or data offerings? Will it help new service providers enter the CMRS market? Is equipment available for use with AWS spectrum? In addition, the Bureau seeks comment on whether its policy to facilitate spectrum leasing, combined with future spectrum auctions such as that for 700 MHz spectrum,[18] will provide sufficient opportunities both for existing carriers to expand their operations and for new mobile telecommunications providers to enter the market.

II. CARRIER CONDUCT IN THE MOBILE TELECOMMUNICATIONS MARKET

A. Price Rivalry

1. Pricing Plan Innovations

What are the major innovations that have occurred with pricing plans since the *Eleventh Report*? Have these pricing innovations spread throughout the mobile telecommunications market or have they been limited to a subset of carriers? To what extent do new types of pricing plans reflect price rivalry among CMRS providers? Have pricing innovations been more widely adopted in the last year? The Bureau seeks information on which carriers offer nationwide pricing plans, particularly those that are not typically described as being nationwide operators, and request descriptions of the terms of such plans. Do carriers engage in rivalry via handset pricing? Has this changed in the last year?

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[17] *See* Horizontal Merger Guidelines issued by the U.S. Department of Justice and the Federal Trade Commission at § 3.0 (Apr. 2, 1992, revised Apr. 8, 1997) (discussion of barriers to entry); Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization*, 76-82 (3rd ed., Addison, Wellsley, Longman, Inc., 1999) (same). *See also* 2000 Biennial Review Spectrum Aggregation Limits for Commercial Mobile Radio Services, WT Docket No. 01-14, *Report and Order*, 16 FCC Rcd 22668, 22688-91 (2001).

[18] With respect to the 700 MHz Band, the Digital Television and Public Safety Act of 2005 ("DTV Act"), amends Section 309(j)(14) of the Communications Act, 47 U.S.C. § 309(j)(14), to establish February 17, 2009 as a firm deadline for the end of the digital television (DTV) transition period, and requires the Commission to commence the auction of recovered analog broadcast spectrum no later than January 28, 2008. *See* Deficit Reduction Act of 2005, Pub.L. No. 109-171, 120 Stat. 4 (2006) (Title III constituting the DTV Act). Before the DTV Act, the Commission had been required to extend the end of the DTV transition at the request of individual broadcast licensees on a market-by-market basis under certain conditions. *See* 47 U.S.C. § 309(j)(14)(B)(i)-(iii) (2005). Despite the certainty afforded by the DTV Act in providing a date certain for the end of the DTV transition period, until the transition is complete the 700 MHz Band remains occupied by television broadcasters.

2. Pricing Plans for Mobile Data and Broadband Services

The Bureau also seeks comment and information on pricing trends for mobile data services offered by mobile telephone carriers. Are there data on the pricing of these services available on a national or sub-national level? How are new or enhanced mobile data services such as location-based services, games, digital photos and downloadable music priced? Are there any reports or analyses that discuss pricing trends for mobile data services?

3. Pricing Plans in Rural Areas

The Bureau asks for comment and information on whether there are meaningful pricing differences between urban and rural areas. Did differences exist in the past that no longer exist today? To the extent that such differences exist, what are the reasons for such differences?

B. Capital Expenditures

Have capital expenditures by mobile telecommunications providers increased or decreased since the *Eleventh Report*? For what purposes are carriers using capital expenditures? Are there any studies or analyst reports on the capital expenditures of nationwide carriers versus regional/local providers? Does data exist on capital expenditures by geographic region?

C. Technology Deployment and Upgrades

For the *Twelfth Report*, the Bureau requests information on the extent to which mobile telecommunications carriers have upgraded their networks to more advanced technologies such as EDGE, WCDMA, HSDPA, EV-DO or EV-DO Rev A, and WiMAX. How extensively have carriers deployed more advanced technologies (*e.g.*, have carriers focused on urban areas only, or have they deployed these technologies in rural areas as well)? With regard to GSM-based carriers, the Bureau asks to what extent carriers have upgraded their systems to EDGE, WCDMA, HSDPA, or some other technology. With regard to CDMA-based carriers, to what extent have they continued to upgrade their networks to include EV-DO or EV-DO Rev. A? What, if any, are the relative advantages and disadvantages of WCDMA/HSDPA versus EV-DO, and what has been impact of such differences on competition between GSM-based carriers and CDMA-based carriers and, more generally, competitive market conditions in the mobile telephone sector? Are there other new wireless technologies that have improved wireless providers' coverage, capacity and/or service offerings for mobile telecommunication services? In addition, to what extent have providers integrated their mobile telephone network technologies with high-speed wireless local area network technologies such as Wi-Fi, with the aim of offering seamless mobile data services? Finally, to what extent are carriers using innovation in handset features and design as a way to compete?

III. CONSUMER BEHAVIOR IN THE MOBILE TELECOMMUNICATIONS MARKET

A. Access to Information

The Bureau seeks comment on the development of consumer information sources for the mobile telecommunications market. Are there new avenues for consumers to gain information, such as retailers providing on-line and in-store comparisons of pricing plans, services, and handsets?

B. Switching and Churn

The Bureau asks carriers to submit descriptions of how they calculate churn. Do the differences in how churn is calculated prohibit a meaningful comparison of churn figures across the wireless industry? How reliable are prior churn estimates? Are there other sources of churn data available that should be included in the *Twelfth Report*? Further, the Bureau seeks sub-national or regional churn data, and churn data by demographic groups. Have the previous reasons consumer churn, namely service cost and network quality, remained the same? If not, what are the reasons for consumer churn? Since the *Eleventh Report*, has there been a change in the churn rate? If there has been a change, what is the magnitude of this change? Has local number portability ("LNP") affected wireless customer churn rates? If so, has the effect been significant? How has ongoing evolution in handset design and functionality affected consumer churn decisions?

IV. MOBILE TELECOMMUNICATIONS MARKET PERFORMANCE

The Bureau intends to analyze various metrics including pricing levels and trends, subscriber growth and penetration, Minutes of Use ("MOUs"), innovation and diffusion of services, and quality of service. Are there any other metrics that would add to its analysis of the mobile telecommunications market? Are these metrics available on a national or sub-national level?

A. Pricing Levels and Trends

1. Pricing Trends

The Bureau seeks comment on the use of available pricing estimates as a tool in its analysis of the performance of the mobile telephone market, including to what extent any observed pricing changes are evidence of effective competition. The Bureau seeks information on which carriers offer nationwide pricing plans, particularly those that are not typically described as being nationwide operators, and request descriptions of the terms of such plans. We ask for information and comment on voice and data services. Are there additional analyses that can be performed or conclusions that can be drawn from new or existing pricing data? We also seek information on trends in handset prices.

2. Pricing Trends in Rural Areas

Are commenters aware of pricing studies that look at urban versus rural or other sub-national mobile telecommunications pricing? Given the scarcity of studies that provide direct information on pricing, the Bureau is interested in finding alternative ways of determining whether pricing in rural areas conform to national pricing plans. Are there other ways of studying this issue? Are there existing studies or data sets that would give us the ability to explore this issue?

B. Average Revenue per Unit ("ARPU")

Average monthly revenue per subscriber is another key metric presented in past CMRS Reports. The Bureau seeks comment on the use of ARPU as a metric in its analysis of the mobile telecommunications industry. Are additional ARPU data available that should be considered, in particular data depicting whether and how ARPU varies by region and/or demographic group? The Bureau requests information on ARPU allocated to voice versus data and/or broadband services. Are there additional analyses that can be performed or conclusions that can be drawn from new or existing data? The Bureau requests from commenters additional input on the possible causes for any recent trends in ARPU, as well as additional data that may support various hypotheses.

C. Profitability

In past *CMRS Reports*, the Commission has not included discussion of profitability as a measure of market performance. The Bureau seeks comment on whether measures of the profitability of CMRS providers should be included in the *Twelfth Report*. If so, how should the Commission measure the profitability of CMRS providers? What are the potential merits and biases, or other deficiencies, of alternative profitability measures? To the extent there are such biases or deficiencies, what weight should be attached to profitability measures, relative to other performance metrics, in determining whether the CMRS marketplace is effectively competitive? The Bureau requests references for economic studies and other sources of information on publicly available measures of the profitability of CMRS providers.

D. Quantity of Services Purchased

1. Subscriber Growth

Since the *Seventh Report*,[19] the Commission has estimated the number of subscribers in the United States by using NRUF data. NRUF data, however, do not include demographic information. Therefore, the Bureau requests information on subscribers that would assist in a greater understanding of the mobile telecommunications inventory, such as penetration rates by age groups and/or household penetration rates.

The Bureau asks for comment on how to determine which geographic area or areas should be used to calculate mobile telecommunications subscribership and penetration rates.[20] The Bureau requests comment on the appropriateness of using Economic Areas ("EAs") for such calculations.[21] Given the limitations of NRUF data, insofar as they are reported on the basis of the location of rate centers, would other geographic areas be appropriate to use in place of or in addition to EAs, such as states, MTAs, BTAs, CMAs, or counties? In addition, are there other ways to interpret existing national and sub-national subscribership data for purposes of the *Twelfth Report*? Also, are there data on either a national or sub-national basis on the number of mobile telecommunications customers that use mobile data services?

2. Minutes of Use

The Bureau seeks comment on the use of MOUs as an indicator of the demand for mobile telecommunications services. For purposes of the *Twelfth Report*, the Bureau asks for comment on the sources of the MOU data presented in the *Eleventh Report* and requests additional MOU data. In addition, should the Bureau perform other analyses or draw additional conclusions from new or existing data? The Bureau requests data on MOUs on a sub-national basis and/or broken down by various demographic groups.

E. Quality of Service

The Bureau seeks comment on service quality in the mobile telecommunications market. For purposes of examining service quality, do commenters recommend any particular consumer surveys on service quality in the mobile telecommunications market? How reliable are the data collected from these consumer surveys? What other sources provide information on service quality in the mobile telecommunications market, and how reliable are these sources? The Bureau also seeks comment on whether LNP, insofar as it facilitates the ease of consumers to switch mobile telephone carriers, affects the quality of services offered by carriers.

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[19] 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*, 17 FCC Rcd 12985 (2002) ("*Seventh Report*").

[20] The use of any particular geographic area to calculate mobile telecommunications subscribership and penetration rates for purposes of this report does not imply that the same geographic area will be used in any other Commission proceedings to define the relevant geographic markets. Such other proceedings could include an application for a license transfer and may present facts pointing to a narrower or broader geographic market definition than any used, suggested, or implied in the *CMRS Reports*.

[21] EAs are defined by the U. S. Department of Commerce's Bureau of Economic Analysis. *See* Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Radio Services, *Seventh Report,* 17 FCC Rcd 12985, 13005 n.122.

V. WIRELESS – WIRELINE COMPETITION

A. Competition in Voice Services

The Bureau asks for comment and sources of information on the extent to which mobile telephone service competes with wireline service. We ask for information about the number and demographics of households that have "cut the cord" and use wireless phones as their sole phone. Has the introduction of intermodal LNP affected consumer behavior or had any impact on wireless-wireline competition? Are there any other new developments in wireless-wireline competition that have occurred since the *Eleventh Report*? What are the major reasons for these developments?

B. Competition in Broadband Services

Wireless technologies appear to be becoming an increasingly significant source of customer choice for broadband sources. In addition to the mobile broadband services discussed above, we note that wireless operators using Broadband Radio Service/Educational Broadband Service ("BRS/EBS") spectrum in the 2.5 GHz band currently offer, or have announced plans to offer, portable high-speed Internet access services using technologies such as WiMax IEEE 802.16e-2005 ("WiMax"). We seek detailed information from operators on their current and planned deployment of WiMax and similar wireless broadband technologies in BRS/EBS spectrum, in other licensed spectrum, or using, in whole or in part, Part 15 unlicensed devices. To what extent do the services offered using these technologies compete with the mobile broadband services offered by mobile telephone carriers using EV-DO and WCDMA/HSDPA technologies? To what extent do mobile and portable wireless broadband services compete with broadband services offered over wireline technologies such as DSL, cable, or fiber to the home?

VI. WIRELESS LOCAL AREA NETWORK TECHNOLOGIES

Wireless Local Area Network technologies are playing an increasingly important role as a competitor and a supplement to the services offered by the CMRS industry using the advanced mobile technologies described above.[22] The most prevalent WLAN technology is equipment manufactured in accordance with the IEEE 802.11 family of standards, commonly known as "Wi-Fi."[23] Wi-Fi networks often must rely on another type of broadband connection, such as wireline, cable, wireless, or broadband over power lines (BPL), for access to the Internet.[24] For example, Wi-Fi enables consumers to connect to the Internet at public "hot spots," such as restaurants, coffee shops, hotels, airports, convention centers, and city parks, using a laptop computer or smartphone with an internal or external Wi-Fi modem.[25]

Some mobile telephone carriers use Wi-Fi hot spots to supplement or complement their CMRS offerings provided through the licensed use of spectrum.[26] We ask for information on which service providers use

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[22] *Eleventh Report*, 21 FCC Rcd at 11-28-29 ¶ 210.

[23] WLAN technologies operate on an unlicensed basis under Part 15 of the Commission's rules. *See* 47 C.F.R. §15 et seq.

[24] Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks, WT Docket No. 07-53, *Declaratory Ruling*, (rel. Mar. 23, 2007), ¶ 15.

[25] These hot spots usually function as an extension of another broadband Internet access network end point (*e.g.*, wireline broadband Internet access or cable modem Internet access end point).

[26] In the past year, mobile carriers continued to extend their Wi-Fi coverage by entering into agreements with other carriers. *See, e.g.*, T-Mobile, *T-Mobile Hotspot U.S. Location Map*, http://locations.hotspot.t-mobile.com (last visited January 29, 2007) (T-Mobile claims it has 8,283 hotspots where its customers can get connectivity).

WLANs in these ways, and we seek a description of those service offerings. We also request information about the pricing and usage of such plans. In addition, we ask for information on the extent to which WLANs are being used for voice as well as data services, and on whether such voice services are being provided using Voice over Internet Protocols ("VoIP") technology or other technologies. Are there estimates on the amount of voice on WLANs, as compared with data traffic? What voice equipment and services are available for use over public hot spots? Are enterprise customers in particular using VoIP on WLANs for their businesses? To what extent are WLAN-based data and VoIP services considered to be complements to, or substitutes for, data and voice services offered over CMRS networks? We also ask for information on the total number of publicly available hot spots, as well as the number of free hot spots and fee-based hot spots. Is there a difference in connectivity speeds for free hot spots and fee-based hot spots? We also request information on the pricing of fee-based hot spots.

VII. OTHER INDICATORS AND TOPICS

In addition to alternative sources of data and information to update indicators of competition used in the *Eleventh Report* and previous *CMRS Reports*, the Bureau invites commenters to recommend additional or alternative indicators of competition to enhance the analysis of competitive market conditions with respect to CMRS in the *Twelfth Report*. In each case, the commenter should also submit, or identify sources for, the data and information needed to compile the proposed indicator. As necessary and appropriate, the commenter should also explain how the recommended indicator fits into the market structure-carrier conduct-consumer behavior-market performance framework.

Finally, the Bureau also invites commenters to propose additional topics of interest that are related to the assessment of the status of competition in the CMRS marketplace. For example, have any noteworthy new trends or developments relevant to the assessment of competitive conditions in the mobile telephone sector emerged since the publication of the *Eleventh Report*?

VIII. PROCEDURAL MATTERS

Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. All filings should refer to WT Docket No. 07-71.

The Public Notice is available for public inspection and copying in the Commission's Reference Center, Room CY A257, 445 12th Street, SW, Washington, D.C. 20554. Copies of the Public Notice also may be obtained via the Commission's Electronic Comment Filing System (ECFS) by entering the docket number, WT 06- 231. Copies of the Public Notice are also available from Best Copy and Printing, Inc., telephone (800) 378-3160, facsimile (301) 816-0169, e-mail FCC@BCPIWEB.com.

Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), or (2) by filing paper copies. See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998). See Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24121 (1998). Comments filed through the ECFS can be sent as an electronic file via the Internet to http://www.fcc.gov/cgb/ecfs/. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form." A sample form and directions will be sent in reply.

Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, N.E., Suite 110, Washington, D.C. 20002.

-The filing hours at this location are 8:00 a.m. to 7:00 p.m.

-All hand deliveries must be held together with rubber bands or fasteners.

-Any envelopes must be disposed of before entering the building.

-Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

-U.S. Postal Service first-class mail, Express Mail, and Priority Mail should be addressed to 445 12th Street, SW, Washington, D.C. 20554.

-All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

Parties shall send one copy of their comments and reply comments to Best Copy and Printing, Inc., Portals II, 445 12th Street, SW, Room CY-B402, Washington, D.C. 20554, (800) 378-3160, e-mail FCC@BCPIWEB.com.

Comments filed in response to this Public Notice will be available for public inspection and copying during business hours in the FCC Reference Information Center, Portals II, 445 12th Street SW, Room CY-A257, Washington, D.C. 20554, and via the Commission's Electronic Comment Filing System (ECFS) by entering the docket number, WT 07-71. The comments may also be purchased from Best Copy and Printing, Inc., telephone (800) 378-3160, facsimile (301) 816-0169, e-mail FCC@BCPIWEB.com.

Alternate formats of this public notice (computer diskette, large print, audio recording, and Braille) are available to persons with disabilities by contacting Brian Millin at (202) 418-7426 (voice), (202) 418-7365 (TTY), or send an e-mail to access@fcc.gov.

For further information, contact Ben Freeman, Spectrum & Competition Policy Division, Wireless Telecommunications Bureau, (202) 418-0628, or Heidi Kroll, Spectrum & Competition Policy Division, Wireless Telecommunications Bureau, (202) 418-1310.