ATTACHMENT B

to

Comments of Western Wireless

in

FEDERAL-STATE JOINT BOARD ON UNIVERSAL SERVICE SEEKS COMMENT ON CERTAIN OF THE COMMISSION'S RULES RELATING TO HIGH-COST UNIVERSAL SERVICE SUPPORT AND THE ETC DESIGNATION PROCESS

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A Paradigm Shift in Concepts of Universal Service

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1. Introduction

Universal Service concepts have a long but changing history. While the essence of virtually all universal service concepts is that customers (or citizens, potential customers) be interconnected to a switched public telecommunications network ("SPTN"),[2] ideas regarding the method of connection have changed. Perhaps the first notion of universal telephone service in the United States was that advanced by the C.E.O. of AT&T, Theodore Vail, at the beginning of the twentieth century. Vail's notion of universal service was that the nation's inhabitants should be interconnected via the facilities of a single company – AT&T.[3]

Given the historical growth of landline telecommunications infrastructure, the concept of interconnecting citizens had the practical effect of placing landline infrastructure to interconnect locations where citizens spent most of their time: homes and businesses. However, this perception of universal service has changed in at least two important aspects over time. First, universal service is no longer predicated on interconnection and telephone service via landline facilities. And second, the demand for connectivity to the SPTN occurs across time and space.

2. U.S. History Created a Bias In Favor of Wireline Technology

Historically (before the Telecommunications Act of 1996), only incumbent landline local exchange carriers were allowed to receive universal service funding. In rural areas, it appears that universal service funding and/or other forms of cross-subsidies represented a significant proportion of rural ILEC overall revenues. This created distorted incentives in production favoring wireline technologies and created a bias against wireless technologies.

As a general matter, wireless cost structures tend to be less sensitive to distance than wireline costs (at a given level of market share). Therefore, the cost minimizing technology choice in some longer distance (landline long-loop areas) might have been wireless, rather than wireline technology. Therefore, it is reasonable to expect that without wireline's historical momentum and without this historical distortion in incentives and inefficiency in production, many low-density rural areas would have been initially served by wireless technology. The Telecommunications Act of 1996 and the FCC's implementation of the Act is beginning to eliminate this source of technology bias

and production inefficiency by allowing wireless providers to have access to universal service funding.

3. Universal Service Is No Longer Predicated on Network Connection Via Landline Facilities

Consider the measures of telephone subscribership in the United States. The key question in the underlying surveys seeking to quantify subscribership has been: "is there a telephone in this house/apartment?"[4] Before the 1990s, this question was likely designed, and interpreted, to refer to landline telephones. Indeed, in the FCC's Subscribership Reports, the word "wireless" or "mobile" does not exist in reports released through February 2000.[5] However, in the most recent FCC Telephone Subscribership report, it is noted that "[t]he questions are intended to be neutral as to whether the household has wireline or wireless phones" and that while there had been recent attempts to separately distinguish between wireless and wireline phone service, "the CPS no longer asks this follow-up question."[6] Therefore, current measures of subscribership are intended to include wireless telephone service, but distinctions between technologies in providing service, will no longer, it appears, be tracked (or attempted to be tracked).

4. The Demand for Connectivity to the SPTN Across Time and Space[7]

The second fundamental change in the concept of universal service is that consumers around the world have expanded their demand for connectivity to the SPTN across time and space.[8] That is, the concept of universal service as a measure of service to physical <u>locations</u> is giving way to concepts of connecting <u>individuals</u> at all times and across geography.

The FCC's subscribership measures have for some time attempted to capture one aspect of connectivity to the SPTN for individuals rather than connectivity for buildings or locations. The subscribership surveys have for some time included questions regarding the "availability" of telephone service; those with service available include both telephone subscribers and those with access to telephone service outside of the residence *per se* (through the telephone of nearby neighbor or pay phone).[9]

With some reflection, the demand for access over time is quite intuitive. Telecommunications services are, as with most services (and unlike products), demanded and supplied within a specific time period. These services are non-storable by either consumers or producers; there is no inventory of calling minutes available to sit on a shelf in a provider's warehouse. A minute of calling, potentially available through existing facilities, is gone and forever irretrievable once that minute is passed. Periods of time when a person does not have access to the SPTN essentially represent periods of time for which they are not connected to the SPTN and are not part of universal service.

As people move, their demand for connection to the SPTN moves with them. People demand connectivity to the SPTN across space. A person that only has access to the SPTN for nine months of the year, but travels to a location that does not have access (because of a seasonal job, for example), has a lower level of access than a person staying in the same location with access to the SPTN all twelve months of the year. A person with access to a telephone during working hours can be said to have greater connectivity to the SPTN than a second person without access at either home or at work; a third person with access to a telephone while at work and at home has better access than either of the first two people.

Fundamentally, there is no demand for access to the SPTN for a building, a residence, or a location *per se*.[10] Rather, any implied demand for access at any point in space is derived through the demand by the individuals who are at that point in space, over some period of time.[11] Wireless phones, therefore, represent the ultimate in an individual's access to the SPTN over time and space. A single phone creates the ability to provide a person with connectivity to the SPTN across time and most space.[12]

5. Indications of the Importance of Wireless Service to Connectivity to the SPTN

There are several factors that indicate the importance of wireless service to connectivity to the SPTN and universal service.

A. Growth in wireless penetration over time

One indication of the importance of wireless service to U.S. connectivity to the SPTN and universal service is the current number of subscribers and rapid rates of growth in wireless service. This growth has occurred for both subscription and minutes of calling over time. In addition, significant wireless demand exists for voice communications and, more recently, for data communications as well. A detailed examination of the status of the current volume and recent growth in wireless subscription and traffic is contained in "*Wireless Service: An Essential Service for Rural Consumers*."[13]

B. Substitution of wireless subscription for landline subscription as the method of connection to the network

In the past, wireless service was seen as an adjunct to landline telecommunications service. Wireless was considered as the optional method of connection for some users (with very high demand for connectivity to the SPTN across time and space). Increasingly, however, subscribers are substituting wireless service for traditional landline service.

1) Growth in wireless subscription and decline in wireline subscription.

One indication of the potential for this substitution is the growth in wireless service itself, as noted in section A above. Another indication is the reduction in growth and/or

decline in wireline subscription.[14] In one six-month period, SBC Communications' line count fell 3.7%, (with the article noting one of the causes as "people are using wireless service in lieu of phone lines").[15] This change in growth path is not confined to ILECs. The CTIA's wireless and wireline comparison notes a 4.7% reduction in annual switched access line counts for wireline and a 17.3% increase in wireless subscribership in 2001.[16] The most recent trend data for the FCC indicates a 2.3% decline in combined ILEC and CLEC residential and small business end-user switched access lines just for the six-month period December 2000 through June 2001.[17] This effect is occurring even in rural areas. Victor Glass (Director of demand forecasting and rate development at National Exchange Carrier Association, NECA) notes that even though "most rural carriers haven't experienced a net line loss, [j]ust a few years ago, carriers in the NECA pool were growing access lines at around 5%, … [t]his year it will probably be less than 1%, in part due to the lowering of wireless prices."[18]

2) Substitution of wireless subscription for wireline subscription

Beyond the growth in wireless subscription and the decline of wireline, there are more explicit indications of the substitution of wireless for wireline. In an econometric evaluation, using the ReQuest® data base from TNS Telecoms (sampling 120,000 households annually) Mr. Rodini, and professors Ward and Woroch find:

> We empirically estimate the substitutability of fixed and mobile services for telecommunications access using a large, U.S. household survey conducted over the period 2000-2001. Estimated cross-price elasticities confirm that second fixed line and mobile services are substitutes for one another.[19]

A Yankee Group study states that "[w]ireline replacement is a $50 billion opportunity in what we expect to be a $110 billion mobile market in 2006."[20] One consulting firm (CHR Solutions) lists a service for wireline companies as: "Meeting the Threat of Wireless Substitution."[21]

One indication of the market potential for complete wireless substitution is seen in the marketing campaigns of some wireless providers. One advertising campaign by Clear Talk is based on wireless-for-wireline substitution with a price guarantee.[22] Similarly, AT&T Wireless promotional materials state that "this could be your only phone" and providing a pricing comparison indicating that significant savings are available when AT&T Wireless services is used in lieu of landline service.[23] The FCC's Seventh Report on CMRS competition notes a number of wireless companies offering unlimited local calling plans; this is one dimension of an offering that is more likely to allow customers to disconnect their wireline phone.[24]

Some customers have chosen wireless as the complete replacement for wireline connection. One study in southern Idaho identified 406 disconnecting wireline subscribers (115 in non-MSA areas) who affirmatively listed the reason for disconnection as wireless substitution.[25] "Leap wireless published a recent study that indicated that 32% of its subscriber base have completely cut their [landline] phones"[26] (up from prior Leap estimates).[27] Another article finds that "during recent channel checks, many of the wireless stores estimated that the percentage of wireless subscribers that have completely cut their home phones could be as high as 10% to 15% in some markets."[28] The FCC's

Seventh Report on CMRS competition notes other evidence of substitution, largely citing research from the 2001 time frame.[29]

This substitution of wireless for wireline need not be for the wealthy or trendy. "Recent evidence from Oftel shows that, in the U.K., most mobile-only households are in the lower-income brackets."[30]

There also appears to be significant interest by existing combined service customers (currently subscribing to both wireless and wireline services) to completely substitute wireless via the disconnection of their wireline service in the future. A study by Forrester indicates that 13.8% of wireless consumers are interested or very interested in disconnecting their home wireline service and only use their wireless service.[31] A study of Idaho residential wireless customers found that 50% could rely solely on cell phone service for the purpose of making and receiving local calls.[32] A study by PriMetrica finds that "close to one-half of households would drop their wireline service for a family share wireless plan with 600 shared base minutes offered at $50 per month.[33] In addition, "roughly one-third of US households would drop their wireline service for a family share wireless plan with 2000 shared base minutes offered at $130 per month."[34] Given the potential for substitution, falling prices over the last year for bundles of minutes and value added features should cause higher rates of full substitution, which may be revealed in future research.[35]

Note that the shift in paradigm (to two-way real-time connection to the SPTN across time and space) has also lead to the apparent substitution of wireless phones for one-way paging devices.[36]

C. Substitution of wireless calling for landline calling

1) Growth of wireless usage and decline in landline usage

As with the substitution of wireless for wireline penetration, one indication of wireless substitution in usage is the growth in wireless calling, as noted in the report "*Wireless Service: An Essential Service for Rural Consumers*."[37]

A second indication is the decline in wireline calling. For example, one study notes:

> Monthly toll-call volume peaked in 1998; the decline in minutes of use in 2000 topped 11%. At the same time, the CTIA reported that the average number of minutes used by a wireless subscriber increased by more than one third.[38]

A special report by the Cellular Telecommunications and Internet Association (CTIA) shows interstate switched access minutes falling by 4.8% in 2001 while total reported wireless minutes of use rose by 77% in 2001.[39] While some of the differential is due to substitution of wireless for wireline phones, a differential in usage still exists; wireless subscribership grew 17.3% during 2001, significantly less than wireless usage.[40]

The decline in wireline appears likely to continue. A Yankee Group news release notes that usage will continue to fall: "the North American switched access market will decline from $146.9 billion at the end of 2001 to $116.2 billion in 2006."[41] Since wireless carriers receive virtually no switched access revenues, this projected decline is

purely a reflection in the decline of interstate wireline calling. In one article, "Sprint apportioned 75% of the impact [of reductions in consumer long distance voice volume] to wireless substitution."[42]

2) The wireless phone has become the primary phone for many users

Beyond the basic indications of wireless usage substitution, there is more specific evidence that some customers do in fact substitute wireless usage for landline usage. A study by Forrester in 2001 indicated that "about 18% of 625 cell phone owners polled use cell phones as their primary phones."[43] Leap Wireless indicates that 80% of its subscribers claim that their Leap wireless phone is their primary phone.[44]

Wireless usage substitution is not isolated to urban areas. In a survey conducted in counties with population density less than eight people per square mile, of those with wireless service, 48% of respondents reported that wireless service has replaced 90% or more of their landline long distance.[45] One-half of rural wireless customers "stated that their wireless phone has become more important to them and their landline phone has become less important."[46] As noted earlier, a survey of Idaho wireless customers indicated that they 50% could rely solely on wireless phone service for the purpose of making and receiving local calls.[47]

The propensity for users to substitute wireless phones for wireline phones will continue in the future. Jeff Kagan of Forrester Research finds that in five to 10 years, "the vast majority of us are going to be using wireless phones as our main phones."[48] In rural areas, the study by Western Wats finds that "[o]f the people who do not have wireless service, 50 percent plan to purchase a wireless phone in the next six months."[49]

D. Value characteristics of wireless services

Understanding the underlying demand characteristics of wireless services is important to understand the paradigm shift. This section briefly describes the key characteristics of wireless services, how they affect the demand for connection to the SPTN via wireless services, and the importance of wireless to universal service. A more detailed analysis of the characteristics of wireless services and the degree to which they affect the demand for connection to the SPTN is beyond the scope of this paper.

Not surprisingly, the most obvious, and probably the most important, characteristic of wireless service is mobility. It is not a coincidence that the most generic name for CMRS is "mobile service." Mobility is the primary factor that has provided the impetus for the change in perceptions about connection to the SPTN. Individuals, rather than locations, demand connection to the SPTN. Mobile technology provides a ready method to meet this demand.

While mobility is critical, it is not the only appealing characteristic to potential consumers. Other factors that are apparently important to customers are: 1) wider local calling scopes; 2) more responsive customer service (e.g., same-day initiation of service); 3) arrays of bundles of local and long-distance minutes; 4) arrays of bundles including vertical features such as caller id and voice mail;[50] and 5) security (e.g., access to emergency calling at any time from any location).

Another part of the recent appeal of wireless services is the fall in wireless prices over time, in particular, compared to wireline local telephone prices. The FCC's Seventh Report on CMRS competition shows a 32.8% reduction in the cellular Consumer Price Index (CPI) from December 1997 to December 2001.[51] However, measures of average revenue per minute for wireless providers have fallen even more dramatically with annual changes of: 1998, -21%; 1999, -23%; 2000, -20%; 2001, -31%.[52] It is not clear whether either of these price trends reflect the addition of value-added vertical services over time (e.g., caller ID and voice mail). During this same time period (December 1997 to December 2001) the wireline local telephone service CPI rose 14.9%. Evidence suggests that wireline long distance prices have risen recently.[53] Recent wireline price increases are particularly telling; the local residential service CPI rose 2.8% in 1999, 5.5% in 2000, and 4.5% in 2001.[54]

As noted above, part of the wireless appeal to many customers is the prevalence of bundled offerings of local and long-distance minutes as well as value-added features such as caller ID and voice mail (or the option to obtain the value added features at prices much lower than those existing for wireline services). In total, the current relative pricing of wireless services (vis-à-vis the pricing of wireline services) should make these services highly substitutable for many customers.

E. Local v. long distance distinctions are blurring

The traditional distinction between local and long-distance calling was largely driven by two historical wireline factors. First, there was a long-standing policy of having long distance telecommunications service help to cross-subsidize wireline local service.[55] However, these subsidies have been reduced over time. And second, originally, wireline costs of long distance service were significantly higher than local service. Transmission costs and switching costs were significantly higher decades ago. Today, fiber-optics transmission facilities and digital switching have drastically narrowed the gap between local and long distance costs.

Wireless providers generally make no distinction between "local" and "long distance" services. Today, many wireless providers offer bundles of minutes that include local and long-distance calls. Many wireless carriers offer national plans, which treat the fifty states as a local call regardless of the location in which the customer initiates or receives a call.

Many years ago, wireline providers began eliminating the distance component to long distance service. Distance-sensitive long distance pricing gave way to a single per minute charge for long distance calling. Customers tended to prefer the simplicity and certainty of a single charge for calling. During the same time period, prices of "long distance" calling also fell significantly. Even in the wireline environment, customers were changing their concepts of calling to one in which usage was simply usage. Indeed, wireline providers are increasingly marketing bundles of local and unlimited long distance calling.[56] In this instance, the wireless paradigm, where usage is usage, regardless of the distance of the call, is now driving marketing plans as providers strive to meet the demands of customers.

6. Summary and Conclusion

The nature and history of wireline telecommunications led to notions of subscribership and universal service based on measures of connecting locations (homes and businesses). Explicit universal service funding was originally established in the U.S. as a wireline concept; wireless providers were virtually precluded from obtaining universal service funding. This contributed to a bias against wireless providers and a distortion in the technology choices by providers, even though wireless technology has characteristics that are likely to make it the lower cost technology in some rural areas (at a given level of market penetration).

Today, customers' concepts of connection to the network have shifted from connection to locations to connection to customers themselves. Customers now demand access across time and space. Several factors indicate the importance of wireless service to customer's concepts of access to the SPTN including: growth in wireless and flattening or decline in wireline penetration; growth in wireless usage and declines in wireline usage; substitution of wireless for wireline access and usage; declining wireless prices and rising local wireline prices; and wireless service characteristics that are of value to customers.

In keeping with this shift in paradigm, universal service is no longer predicated on network connections via wireline facilities. State commissions and the FCC increasingly appear to recognize that the public interest is served by wireless services becoming eligible for universal service funding. At this point in time, it is critical that competitively neutral universal service funding is encouraged and that customer's demands for access to the SPTN across time and space are recognized.

ENDNOTES

1. Steve G. Parsons is President of Parsons Applied Economics and adjunct professor at Washington University, St. Louis. He was previously Vice President of Regulatory Strategy at INDETEC International, a regulatory economist with Southwestern Bell Telephone, and Staff Vice President of Economic Analysis at Criterion Inc. He has a Ph.D. from the University of California at Santa Barbara where he was both an Earhart Foundation Fellow and a University of California Regents Fellow.

2. Note the phrase switched public telecommunications network (SPTN) is used instead of public switched telephone network (PSTN) since PSTN is sometimes used to refer only to landline networks. SPTN is used herein to refer to the broader concept of access to a public switched network that includes wireline, wireless, and public switched information/data services.

3. *See, e.g.*, STUART BENJAMIN, DOUGLAS LICHTMAN, AND HOWARD SHELANSKI, TELECOMMUNICATIONS LAW AND POLICY, 2001, pgs 614-620; and Gerald Brock, "Historical Overview," in HANDBOOK OF TELECOMMUNICATIONS ECONOMICS: STRUCTURE, REGULATION, AND COMPETITION, 2002 (M. Cave, S. Mujamdar, and I. Vogelsand eds.) (pgs 50-52).

4. *See* for example, Telephone Subscribership in the United States, FCC, released January, 1997.

5. *See* for example, Telephone Subscribership in the United States, FCC, released February, 2000.

6. Telephone Subscribership in the United States, FCC, released April, 2003, fn. 2. http://www.fcc.gov/wcb/iatd/recent.html

7. "Connectivity" here is used broadly to refer to any form of demand for access to the SPTN (voice or data) and it is not intended to imply only access to the internet.

8. Einstein's general theory of relatively is not required (nor is his special theory) to understand consumers' demands for connectivity. And while the gravity of this change in demand may not bend the fabric of space/time, it is bending concepts of connectivity and universal service. See (or do not see since it is not required) ALBERT EINSTEIN, RELATIVITY: THE SPECIAL AND GENERAL THEORY. (New York: Henry Holt, 1920) (Bartleby.com, 2000. www.bartleby.com/173/).

9. *See, e.g.*, Telephone Subscribership in the United States, FCC, released January, 1997, including the question: "Is there a telephone elsewhere on which people in this household can be called?"

10. The demand for access itself is a demand derived from the underlying demand for usage and an option demand (having the option for usage, even if no usage occurs).

11. Mathematically one can think of the demand for connection to the SPTN for any finite period of time, e.g., a month, at a location as the summation (across individuals) of the integral of individual demand (across the time for which the individual is at the location).

12. It is of course possible for a single phone to provide connectivity for more than one person, but as a practical matter, consider wireless telephone service as a one-for-one service.

13. "*Wireless Service: An Essential Service for Rural Consumers*" is attached to Western Wireless' Comments filed with the FCC in CC Docket No. 96-45 on May 5, 2003.

14. The decline and/or fall in wireline subscription is due to a variety of factors including wireless growth, broadband substitution for second lines, and other factors.

15. "Consumers Hang Up Residential Lines", USA Today, August 2, 2001 (http://www.usatoday.com/money/telecom/2001-08-02-phones.htm).

16. CTIA's Wireless & Wireline Industry Comparison Report, CTIA, released August 2002 (A Special Report from CTIA based on CTIA's Semi Annual Wireless Industry Survey Results), page 32, table 17. See Trends in Telephone Service, FCC Industry Analysis and Technology Division Wireline Competition Bureau, Released May 2002, table 8.1 (Total U.S. Telephone Lines)(listing the 4.7% decline

in total U.S. telephone lines).

17. Trends in Telephone Service, FCC Industry Analysis and Technology Division Wireline Competition Bureau, Released May 2002, table 9.2 (End-User Switched Access Lines by Customer Type).

18. "Access Line Count Evaporating" (Vince Vittore and Glenn Bischoff), Telephony.Online (October 14, 2002).

19. Mark Rodini, Michael Ward, and Glen Woroch, "Going Mobile: Substitutability Between Fixed and Mobile Access," (forthcoming in TELECOMUNICATIONS POLICY, 2003). Regarding the underlying data source, see http://www.tnstelecoms.com/request.html

20. Keith Mallinson, executive vice president of the Yankee Group's Wireless/Mobile Research, "Consumers Abandon Landlines and Increase Mobile Call Volumes Creating Strong Growth in the Wireless Market, News Release, September 16, 2002. http://www.yankeegroup.com/public/news_releases/news_release_detail.jsp?ID=PressReleases/news_09162002_wms.htm)

21. http://www.chrsolutions.com/pubs/profiles/Wireless%20Substitution.pdf

22. *In re the application of Qwest Corporation for price deregulation of basic local exchange services* (Case no. QWE-T-02-XX, before the Idaho Public Utilities Commission), Exhibit to the testimony of David L. Tetsel (Exhibit No. 15, page 1 of 3)(December 17, 2002). (http://www.puc.state.id.us/FILEROOM/telecom/telecom.htm). Citing an advertisement by Clear Talk stating: "Clear Talk Guarantee: For a six month period after activation, if you can show that your bill for a landline home phone would have been $12 cheaper per month on average than a Clear Talk wireless service, we will refund the difference."

23. *In re the application of Qwest Corporation for price deregulation of basic local exchange services* (Case no. QWE-T-02-XX, before the Idaho Public Utilities Commission), Exhibit to the testimony of David L. Tetsel (Exhibit No. 14, page 1 of 1)(December 17, 2002). (http://www.puc.state.id.us/FILEROOM/telecom/telecom.htm).

24. *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, 12989-12990 (2002, released July 3) (page 35).

25. *In re the application of Qwest Corporation for price deregulation of basic local exchange services* (Case no. QWE-T-02-XX, before the Idaho Public Utilities Commission), testimony of David L. Tetsel (page 23); and Exhibit to the testimony of David L. Tetsel (Exhibit No. 15,) (December 17, 2002). (http://www.puc.state.id.us/FILEROOM/telecom/telecom.htm).

26. "Wireless Killed Telecom Long Distance," 2020Insight.com. http://www.2020insight.com/otherreports/wktld.htm

27. *See, e.g.*, "When Wireless Alone is Enough: Small but Growing Number of Cell Phone Users Abandon Land Lines," San Jose Mercury News, August 14, 2002 (by Joelle Tessler) (page 1A) (Dan Pegg, senior vice president of public affairs of Leap Wireless (which offers its "Cricket" service) notes that "roughly 26% of Leap's customers don't have a land line at home.); and "When the Cellphone is the Home Phone," New York Times, August 29, 2002 (by Simon Romero).

28. "Wireless Killed Telecom Long Distance," 2020Insight.com. http://www.2020insight.com/otherreports/wktld.htm

29. *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, 12989-12990 (2002, released July 3) (pages 32-36).

30. "Price will drive fixed-mobile substitution," TotalTelecom, January 22, 2002. http://www.totaltele.com/

31. "Sizing US Consumer Telecom," Forrester, January 2002, page 14, figure 4.

32. In re the application of Qwest Corporation for price deregulation of basic local exchange services (Case no. QWE-T-02-XX, before the Idaho Public Utilities Commission), Exhibit to the testimony of Professor Douglas J. Lincoln (Exhibit No. 8,)(December 17, 2002). (http://www.puc.state.id.us/FILEROOM/telecom/telecom.htm). The survey posed the question: "For the purpose of making and receiving local calls, could your household solely rely on cell phone service?" to which 50.0% responded yes, 40.3% responded no, and 9.7% were unsure. Of those responding negatively, 17.9% listed data transmission as the reason they were could not rely solely on wireless.

33. "Wireless Substitution for Primary Wireline Service: What is the Potential Impact," CIT-PriMetrica, April 3, 2003. http://www.primetrica.com/

34. *Id.*

35. *See, e.g.*, In re the application of Qwest Corporation for price deregulation of basic local exchange services (Case no. QWE-T-02-XX, before the Idaho Public Utilities Commission), Exhibits to the testimony of David L. Teitzel (December 17, 2002). (http://www.puc.state.id.us/FILEROOM/telecom/telecom.htm)(listing various price wireless price offerings and providing examples of wireless advertising).

36. *See, e.g.*, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Seventh Report, 17 FCC Rcd 12985, 12989-12990 (2002, released July 3) (page 66).

37. Attached to Western Wireless' Comments in Comments filed with the FCC in CC Docket No. 96-45 on May 5, 2003.

38. "Sizing US Consumer Telecom," Forrester, January 2002.

39. CTIA's Wireless & Wireline Industry Comparison Report, CTIA, released August 2002 (A Special Report from CTIA based on CTIA's Semi Annual Wireless Industry Survey Results), page 30, table 15, and page 15, chart 3 (switched access minutes fell from 566.8 billion to 539.8 billion).

40. *Id*, at page 32, table 17.

41. "The Yankee Group Predicts Accelerating Decline in North American Switched Access Services Market." (News Release, May 6, 2002). (http://www.yankeegroup.com/public/news_releases/news_release_detail.jsp?ID=PressReleases/news_may072002_globalfixedna.htm).

42. "Wireless Killed Telecom Long Distance," 2020Insight.com. http://www.2020insight.com/otherreports/wktld.htm

43. "18% See Cell Phones as Their Main Phones," USA Today, January 31, 2002. http://www.usatoday.com/money/tech/2002-02-01-cell-phones.htm

44. "When Wireless Alone is Enough: Small but Growing Number of Cell Phone Users Abandon Land Lines," San Jose Mercury News, August 14, 2002 (by Joelle Tessler) (page 1A) (quoting Dan Pegg, senior vice president of public affairs of Leap Wireless).

45. "Wireless Telephone Service Becomes Essential Communications Tool," Western Wats, February 20, 2003. (January 2003 survey of 1000 wireless customers in counties with population density below eight people per square mile). *See also Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies to Provide Spectrum-Based*

Services, WT Docket No. 02-381, Comments of Western Wireless Corporation (filed Feb. 3, 2003).

46. *Id.*

47. *In re the application of Qwest Corporation for price deregulation of basic local exchange services* (Case no. QWE-T-02-XX, before the Idaho Public Utilities Commission), Exhibit to the testimony of Professor Douglas J. Lincoln (Exhibit No. 8,)(December 17, 2002). (http://www.puc.state.id.us/FILEROOM/telecom/telecom.htm). The survey posed the question: "For the purpose of making and receiving local calls, could your household solely rely on cell phone service?" to which 50.0% responded yes, 40.3% responded no, and 9.7% were unsure. Of those responding negatively, 17.9% listed data transmission as the reason they were could not rely solely on wireless.

48. "18% See Cell Phones as Their Main Phones," USA Today, January 31, 2002. http://www.usatoday.com/money/tech/2002-02-01-cell-phones.htm

49. "Wireless Telephone Service Becomes Essential Communications Tool," Western Wats, February 20, 2002.

50. *See, e.g.*, "Sizing US Consumer Telecom," Forrester, January 2002, page 14, figure 4; and In re the application of Qwest Corporation for price deregulation of basic local exchange services (Case no. QWE-T-02-XX, before the Idaho Public Utilities Commission), Exhibits to the testimony of David L. Teitzel (December 17, 2002). (http://www.puc.state.id.us/FILEROOM/telecom/telecom.htm)(listing various wireless price offerings and providing examples of wireless advertising).

51. *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, 12989-12990 (2002, released July 3)(page C-11, Table 8).

52. *Id*, citing CTIA, Semi-Annual Mobile Telephone Industry Survey (page C-12, Table 9).

53. *See*, "New long distance survey finds sharp increases in basic rates, calling card calls and collect calls," Consumer Action. http://www.consumer-action.org/English/PressReleases/2002_12_11_PR.php

54. Statistics of Communications Common Carriers, FCC, 2001/2002 Edition, page 191, Table 5.5.

55. *See, e.g.*, Steve Parsons, "Cross-Subsidization in Telecommunications," 13 JOURNAL OF REGULATORY ECONOMICS, 1998 for a survey of the economics literature on this topic. http://www.parsonsecon.com/parsonsecon/publications.html

56. *See* "SBC Goes Unlimited," The Digest, http://www.thedigest.com/more/151/151-006.html. *See also*, Jim Duffy, "RBOCs gain approval, launch long-distance services," Network World Fusion, April 16, 2003. http://www.nwfusion.com/edge/news/2003/0416rbocs.html ("Consumers can order an unlimited calling plan, Verizon Freedom, which includes all direct-dialed domestic calls -- local, regional and long-distance -- as well as calls to Canada and U.S. territories. The package includes voice mail, caller ID, call waiting, three-way calling and speed dialing of eight numbers. The monthly cost for Verizon Freedom is $49.95, plus state and local taxes.")