



PUBLIC NOTICE

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WIRELESS TELECOMMUNICATIONS BUREAU SEEKS COMMENT ON THE STATE OF MOBILE WIRELESS COMPETITION

WT Docket No. 13-135

Comments Due: June 17, 2013

Reply Comments Due: July 1, 2013

This Public Notice (*Notice*) solicits input and data on mobile wireless competition for the Federal Communications Commission's (Commission) Seventeenth Annual Report on the State of Competition in Mobile Wireless, including Commercial Mobile Radio Services (*Seventeenth Report*). The Commission is required to submit annual reports to Congress analyzing competitive conditions with respect to commercial mobile services.¹ On March 21, 2013, the Commission released its Sixteenth Mobile Wireless Competition Report (*Sixteenth Report*).² With this *Notice*, the Wireless Telecommunications Bureau (Bureau) seeks to update the information and metrics used in the *Sixteenth Report*, as well as to enhance the Commission's analysis of mobile wireless competition for the *Seventeenth Report*.

This *Notice* seeks data and information on industry structure, firm conduct, market performance, and consumer behavior with respect to mobile wireless services, as well as on input and downstream segments, intermodal competition, urban-rural comparisons, and international comparisons. We request that commenters provide, to the extent possible, information and insights on competition across the mobile wireless ecosystem using this framework. We also ask parties to comment on whether the framework used in the *Sixteenth Report* was adequate for analyzing mobile wireless competition in a useful and timely manner, or whether changes should be made for the *Seventeenth Report*.

The Commission actively endeavors to improve and refine the way it collects, analyzes, and reports industry data. In particular, we are interested in obtaining data and metrics that quantify the importance of mobile data and mobile broadband services. These would include detailed, comprehensive, historical measurements of mobile data traffic, usage, subscribers, and devices. This *Public Notice* contains a series of questions asking for data and analytic recommendations related to that effort. We seek comment on these and any other approaches to improve the quality of the *Seventeenth Report* as well as subsequent

¹ See 47 U.S.C. § 332(c)(1)(C).

² Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services, WT Docket No. 11-186, *Sixteenth Report*, FCC 13-34 (rel. March 21, 2013) (*Sixteenth Report*).

reports.

The information used in the competitive analysis in the *Sixteenth Report* was derived from various sources, including comments in the public record, Mosaik Solutions (Mosaik),³ industry associations, financial industry analysts, company filings and news releases, Security and Exchange Commission filings, trade publications, industry trade and press releases, research firms' publicly-available data, university researchers and scholarly publications, vendor market product releases, white papers, service provider web sites, and data submitted to the Commission through other data collection efforts such as Form 477 and the Numbering Resource Utilization / Forecast (NRUF). We seek input on whether there are other sources of data, especially quantitative data, which the Commission can use to perform a comprehensive analysis of mobile wireless competition.

For the *Seventeenth Report*, we request that commenters submit data and statistics available for calendar year 2012 and for early 2013, as well as information on any trends and developments that have occurred during 2012 or 2013. In particular, we seek information on events or developments that have arisen after release of the *Sixteenth Report*.

Members of the industry, the public, and other interested parties are encouraged to submit information, comments, and analyses regarding mobile wireless competition. In order to facilitate its analysis of competitive trends over time, the Bureau requests that parties submit current data, as well as historic data, that are comparable over time. Commenters seeking confidential treatment of their submissions should request that their submission, or a specific part thereof, be withheld from public inspection.⁴

I. MOBILE WIRELESS SERVICES: INDUSTRY STRUCTURE

The Bureau's analysis of market structure in the *Sixteenth Report* focused on the deployment of mobile wireless networks, the current level of concentration, the ease or difficulty with which new providers can enter the marketplace, and the conditions under which providers exit the sector.⁵ We invite commenters to address the sources of data and the analysis of metrics and information relating to the various aspects of industry structure outlined below.

A. Mobile Wireless Service Providers and Service Provision

Since the *Twelfth Report*, the Commission has used data from Mosaik to analyze the extent of mobile wireless network deployment and competition. This data source provides the Commission with a set of maps of the boundaries of the network coverage areas of every operational, facilities-based, terrestrial mobile wireless provider in the United States and its territories. Using these maps and population data from the Census Bureau, the Commission is able to estimate the percentage of the U.S. population covered by (1) a certain number of providers,⁶ (2) different types of network technologies, and (3) the mobile voice and mobile broadband networks of individual service providers. The *Sixteenth Report* also provided, for the first time, estimates of U.S. road miles covered. While these analyses provide a

³ Mosaik Solutions (formerly American Roamer) is an independent consulting firm that produces coverage maps based on public sources as well as confidential information supplied directly by service providers. See *Twelfth Report*, 23 FCC Rcd at 2261, ¶ 35, n. 61.

⁴ 47 C.F.R. § 0.459.

⁵ See *Sixteenth Report* at ¶ 8.

⁶ The coverage data may not represent the number of choices actually available to consumers living in particular areas, as service providers provide network coverage in certain areas to serve customers resident elsewhere.

quantitative baseline that can be compared across network types, technologies, and providers over time, it has drawbacks. As noted in the Sixteenth Report, the Mosaik analysis likely overstates the coverage actually experienced by consumers, because Mosaik reports advertised coverage as reported to it by many mobile wireless service providers, each of which uses a different definition of coverage.⁷ The data are not consistent across geographic areas and service providers. We ask commenters to address the extent to which the limitations of the Mosaik data affect the Commission's analysis of the data.

Are there additional sources of data that can be used to examine mobile wireless service availability and network deployment? Are there additional analyses of competition that the Commission should perform using the Mosaik data or other data sources? How can the Commission further develop and refine its understanding of mobile voice and broadband availability and deployment?

B. Other Mobile Wireless Providers

1. Resale/MVNO Providers

We seek information to update the information on the major resellers/Mobile Virtual Network Operators (MVNOs) in the United States in the *Sixteenth Report*.⁸ We also ask for comment on the extent to which MVNOs and resellers create competitive pressure on facilities-based providers, including the facilities-based providers from which the MVNO or reseller purchases its wholesale services. How many subscribers do these companies have, and with which facilities-based providers? How has this changed in 2012 and 2013? Are there any new MVNO or reseller business models? From the consumer's perspective, what are the benefits of buying from a reseller/MVNO versus a facilities-based provider? In what other ways has the MVNO sector evolved during the past year?

2. Mobile Satellite Service Providers

The Bureau seeks information about the role of mobile satellite service (MSS) providers in the mobile wireless services industry.⁹ Traditionally, MSS has involved voice and narrowband data services. MSS services are generally targeted at users requiring service in remote areas, in disaster response situations, or other places where terrestrial mobile wireless network access may be limited.¹⁰ Examples of MSS customers include the oil industry, maritime users, public safety agencies, and other government/military operations. How has this changed during 2012 and 2013? To what extent are mobile wireless services provided by MSS a substitute for or a complement to terrestrial mobile wireless services? The *Sixteenth Report* noted that progress toward deployment of ancillary terrestrial component (ATC) services has been a slow process, with no such services offered at the time of its release, and further noted that there was little commercial use of the 2 GHz band spectrum for MSS.¹¹ In December of 2012, the Commission eliminated the ATC rules for the 2 GHz band, granted terrestrial authority to the existing MSS licensee,

⁷ See *Sixteenth Report* at Executive Summary, Network Deployment.

⁸ See *Sixteenth Report* at ¶ 29.

⁹ To the extent that satellite providers offer mobile voice and data services that compete with terrestrial commercial mobile wireless services, such satellite-based services will be included in the Commission's analysis of competitive market conditions with respect to mobile wireless. All other competitive issues related to satellite communications will be examined in the Commission's annual reports on the status of competition in the satellite services market. See "IB Invites Comment for Third Annual Report to Congress on Status of Competition in the Satellite Services Market," IB Docket No. 09-16, *Public Notice*, 24 FCC Rcd 5424 (IB 2009).

¹⁰ See *Thirteenth Report*, 24 FCC Rcd at 6301 ¶ 247.

¹¹ Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands, *Notice of Proposed Rule Making and Notice of Inquiry*, 27 FCC Rcd 3564 ¶ 8 (2012)(*AWS-4 NPRM and NOI*).

and established rules for terrestrial service.¹² What mobile wireless services are currently being offered using MSS companies? To what extent are MSS operators providing broadband services, and how is this affecting mobile wireless competition? How do MSS providers plan to deploy services taking advantage of the rule changes?

C. Market Concentration

In the *Sixteenth Report*, as in previous *Competition Reports*, the Commission analyzed horizontal concentration in the mobile wireless industry by calculating the Herfindahl-Hirschman Index (HHI) for each Economic Area (EA) in the United States and determining an average HHI, weighted by EA population, for the entire country.¹³ The data source used for this calculation is the Numbering Resource Utilization / Forecast (NRUF) data that are submitted to the Commission on a rate center basis.¹⁴ NRUF tracks the number of phone numbers that have been assigned to mobile wireless devices and therefore serves as a proxy for mobile wireless subscribers.¹⁵ We seek comment on the usefulness of the HHI index derived from NRUF data in measuring industry concentration and competition, the relationship between concentration and competition, and whether there are other ways or current best practice metrics by which the Commission should analyze concentration in the mobile wireless industry. We seek comment on whether it would be helpful to estimate market shares or concentration for specific mobile wireless services and how we might estimate such market shares. The Bureau also asks whether EAs continue to be an appropriate geographic area for the calculation of HHI measures based on NRUF data in the *Seventeenth Report* or whether we should use other geographic boundaries.

In addition, we seek comment on the relationship between concentration and competition. How has concentration in the mobile wireless services industry changed during 2012 and 2013? To what extent are such changes the result of consolidation? Have changes in concentration levels affected pricing, the

¹² See Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands, WT Docket No. 12-70, Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz, ET Docket No. 10-142, Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands, WT Docket No. 04-356, *Report and Order and Order of Proposed Modification*, FCC 12-151 (rel. Dec. 17, 2012) (*AWS-4 Report and Order*).

¹³ See *Sixteenth Report*, at ¶ 24. EAs are defined by the U.S. Department of Commerce's Bureau of Economic Analysis. See *Twelfth Report*, 23 FCC Rcd at 2331, n. 564.

¹⁴ 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, 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 providers.

¹⁵ The Commission estimates the number of mobile wireless subscribers by counting the number of telephone numbers that have been assigned to end users by mobile wireless providers using NRUF submissions. See *Thirteenth Report*, 24 FCC Rcd at 6278-79, ¶ 196 & n. 551. In NRUF, carriers do not report numbers that have been ported to them. Therefore, to develop an estimate of mobile wireless subscribership, it is necessary to adjust the raw NRUF data to account for mobile wireless subscribers who have transferred their wireline numbers to wireless accounts. Porting adjustments are developed from the telephone number porting databases managed by Neustar, acting as the administrator of the regional Number Portability Administration Centers (NPACs). The databases contain all ported numbers currently in service. They also contain information about when the number was most recently ported (to a carrier other than the carrier to which the number originally was assigned) or, in some cases, when the database was updated to reflect a new area code. *Trends in Telephone Service*, FCC, Apr. 2005, at 8-2 – 8-3.

rollout of new services, and equipment offerings? Have they affected mobile data services differently than mobile voice services? And have they affected rural areas differently than urban areas?

D. Entry and Exit Conditions

Actual entry and exit in a market occur in the context of underlying regulatory, market, and technological conditions that directly influence the total number of firms that can compete successfully.¹⁶ Barriers to entry in the mobile wireless services industry include various regulatory and non-regulatory factors, such as access to spectrum, tower siting policies, large sunk costs for network deployment, and the magnitude of marketing and advertising expenditures on brands and services.¹⁷ The Bureau seeks comment on the effects of these and other types of barriers to entry on concentration in the mobile wireless industry. Do entry and concentration vary across different market product segments or niches or across different types of geographic areas?

E. Recent Entry and Exit

The Bureau requests information on market entry by mobile wireless service providers, as well as consolidation and other forms of market exit, which occurred over the past year. To what extent have new providers launched service in 2012 and 2013? Are other providers in the process of securing financing and building networks, with plans to begin offering service soon? To what extent have certain providers that offered service in some areas of the country entered new markets, including new cities as well as smaller towns or suburban areas surrounding larger urban areas?

Which mobile wireless service providers exited the market by being absorbed in an acquisition by another company during the past year? How has the pace of consolidation changed in 2012 and 2013? What are the reasons for consolidation by mobile wireless service providers and the reasons for any changes in the pace of consolidation? Are there any relevant studies of concentration and market performance in the mobile wireless service industry?

II. SPECTRUM

We ask for input and feedback on our latest analysis of the spectrum used for mobile wireless services, the spectrum holdings of mobile wireless service providers, and the competitive effects of spectrum holdings, as well as up-to-date information on this topic. How should the Commission assess the ways in which spectrum holdings affect the structure, conduct, and performance of the mobile wireless services industry? How do mobile wireless service providers and spectrum licensees currently use their licensed spectrum? Are certain frequencies used heavily while others lie fallow? How does this vary across different types of geographic areas?

How much spectrum is unused or underutilized? To what extent do spectrum licensees lease, partition, or disaggregate their spectrum? How much of the spectrum available for the provision of mobile wireless services is actually used to provide service? What are the tradeoffs involved? Of the spectrum that is currently unused, to what extent do licensees plan to use that spectrum to provide service in the future? Are there geographic areas within spectrum license boundaries that licensees do not plan to serve? Are there any data or estimates available on spectrum utilization or non-utilization/warehousing?

How much additional spectrum will be required to support next generation technologies and mobile broadband applications, and in what locations? How much spectrum is being used to provide services

¹⁶ See *Sixteenth Report* at ¶ 62.

¹⁷ *Id.*

over 3G and 4G network technologies versus 2G digital voice technologies? How much spectrum is required to roll out services over technologies such as WiMax and LTE? Which technologies, services, and applications require large amounts of spectrum? How should the Commission account for differences in spectrum holdings and bandwidth in evaluating mobile wireless competition?

The different propagation characteristics of different spectrum bands can influence how spectrum is used to deliver mobile wireless services to consumers.¹⁸ What are the benefits of transmitting in different frequency bands? Do these benefits vary across geographic areas? How do such benefits translate into capital and operating cost differences? How are service providers' network deployment plans affected by their spectrum holdings in the frequencies above and below 1 GHz? How does the use of different frequency bands affect competition in the industry?

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 mobile wireless industry. Are existing service providers spectrum constrained? If so, in which geographic markets are providers most likely to be constrained? Do potential entrants have sufficient opportunities to access spectrum, and has this changed in the past year?

How have advanced network technologies affected spectrum access? As these technologies become more prevalent, will potential entrants have more or fewer opportunities to access spectrum? Have mobile wireless service providers become more or less spectrum-constrained after rolling out new networks and services? Do providers anticipate needing additional spectrum to deploy faster and more advanced mobile broadband networks?

III. MOBILE WIRELESS SERVICES: PROVIDER CONDUCT

A. Price Rivalry

The Bureau seeks information on innovations or developments that have occurred with mobile wireless pricing plans during 2012 and 2013. Have such pricing innovations occurred throughout the mobile wireless industry, or have they been limited to certain types of services or a subset of providers? Are providers targeting different pricing plans to different types of consumers? If so, how? To what extent do new types of pricing plans reflect price rivalry among mobile wireless service providers?

In particular, the Bureau seeks comment and information on trends related to the pricing of mobile data and Internet access services offered by mobile wireless service providers. We request data on the pricing of these services on a national or sub-national level. Have the ways in which providers' price mobile data and Internet access services changed in 2012 and 2013? The *Sixteenth Report* noted the shift to tiered, usage based pricing models for smartphones and other data devices. It also noted the introduction of shared plans directed at subscribers with multiple devices.¹⁹ Have these trends continued, and to what extent, and how has this affected competition in the industry? How are providers pricing mobile Internet access services for non-voice devices such as tablets, e-readers, laptops, and modem cards, and how has this changed in the past year? Are there any reports or analyses that discuss pricing trends for mobile data services? How have such trends affected mobile data subscribership and use?

What pricing methods are providers using specifically to retain customers and reduce churn? What benefits or promotions are providers offering to repeat customers and those with long-term contracts? What developments have occurred with regard to customer retention pricing methods during 2012 and

¹⁸ See *Sixteenth Report* at ¶ 119.

¹⁹ See *Sixteenth Report* at ¶ 144

2013? What has been the effect of pro-rated early termination fees on churn? What role does handset and device pricing play in mobile wireless competition? Do providers engage in rivalry via handset and device pricing? How has this changed in the last year?²⁰ We also seek comment on the extent to which the secondary market for handsets and devices affects device pricing as a factor in competition.

We seek to update the information on the measures wireless service providers are taking to alert customers when they have exceeded or are about to exceed a monthly voice, text, or data limit, so that they can avoid “bill shock.” As noted in the *Sixteenth Report*, in October 2011, the Commission, CTIA, and Consumers Union announced voluntary industry guidelines under which mobile service providers will provide free alerts to subscribers, on an opt-out basis, both before and after they have reached monthly voice, text, and data limits.²¹ We also note that on April 18, 2013, the Commission announced that providers covering 97 percent of wireless consumers were participating in the bill shock prevention program.²² We seek comment on whether service providers have implemented other measures to enable their customers to avoid unwanted overage charges and bill shock.

B. Non-Price Rivalry

1. Network Coverage and Technology Upgrades

The Bureau requests information on the extent to which mobile wireless providers have upgraded, or plan to upgrade, their networks with 3G and 4G technologies such as Wideband Code Division Multiple Access (WCDMA), High-Speed Packet Access (HSPA), HSPA+, Evolution Data-Optimized (EV-DO), EV-DO Rev A, WiMAX 802.16e-2005 (mobile WiMAX), and Long Term Evolution (LTE). Has there been further deployment of these technologies since the release of the *Sixteenth Report*? How extensively have providers deployed advanced technologies in rural areas?

We seek information on how providers plan to deploy services in the WCS and AWS-4 bands including the technologies and speeds they plan to offer. We also seek information on the network and end-user equipment that will be available for these bands. Are the services to be offered and networks to be deployed using this spectrum similar to or different from the services offered using other frequencies, such as Cellular, Broadband PCS, and the 700 MHz Band? We seek information on the relative advantages and disadvantages of the various mobile network technologies and the impact their differences have on competitive conditions in the mobile wireless industry. To what extent do 3G and 4G network technologies improve providers’ coverage, capacity, and/or service offerings? In addition, to what extent have providers integrated their mobile wireless network technologies with high-speed wireless local area network (WLAN) technologies such as Wi-Fi, with the aim of offering seamless mobile voice or data services?

²⁰ We note that in March, 2013, T-Mobile announced that it was eliminating both term-contracts and device subsidies. See <http://newsroom.t-mobile.com/articles/t-mobile-makes-un-carrier-moves> (visited April 23, 2013).

²¹ CTIA – *The Wireless Association, Federal Communications Commission, and Consumers Union Announce Free Alerts to Help Consumers Avoid Unexpected Overage Charges*, Press Release, CTIA, Oct. 17, 2011, available at <http://www.ctia.org/media/press/body.cfm/prid/2137>. The guidelines also include measures to inform customers about international roaming charges when traveling abroad.

²² FCC Marks Milestone in Effort to Eliminate ‘Bill Shock’, Press Release, FCC, April 18, 2013. On April 17th the Commission held a consumer workshop, and updated its Web Portal to help further educate consumers on issues related to unexpected charges on their bills.

2. Advertising, Marketing, Sales Expenditures, and Retailing

The Bureau requests comment and updated information on the extent to which provider advertising, marketing, and retailing practices reflect competition in the mobile wireless marketplace. How much did individual providers, and the industry as a whole, spend on advertising and marketing in 2012 and 2013? Have providers increased the amount of money spent on customer acquisition? How have advertising and marketing campaigns and practices changed during 2012 and 2013? In addition, what are the most popular retail channels used by mobile wireless providers, and how has this changed over the past year? Are different types of customers obtained through different retail channels, and how does this affect the various performance metrics used to analyze competition in the industry?

3. Differentiation in Mobile Wireless Handsets/Devices

We seek comment on the role of handsets and devices in competition among mobile wireless service providers. Providers compete by introducing new handsets and devices, distinguishing their handset and device offerings from those of their competitors, responding to competitors' device innovations with rival offerings, offering certain device models on an exclusive basis, and allowing devices that they do not sell directly to be used on their networks. Have these trends continued since the *Sixteenth Report*? How are providers using device innovations as a way to compete? Does the variety of available handsets differ significantly depending on where a subscriber lives?

We also seek comment on the importance of device platforms and operating systems, and their accompanying application stores, to mobile wireless consumers. How has the role of device operating systems changed since the *Sixteenth Report*? Have certain platforms increased or decreased in popularity and market share? To what extent are mobile wireless customers exhibiting loyalty to certain platforms, as opposed to particular devices or providers, and how is this affecting competition among mobile wireless service providers?

The *Sixteenth Report* discussed the growing popularity of non-voice devices, such as tablets and e-readers, which, at least in part, rely on a mobile wireless network connection. How many of these devices were in use at the end of 2012 and in 2013, and to which networks did they connect? What is the nature of a consumer's relationship with the mobile wireless network provider when using such devices, and how does it differ from the relationship when using a traditional mobile handset or smartphone? How has this changed in the past year? How does the increasing use of these devices affect competition among mobile wireless service providers? What effect has the advent of shared data plans had on adoption and usage of such devices?

4. Differentiation in Mobile Data Applications

As with handsets and devices, mobile wireless service providers also compete by differentiating from their rivals the applications that they make available through the devices attached to their networks. The Bureau is interested in collecting updated information and analyses of the mobile data applications available on mobile wireless networks and how consumers are able to access those applications. How are providers differentiating themselves from their rivals by the applications and Internet content that are available through their networks? To what extent do mobile wireless service providers offer consumers a level of choice in content and applications that is similar to or greater than the level of choice available through other broadband connections? What changes have occurred in this regard during 2012 and 2013?

We invite comments on the impact of the use of mobile web browsers and application stores. How has the increasing popularity of mobile applications and Internet access affected the ability of mobile wireless service providers to differentiate themselves? To what extent has control over the types of applications that customers can access on their devices shifted from service providers to device makers and/or operating system developers during 2012 and 2013?

IV. MOBILE WIRELESS SERVICES: PERFORMANCE

The *Seventeenth Report* will analyze a range of mobile wireless performance metrics, including subscribership levels, penetration rates, net subscriber additions, usage levels, pricing levels and trends, revenue, investment, profitability, and network and service quality. The analysis of subscribership levels will include data on the total number of mobile wireless connections, subscribers, smartphones, Internet access subscribers, and data-capable handsets, as well as the number of prepaid and postpaid subscribers, number of subscribers in different age cohorts, and the number of connections in different Economic Areas (EAs). Are there additional metrics that would enhance the Commission's analysis of the mobile wireless marketplace? Are there additional ways that existing data can be analyzed to provide further insight into the nature of mobile wireless competition? To the extent that commenters believe we should include additional metrics or perform additional analyses, we ask that they provide these data and explain these analyses. Are the additional metrics available on a national as well as a sub-national level?

A. Subscribers

As mentioned above, the *Seventeenth Report* will analyze several different measures of mobile wireless subscribership levels and penetration rates, from a variety of data sources. The metrics include: total mobile wireless subscribers in the United States and by provider; mobile wireless Internet access subscribers and devices in use; data-capable, SMS-capable, and web-capable devices; tablets; wireless aircards and laptop cards in use; mobile wireless subscribers by pricing plan; mobile wireless subscribers by age; and mobile wireless connections by EA.

The main source of data used by the Commission to calculate total mobile wireless connections nationwide and by EA is NRUF. NRUF tracks the number of phone numbers that have been assigned to mobile wireless devices. As noted in the *Sixteenth Report*, one important limitation to NRUF is that it is no longer an accurate reflection of the number of individual subscribers.²³ More consumers are using more than one mobile device – particularly non-voice devices, such as Internet access devices (*e.g.*, wireless modem cards and mobile Wi-Fi hotspots), e-readers, tablets, and telematics systems – and many data-only mobile devices have assigned telephone numbers. Thus, NRUF provides an estimate of the number of mobile wireless connections or connected devices. In addition, while many mobile wireless devices that are not used for mobile voice services still have a phone number assigned to them, certain providers' devices, such as Clearwire's WiMAX mobile and fixed Internet access devices, do not have phone numbers assigned to them and are not captured in the NRUF data. NRUF data also do not include demographic information about the subscribers with phone numbers assigned to them. We seek comment on the effects of NRUF's limitations in analyzing mobile wireless performance and competition. For example, the number of people who use multiple devices limits the ability of the Commission to determine how many people in the United States do not own a mobile wireless handset or device.

In the *Sixteenth Report*, as in previous *Competition Reports*, the Commission calculated sub-national penetration rates by EA.²⁴ The Bureau requests comment on the appropriateness of using EAs for such calculations. 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

²³ See *Sixteenth Report*, Executive Summary, Subscribers, Connections, and Net Adds. .

²⁴ The use of any particular geographic area to calculate mobile wireless 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 *Competition Reports*.

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 *Seventeenth Report*?

Beginning with the *Fourteenth Report*, the Commission has supplemented its existing data on mobile wireless subscribership and connections with data from the Commission's Form 477 on mobile wireless Internet access subscribers and connected devices.²⁵ Under the Form 477 Local Telephone Competition and Broadband Reporting requirements, mobile wireless broadband providers report their number of mobile Internet access subscribers at speeds exceeding 200 kbps in at least direction on a state-by-state basis by speed tier.²⁶ We note that the Form 477 data do not separately capture those mobile data users who do not have a subscription to a mobile Internet access service.²⁷ We seek comment on the ways we can use the Form 477 data to analyze mobile wireless competition in the *Seventeenth Report*.

Are there additional sources that the Commission should use to analyze mobile wireless subscribership? For instance, are there sources that can provide data on either a national or sub-national basis on the number of individuals who use mobile wireless services, rather than the number of mobile wireless connected devices? Are there sources that can provide data on the number of devices that are used for mobile broadband or data services exclusively or in conjunction with mobile voice services? In addition, are data available on the number of connections broken down by mobile network technologies, such as EV-DO, HSPA, WiMAX, and LTE?

We also seek comment on whether we should analyze the adoption rates of mobile wireless services among different segments of the population, including by age group, income level, and geographic area. For example, we provided analysis of how the number of facilities-based mobile wireless providers varies by median income in the *Sixteenth Report*. Should we extend this type of analysis to other areas in the *Seventeenth Report*? If so, which sources could provide such data? We also noted variance of smartphone penetration by race/ethnicity, household income, education level, and urban/rural location. We seek comment on how we might expand the use of detailed demographic information throughout the *Seventeenth Report*.

B. Net Subscriber Additions

We seek comment on our analysis of net subscriber additions, or "net adds," for the industry as a whole, by pricing plan, and by service provider and ask whether we should make any changes or add any new measures to the *Seventeenth Report*. We also seek comment on the extent to which net adds metrics provide valuable insight into the level of competition in the mobile wireless services industry.

²⁵ See *Sixteenth Report*, Executive Summary, Subscribers, Connections, and Net Adds .

²⁶ Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership, WC Docket No. 07-38, *Report and Order and Further Notice of Proposed Rulemaking*, 23 FCC Rcd 9691, 9700, ¶ 20 (2008). Mobile high-speed "subscribers" are defined for Form 477 purposes as customers whose device and subscription permit them to access the lawful Internet content of their choice at data rates exceeding 200 kbps in at least one direction. *Id.* at 9703 ¶ 23. In addition, mobile wireless broadband providers are required to report the percentage of the total subscribers in each state that are residential (not billed to a corporate, business, government, or institutional account). *Id.* at 9703 ¶ 24. However, they are not required to submit their number of subscribers broken down on a Census Tract basis, as other broadband providers are required to do. *Id.* at 9698, ¶ 16.

²⁷ Mobile data services include not only data services and applications that are offered over mobile broadband networks (which transfer data at speeds of at least 200 kbps in at least one direction), but also those that are provided over network technologies with slower data rates.

C. Output and Usage Levels

To analyze mobile wireless output and usage, the Commission tracks data on mobile voice, messaging, and data traffic. For the *Seventeenth Report*, we seek data, both for the industry as a whole and by provider, on mobile voice, messaging, and data traffic volumes. How have these changed during 2012 and 2013? What are the reasons for such changes?

While industry-wide data on total and average voice minutes of use (MOUs), as well as text messaging and multimedia messaging service (MMS) traffic volumes, have been available from CTIA, data on the number of megabytes of mobile data traffic have been limited.²⁸ Because of the increasing importance of mobile data and broadband services in the mobile wireless industry, we ask that commenters, particularly mobile wireless service providers, submit data on mobile data traffic volumes. For instance, we ask them to provide the total megabytes of mobile data traffic on their networks on a quarterly or annual basis. We ask also for any data on mobile data traffic by type of device, by type of subscription, by age group, and on a sub-national basis.

In addition, the Bureau asks whether there are additional sources of voice or messaging traffic data that should be included in the *Seventeenth Report*. For example, we request data on voice, messaging, and data on a sub-national basis and/or broken down by various demographic groups. Should the Commission perform other analyses or draw additional conclusions about usage and traffic from new or existing data?

D. Pricing Levels and Trends

The Bureau seeks comment on the use of certain pricing measures – namely the Cellular Consumer Price Index (CPI) and Revenue Per Minute (RPM) – as tools in its analysis of the performance of the mobile wireless industry.²⁹ In particular, to what extent do changes in these pricing measures provide insight into the nature of competition in the mobile wireless services sector?

The Bureau seeks updated information and additional data on the pricing of mobile voice, messaging, and broadband services. In particular, the Commission is able to use industry data from CTIA to calculate voice RPM, which is used as a proxy for the per-unit price of mobile voice service,³⁰ but has not been able to use the same source to generate an analogous metric for the per-unit price of mobile broadband service. Therefore, we request data that can be used to derive a unit price measure for this increasingly important mobile wireless service. In general, how has the pricing of mobile voice, messaging, and broadband services changed during 2012 and 2013? Are there additional analyses that can be performed or conclusions that can be drawn from new or existing pricing data?

Recent and future developments in mobile pricing plans and service offerings have the potential to blur the distinction between voice and data revenue and between voice and data usage. These developments include the use of bundled voice and data service offerings and the transition to mobile VoIP services. We invite comment on, and analysis of, the impact of such developments on the usefulness of voice RPM, or other per-unit pricing metrics, as a means of tracking pricing trends in mobile wireless services.

²⁸ See *Sixteenth Report* at ¶ 261.

²⁹ See *Sixteenth Report* at ¶ 266-267.

³⁰ See *Sixteenth Report* at ¶ 267.

E. Revenue

The Bureau seeks comment on the use of key revenue metrics, including total industry revenues and average revenue per user (ARPU), in its analysis of mobile wireless performance and competition. Are additional ARPU data available that we should consider, in particular data depicting whether and how ARPU varies by region and/or demographic group? We also request provider-specific ARPU data for the *Seventeenth Report*, including information on how service providers allocate ARPU to different types of mobile wireless services or devices. 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.

F. Investment

We ask for updated information and additional analyses of investment levels in the mobile wireless industry, including total investment levels over time, as well as investment per subscriber, investment as a percentage of revenue, and capital expenditures by individual mobile wireless service providers. Did investment – both for the industry as a whole and by individual providers – increase or decrease during 2012 and 2013? For what purposes are providers using capital expenditures, and how has this changed in the past year? Are there any studies or analyst reports on the investments of nationwide providers versus regional/local providers? Do data exist on investment by geographic region? Which categories of investment are most relevant for competition?

G. Profitability

The *Sixteenth Report* included an analysis of mobile wireless provider profitability measures using three different metrics: Earnings Before Interest, Taxes, Debt, and Amortization (EBITDA) per subscriber, EBITDA minus CAPEX per subscriber, and reported EBITDA margins.³¹ We request input on the use of these profitability estimates in our analysis of the performance of the mobile wireless industry, including to what extent profitability metrics are indicators of competition. Are there different estimates of profitability that should be included in the *Seventeenth Report*, and how should they be analyzed? What are the most appropriate ways to measure change in profitability over time for the industry as a whole, as well as for individual firms?

H. Service Quality

Indicators of service quality performance in the *Sixteenth Report* included the results of consumer surveys, such as those conducted by J.D. Power & Associates, *Consumer Reports*, and the Commission, as well as the results of network speed and reliability tests performed by *PCWorld* magazine, and PCMag.com.³² The Bureau seeks comment on the usefulness of these sources in measuring service and network quality, and asks whether it should consider data from additional sources.

We invite comment on whether there are additional sources of information that we should include in the Commission's analysis of service quality, such as those that include quantifiable measures of network quality.³³ What factors do such sources take into account when evaluating service quality? For instance,

³¹ See *Sixteenth Report* at ¶ 284-289.

³² See *Sixteenth Report* at ¶ 316-317.

³³ We note that last year Commission staff initiated a program to develop consistent information on industry wide mobile broadband service performance in the United States. See *Sixteenth Report* at ¶ 292, citing "FCC Announces 'Measuring Mobile America' Program to Test Mobile Broadband Performance" News Release, Sept. 5, 2012, http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0905/DOC-316109A1.pdf (visited April 25, 2013).

are there surveys that focus primarily or exclusively on network performance and reliability (incidence of dropped calls, interference, and so forth), as well as surveys that also take into account other influences on the customer experience, such as cost of service, customer service, and billing? In cases where surveys measure overall customer satisfaction with the performance of wireless service providers rather than network performance *per se*, what specific dimensions of service quality are survey respondents asked about, and how are responses to different questions weighted to derive the overall score? What methodologies do any recommended surveys use to select survey respondents, and do these methodologies result in any sample bias?

Are data available from service providers or third parties that indicate that service and network quality have improved or deteriorated during 2012 and 2013? If so, which elements of service quality have changed, and in what ways? Finally, do commenters believe that the service quality experienced by rural customers is adversely affected by their location?

V. CONSUMER BEHAVIOR IN THE MOBILE WIRELESS MARKET

A. Consumer Switching Costs

The costs that consumers may incur when switching providers include the time and expense required to access information on available services, early termination fees (ETFs), and handset- and device-related costs. We request updated information on these switching costs and ask whether additional costs should be included in our analysis. Specifically, what information sources are available to consumers about the availability, quality, and features of mobile wireless services? How have these information sources evolved in 2012 and 2013? Are there new avenues for consumers to gain information through retailers or third parties, such as online or in-store comparisons of pricing plans, services, and handsets and devices?

In addition, we seek information on consumer behavior in response to ETFs and other service pricing plans and policies. To what extent are consumers able to avoid an ETF by paying the full, non-subsidized price for a device, and how many consumers choose such an option? Which providers prorate ETFs over the life of a contract, and by how much do prorated ETFs reduce the initial ETF? What do ETF trends reveal about mobile wireless consumer behavior and competition? To what extent does a secondary market for handsets and devices allow consumers to bypass ETFs? We also seek comment on services that enable consumers to transfer the remainder of their contract term to others.

Finally, the Bureau seeks comment, in analyzing consumer switching costs, on the role of handsets and devices. To what extent do consumers choose a service provider based on the handsets and devices available for use on that provider's network or on the applications available on these devices? Does this vary among different types of consumers? How has this changed over time? Has expiration of the Digital Millennium Copyright Act exemption permitting handset unlocking affected consumer choice?³⁴ When handsets or devices are "locked," or designed to work on a single network, to what extent can consumers "unlock" or reprogram their devices so they will work on the network of another service provider? How does device locking affect the willingness of consumers to switch providers? What restrictions do providers place on the ability of consumers to unlock their devices? How clear and accessible are these policies?

Switching costs may include the stranding of information stored on or mobile applications purchased for a particular handset or device that cannot be transferred. To what extent are consumers able to transfer stored information or downloaded applications from one handset or device to another? How does this

³⁴ Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 77 Fed. Reg. 65,264-66 (Oct. 26, 2012) (to be codified at 37 C.F.R. pt. 201).

change when both the old and new devices use the same platform or operating system? How significant are the costs of reacquiring applications for most consumers, and how do they affect whether a consumer is willing to switch to a new handset or device and/or a new provider?

B. Churn

The Bureau requests up-to-date churn information and asks whether we should include other churn data in addition to blended churn, comparative churn, and the average lifetime of subscribers for several providers. How did the overall churn rate, as well as the churn rates of particular service providers, change during 2012 and 2013? In addition, in order to provide a detailed explanation of our analysis of churn, we ask providers 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 mobile wireless industry? Further, the Bureau seeks sub-national or regional churn data and churn data by demographic groups. What are the reasons for consumer churn? Have the reasons for churn changed or remained the same in 2012 and 2013? In particular, how has ongoing evolution in handset design and functionality affected consumer churn decisions?

VI. INPUT AND DOWNSTREAM SEGMENTS OF THE MOBILE WIRELESS ECOSYSTEM

A. Input Segments

1. Infrastructure and Backhaul

In addition to spectrum access, mobile wireless services depend critically on access to productive inputs such as network infrastructure (cell sites and towers),³⁵ as well as backhaul facilities. Are there other key input markets that affect overall competition? What data are available to measure these effects?

With respect to infrastructure, the Bureau seeks comment on how the structure of the infrastructure sector affects competition in the mobile wireless services industry. How many new cell sites were deployed in 2012 and 2013, and by which service providers? To what extent do service providers own their own towers or antenna facilities, and to what extent do they lease space from independent tower companies? Does this vary across different types of geographic areas? How do these different approaches affect service providers' costs and competition in the mobile wireless services sector? In addition, what are the major barriers or constraints faced by service providers needing to add or modify cell sites in their networks? To what extent do regulatory and zoning approvals from state and local government authorities act as barriers to tower and cell site deployment?

We seek information on the extent to which mobile wireless service providers will likely need to purchase additional backhaul transmission facilities – such as T1 lines, cable, wireless microwave, and fiber optics – in order to accommodate increasing mobile broadband traffic. Which types of technologies are service providers using for backhaul, and what are the costs of the different technologies? We also seek comment on how the structure of the market for backhaul services affects overall competition in the mobile wireless

³⁵ The Middle Class Tax Relief and Job Creation Act of 2012 included a provision that would facilitate the placement of wireless facilities on existing towers. *See*, Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, H.R. 3630, 126 Stat. 156 at § 6409(a) (enacted Feb. 22, 2012). In January 2013, the Wireless Telecommunications Bureau issued a Public Notice providing guidance on the interpretation of that section. *See* “Wireless Telecommunications Bureau Offers Guidance On Interpretation Of Section 6409(A) Of The Middle Class Tax Relief And Job Creation Act Of 2012,” DA 12-2047, rel. January 25, 2013.

service sector. How do the differences in technology, availability, and price for backhaul services impact competition?

B. Downstream Segments

1. Handsets/Devices and Operating Systems

The Bureau invites commenters to submit data and information on the mobile wireless device and operating system sectors of the mobile wireless ecosystem. What types of data sources, such as consumer surveys, provide information on consumer preferences with regard to mobile devices? What are the main factors consumers take into account when choosing a device? What types of handset models, features, and innovations are most popular with different groups of consumers, and how has this changed in the past year?

What is the nature of competition among handset providers and among operating system providers, and how does this affect competition among mobile wireless service providers? What are the competitive effects of vertical integration by device and operating system firms? What are the competitive effects of “open” operating systems used in devices manufactured by competing handset providers? What are the advantages and disadvantages of vertical integration of devices and operating systems versus the open operating system model?

During 2012 and 2013, have service providers, operating system developers, and equipment manufacturers changed the way consumers can access applications and use features on their devices? How do devices and operating systems affect the types of applications that a subscriber can access, download, or use? Do devices with greater functionality and more advanced features – such as smartphones with web browsing capabilities and large, touch screens – allow users to access a wider range of applications and content than devices with more basic capabilities? To what extent does the ability to use a wide array of applications and services influence a consumer’s device purchase?

Is there a market for multi-standard handsets that work within U.S. frequency allocations? If yes, what are the benefits of such devices for consumers? Are multi-standard handsets currently available to American consumers? How does the availability of such multi-standard handsets affect competition? How are mobile wireless handsets or devices restricted for consumer use?

What types of mobile wireless devices, other than handsets with voice capabilities, are currently being used by consumers? How do these devices complement mobile wireless handsets? How are these devices integrated with other segments of the mobile wireless ecosystem?

2. Applications

The Bureau invites commenters to submit data and information on the applications sector of the mobile wireless ecosystem. What are the most common ways that consumers access applications on their mobile wireless handsets and devices, and how has this changed in the past year? What is the role of application stores offered by operating system developers and service providers? Which application stores are most popular with consumers, and how many applications are available on and downloaded from such stores? What types of applications are most popular with consumers? What data sources, such as analyst reports and consumer surveys, provide information about consumer preferences with regard to mobile applications and application stores?

To what extent can consumers access and use the content and applications of their choice? How does this vary by device, operating system, service plan, and service provider? Which of these elements has the greatest impact on consumer choice? What other factors besides the level of choice – such as price, ease

of use, security, and reliability – play a role in a consumer’s preference with respect to accessing mobile applications?

VII. INTERMODAL COMPETITION

A. Competition in Voice Services

The Bureau asks for comment and sources of information on the extent to which mobile voice service competes with wireline voice service. What type of data provides evidence on the extent of wireless-wireline voice substitution? How many and what types of households or individuals have “cut the cord” and use a mobile phone as their sole phone? Do mobile-only households have higher voice usage levels than those with wireline phones? Are there any new developments in intermodal voice competition that have occurred in 2012 and 2013? What are the major reasons for these developments?

B. Competition in Broadband Services

Mobile wireless technologies appear to play an increasingly significant role in providing broadband services. To what extent do mobile broadband services complement or compete with broadband services offered over wireline technologies such as DSL, cable, or fiber to the home? To what extent are consumers substituting fixed with mobile data usage for certain functions and applications, such as web browsing, e-mail, and accessing social networking sites? What factors – such as price, coverage, uplink and downlink speeds, equipment, and bundling – influence the extent to which mobile broadband services compete with wireline broadband services?

C. Wireless Local Area Networks

The wireless local area network technology, Wi-Fi, enables consumers to connect to the Internet wirelessly within the range of 100-300 feet at home, work, or public “hot spots” – such as restaurants, coffee shops, hotels, airports, convention centers, and city parks – typically using a laptop computer with an internal or external Wi-Fi modem.³⁶ Wi-Fi can serve as both a competitor and a complement to the wide area networks deployed by facilities-based mobile wireless service providers.³⁷

Some mobile wireless service providers use Wi-Fi hot spots to supplement or complement their mobile voice and data offerings provided through the licensed use of spectrum. To what extent are mobile wireless providers using Wi-Fi to offload data traffic or for other purposes? Is data available on the percentage of smartphone or tablet data traffic that travels over Wi-Fi? Have new services or applications that integrate both mobile wireless and Wi-Fi networks been launched in the past year? To what extent is Wi-Fi being used to provide location-based services?

In addition, we ask for information on the extent to which Wi-Fi networks are being used for voice as well as data services and on whether such voice services are being provided using Voice over Internet Protocol (VoIP) technology or other technologies. Are there estimates available on the amount of voice traffic on Wi-Fi networks? What applications and equipment are available for voice over Wi-Fi? To what extent are Wi-Fi-based voice and data services considered to be complements to, or substitutes for, the mobile voice and data services offered over mobile wireless networks?

³⁶ Wi-Fi networks generally must rely on another type of broadband connection, such as wireline, cable, or wireless, for access to the Internet.

³⁷ WLAN technologies operate on an unlicensed basis under Part 15 of the Commission’s rules. See 47 C.F.R. Part 15.

Finally, we seek information on the total number of public hot spots, as well as the number of free hot spots and fee-based hot spots. We also request information on the pricing of fee-based hot spots. Has the proportion of free versus fee-based hot spots changed over the past year? Is there a difference in connectivity speeds, reliability, and security at free versus fee-based hot spots? To what extent do hot spots compete with mobile broadband offerings and wireline broadband services? Do the differences between free and fee-based hot spots influence competition between Wi-Fi providers and mobile wireless service providers?

VIII. SERVICE DEPLOYMENT IN RURAL AREAS AND TRIBAL LANDS

To obtain a better understanding of the state of mobile wireless competition in rural areas and tribal lands, the Bureau requests comment on the extent of mobile voice and broadband network deployment in these areas. Are there noteworthy trends in the state of competition in rural areas and tribal lands?

Furthermore, regarding rural areas and tribal lands, to what extent do providers offer 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 the case, could the Commission's analysis of mobile wireless service deployment and competition be further improved if mobile wireless providers 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?

Are commenters aware of pricing studies that look at urban versus rural or other sub-national mobile wireless pricing? We ask commenters to provide input on how the Commission can examine whether pricing in rural areas conforms to national pricing plans or whether there are meaningful differences in mobile wireless pricing plans and pricing promotions between urban and rural areas. To the extent that such differences exist, what are the reasons for such differences?

Finally, the Bureau seeks comment on how mobile wireless service providers' spectrum holdings vary in urban versus rural areas. To what extent is spectrum unused or under-utilized by licensees to a greater extent in rural versus urban areas? Do licensees plan to deploy networks and offer service using such spectrum in the future? To what extent are service providers and licensees in rural areas spectrum constrained? Is there a greater benefit for service providers to holding spectrum in the frequencies below 1 GHz in rural versus urban areas? If so, why?

IX. INTERNATIONAL COMPARISONS

The Bureau invites commenters to submit any studies or analyses that compare the mobile wireless marketplace in the United States with that in other countries. Previous reports have relied on data published by Merrill Lynch comparing mobile penetration rates, usage levels, and prices in the United States with those in other countries. Are there additional sources the Commission should consider that provide data on mobile wireless prices, usage, subscribership, and service quality around the world? What is the interplay among the regulatory frameworks, provider practices, and market conditions in other countries? In particular, are there ways to measure the benefits or harm to consumers as a result of provider practices with regard to mobile applications and devices?

X. OTHER INDICATORS AND TOPICS

In addition to alternative sources of data and information to update indicators of competition used in the *Sixteenth Report* and previous *Competition Reports*, the Bureau invites commenters to recommend additional or alternative indicators of competition to enhance the analysis of competitive market conditions with respect to mobile wireless in the *Seventeenth 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 framework used in the *Sixteenth Report*. Are there additional measures the Commission can take to improve the dissemination of the data for the *Seventeenth Report*, or to make its analysis more transparent and robust?

Finally, the Bureau invites commenters to propose additional topics of interest that are related to the assessment of the status of competition in the mobile wireless marketplace. For example, have any noteworthy new trends or developments relevant to the assessment of competitive conditions in the mobile wireless marketplace emerged during 2012 and 2013?

XI. 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 on or before **June 17, 2013** and reply comments on or before **July 1, 2013**. All filings should refer to WT Docket No. **13-135**. Comments may be filed: (1) using 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).

Comments and reply comments filed in response to this *Public Notice* will be available for public inspection and copying in the Commission's Reference Center, Room CY-A257, 445 12th Street, S.W., Washington, D.C. 20554, and via the Commission's Electronic Comment Filing System (ECFS) by entering the docket number, WT 11-186. Copies of the request 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 the ECFS or by filing paper copies. 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 one copy 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). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission, as follows:

-All hand-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., S.W., Room TW-A325, Washington, DC 20554. All hand deliveries must be held together with rubber bands or fasteners. Envelopes must be disposed of before entering the building. The filing hours at this location are 8:00 a.m. to 7:00 p.m. **PLEASE NOTE:** This is the **ONLY** location where hand-delivered or messenger-delivered paper filings for the Commission's Secretary will be accepted. The Commission's former filing location at 236 Massachusetts Ave., N.E., is permanently closed.

-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, S.W., Washington, DC 20554.

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

Parties are requested to send one copy of their comments and reply comments to Best Copy and Printing, Inc., Portals II, 445 12th Street, S.W., Room CY-B402, Washington, D.C. 20554, (800) 378-3160, 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 the Consumer & Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY), or send an e-mail to fcc504@fcc.gov.

For further information, contact Paroma Sanyal, Spectrum & Competition Policy Division, Wireless Telecommunications Bureau, (202) 418-2425, or Heidi Kroll, Spectrum & Competition Policy Division, Wireless Telecommunications Bureau, (202) 418-2361.