BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

In the Matter of the Nebraska Public Service Commission, on its own Motion, to consider revisions to the universal service fund contribution methodology

Application No. NUSF-100 PI-193

DIRECT TESTIMONY OF DON PRICE ON BEHALF OF CTIA – THE WIRELESS ASSOCIATION®

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1	<u>I.</u>	INTRODUCTION
2		
3	Q.	Please state your name and business address.
4	A.	My name is Don Price. My business address is 2304 S Lakeline Blvd, #221,
5		Cedar Park, TX, 78613.

- 7 A. I am an independent consultant specializing in public policy issues in the

By whom are you employed, and in what capacity?

8 communications industry.

6

Q.

- 9 Q. Please provide a brief description of your educational and professional 10 background and industry experience.
- 11 A. I have nearly forty years of experience in communications, beginning in 12 1979 with my employment in the GTE Southwest network planning 13 organization. In my five years with GTE, I held several positions of 14 increasing responsibility and became knowledgeable about incumbent Local 15 Exchange Carrier ("ILEC") network design and operation, the workings of 16 the business office, and issues surrounding tariffs, revenues, and billing 17 systems. In late 1983, I left GTE for the Texas Public Utility Commission, 18 performing telephone rate and tariff analyses and testifying in various tariff 19 proceedings and rate cases. While at the PUC, my responsibilities were 20 expanded to encompass all telecommunications rate and tariff 21 recommendations before the agency. I later accepted the position of rate 22 specialist with MCI in late 1986, and over the next several years became

versed in the operations of a large interexchange carrier ("IXC") and the complexities of evolving intercarrier compensation systems.

After MCI's acquisition of Western Union Access Transmission

Services' assets in the early 1990s, I was promoted to a new position
focused on policy issues pertaining to local telephone service competition.

Following passage of the federal Telecommunications Act of 1996, I was
directly involved in negotiating interconnection agreements between the
MCI Competitive Local Exchange Carrier ("CLEC") and ILECs in several
states, and provided testimony in a number of state arbitration and other
proceedings. At the close of Verizon's acquisition of MCI in January 2006, I
became Director – State Public Policy for Verizon's Government Affairs
organization. In that position, I helped coordinate the company's public
policy positions as they affected its ILEC, CLEC, IXC, and wireless interests in
the states.

During the course of my career I have testified before regulatory agencies in at least 27 states or territories, as well as before the Federal Communications Commission ("FCC") and in court proceedings on a wide range of issues, including: the role of regulation in competitive markets; the appropriate structure and policy of universal service programs and intercarrier compensation rates; technical, rate and policy issues in interconnection, including resale and unbundled network element matters in state interconnection agreement arbitrations; and market entry regulations for emerging competitive markets.

My educational qualifications include a Bachelor of Arts degree in Sociology from the University of Texas at Arlington, earned in 1977. I subsequently earned a Master of Arts degree in Sociology from the University of Texas at Arlington in 1978.

Q. What is the purpose of your testimony?

A.

The purpose is to respond to the issues set out in the Commission's Order of February 22, 2017 regarding the Nebraska Universal Service Fund ("NUSF"). My testimony presents background on the history of universal service and how the concept as it was understood twenty years ago is only marginally relevant to today's broadband world. To achieve the goal of ubiquitous broadband, I recommend that the Commission should not try and "tweak" a NUSF that was designed for the purpose of increasing voice subscribership in a narrow-band world. I offer the Commission two proposals for how it can encourage broadband throughout Nebraska. One is to increase the efficiency of funding by pursuing legislation to transfer funding for the NUSF to the state's general fund. The other is that the Commission institute a process to develop a strategic plan for universal service in the broadband era consistent with the statutory framework to determine clear goals for the program and a plan to make efficient use of funding.

I also offer testimony on the Commission's proposals. It is important to recognize that, although the proposal is framed as an effort to reform the contribution methodology, it includes sweeping conclusions about the amount of support that should be made available for broadband and the

types of broadband services that should be funded. I explain that the Commission's expressed preference for "fiber everywhere," as evidenced by the Fixed Broadband Proposal, is contrary to both state and federal policy and is not supported by credible evidence. Because it completely ignores potential alternative broadband technologies, the Fixed Broadband component of the Commission's proposal cannot be justified. Further, the proposal overestimates the cost of fiber broadband deployment. Turning to the Commission's novel contribution methodology. I discuss the Commission's failure to provide any reasoning for moving forward at this time with its proposal. Further, although I applaud the Commission for attempting to ground its proposal in data wherever possible, the unfortunate reality is that the proposal relies on certain ungrounded assumptions that leave it fatally vulnerable if those assumptions prove inaccurate. I also explain why the lack of supporting evidence countenances against providers being required to undergo expensive systems modifications and the accompanying administrative burdens. As to the Commission's proposed methodology itself, I discuss the numerous questions it raises regarding surcharges, and what action the Commission might take if its proposal fails to yield the target revenues. I further explain the problem of unreasonable discrimination arising from the proposal's failure to assess the same contribution on each "connection." Finally, I urge the Commission, if it chooses to not advocate to transfer universal service funding to the state's general fund, to implement a point-of-sale collection

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1	methodology for prepaid wireless, following the state's existing funding
2	mechanism for 9-1-1 for prepaid wireless.

Q. Please provide a brief overview of CTIA.

A.

CTIA – The Wireless Association® ("CTIA") (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to lead a 21st century connected life. The association's members include wireless carriers, device manufacturers, suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry's voluntary best practices, hosts educational events that promote the wireless industry and co-produces the industry's leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.

As additional background, CTIA conducts research, including its CTIA Annual Wireless Industry Survey.¹ Survey data reveals that wireless companies invested \$32 billion in capital expenditures in 2015 (*not* including spectrum purchases at auction), and have invested over \$462 billion total in capital expenditures in the last 30 years. Without question, the wireless industry has had an enormous impact on consumers. The FCC recently noted the magnitude of the impact as follows:

Since 1997, wireless use has grown from 5.8 billion minutes per month to 187.8 billion minutes per month in 2012; the number of

¹ http://www.ctia.org/industry-data/ctia-annual-wireless-industry-survey.

1 2 3 4 5 6 7 8		cell sites has grown from 51,600 cell sites in 1997 to 301,779 cell sites in 2012; and industry annual revenue has grown from \$27.4 billion in 1997 to \$185 billion in 2012. "Wireless only" households have grown from "n/a" in 1997 to 38.2 percent in 2012. More impressive still, the wireless industry reports a penetration rate of "102.2 percent," meaning our nation now has more wireless devices than people. ²
9		Recent FCC data on the impact of mobile broadband is highly relevant to this
10		proceeding. Of the total broadband households in the U.S., mobile
11		broadband comprises <i>seventy one percent</i> of broadband subscribership. ³
12		Of the nearly 2 million broadband households in Nebraska, the proportion
13		of households using mobile broadband is in the same range, at just below
14		seventy percent,4 or more than two out of three Nebraska households.
15		Further highlighting the powerful impact of wireless, the FCC report
16		concludes that "Most of the growth in total Internet connections is
17		attributable to increased mobile Internet access subscribership."5
18		
19 20 21	II.	BACKGROUND – THE HISTORY OF THE CONCEPT OF UNIVERSAL SERVICE AND THE IMPORTANCE OF TRANSITIONING TO A BROADBAND-FOCUSED NUSF
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² FCC Technology Transitions Order in docket GN 13-5, et al, released January 31, 2014 {hereinafter,

"Tech Transitions Order"] at ¶ 13.

³ Internet Access Services; Status as of December 31, 2015, Industry Analysis and Technology Division, Wireline Competition Bureau, released November, 2016; Fig. 7. See, https://www.fcc.gov/general/iatd-data-statistical-reports.

⁴ <u>Id.</u>, at Fig. 34.

⁵ <u>Id.</u>, at 2.

Q. Would you provide brief comments on the history of the concept of "universal service" and how that concept is evolving?

A.

Yes. The policy objective of universal service has been around for nearly 100 years. In the last century, as telephones grew from a mere novelty to become a more common household item, the policy objective of universal service was to ensure affordable basic residential voice telephone service to everyone. To gauge success in reaching their goal, regulators typically looked at household telephone "penetration levels," or the proportion of households that had telephone service. For many years, federal and state regulators utilized various mechanisms to create subsidy flows -- from urban to rural customers, from business to residential customers, and from long distance to local usage -- that served to maintain residential voice service rates below the actual cost to provide service. Regulators spent countless hours over the decades creating, evaluating, and policing these mechanisms to increase voice telephone service household penetration in all parts of the country.

However, the telecommunications ecosystem of today bears virtually no resemblance to the ecosystem of the past. It is no longer simply the domain of traditional telephone companies, but rather is an expansive ecosystem including mobile network operators, entertainment companies with extensive content and distribution networks (including cable television and satellite networks), Internet Service providers, social media companies, equipment manufacturers, applications developers, and more. It is perhaps

surprising, but the first commercial applications for the Internet appeared only twenty years ago. Since then, mobile/wireless handsets have become ubiquitous, many websites are optimized for mobile devices, and a growing segment of society is using "virtual reality" in such diverse areas as gaming, tourism, and education, and the Internet of Things is no longer science fiction. Without question, the concept of universal service that existed twenty years ago is misaligned with today's telecommunications marketplace.

The Commission indicates some awareness of these changes, stating that "an important goal of reform will be to support the deployment of ubiquitous broadband availability throughout Nebraska." That statement echoes the FCC's observation that "[n]etworks that provide only voice service … are no longer adequate for the country's communications needs."

"Fixed and mobile broadband have become crucial to our nation's economic growth, global competitiveness, and civic life. Businesses need broadband to attract customers and employees, job-seekers need broadband to find jobs and training, and children need broadband to get a world-class education. Broadband also helps lower the costs and improve the quality of health care, and enables people with disabilities and Americans of all income levels to participate more fully in society. Community anchor institutions, including schools and libraries, cannot achieve their critical purposes without access to robust broadband. Broadbandenabled jobs are critical to our nation's economic recovery and long-term economic health, particularly in small towns, rural and insular areas, and Tribal lands.8"

⁶ Commission April 5, 2016 Order Seeking Further Comment at 5.

⁷ USF/ICC Transformation Order at ¶ 2.

⁸ <u>Id.</u>, at ¶ 3.

There is little disagreement as to the importance of broadband for Nebraska's future. However, the Commission's implementation of NUSF reform towards that goal has implications well beyond the NUSF contribution methodology. My testimony addresses whether the Commission's proposals are consistent with the policies set out in Nebraska statutes, and recommends a process whereby the Commission can ensure that it achieves those statutory policies in a cost-effective, technologyneutral manner.

A.

Q. Is there a clear path for transitioning the NUSF into a system for supporting broadband availability, given its historical focus on voice communications (narrow-band networks)?

No. A fresh, comprehensive look at the NUSF is required to properly assess Nebraska's broadband needs and establish appropriate goals. While CTIA endorses the Commission's notion of developing a "strategic plan" as discussed in its Order of last April, it believes that the Commission should take further steps in that direction instead of attempting to tweak the current NUSF.

Creating a strategic plan is a process. The steps involved are several, including establishing goals (both ultimate and intermediate), identifying relevant stakeholders and soliciting their inputs, and assessing available resources. It also requires a realistic understanding of the starting point for the project -- the "baseline" on which the plan will be build. Inputs must be

obtained and then integrated into a series of actions to reach the identified goals. Periodic reviews should be conducted to determine progress at various points and to identify any needed mid-course corrections. Such an open and coordinated process is required for the Commission to achieve the broad goals it set forth in its 2016 Order.

Identifying key stakeholders will help to ensure the appropriate mix of perspectives in shaping the outcome. Some stakeholders, such as Internet Service Providers and applications developers, are not typically involved in state regulatory processes, but could make important contributions if outreach was made to make them aware of the project. A review of prior efforts of the Nebraska Broadband Initiative could likewise be helpful to the Commission. A link on the Commission's website includes the following description:

The Nebraska Broadband Initiative is part of a larger national effort to facilitate the integration of broadband and information technology into state and local economics. Economic development, energy efficiency, and advances in education and health care rely not only on broadband infrastructure, but also on the knowledge and tools to leverage that infrastructure.

This language emphasizes why focusing solely on infrastructure issues would be shortsighted. A successful broadband strategic plan will also need to develop the knowledge and tools needed by Nebraskans to effectively use broadband services. In short, developing a successful broadband strategic plan must take advantage of stakeholder input and

⁹ http://www.psc.nebraska.gov/telecom/telecom_broadband.html, viewed on March 12, 2017; emphasis added.

information obtained on potential resources to establish the appropriate goals and action plans to achieve them.

Q. Does the Commission have an alternative to the process you have described for developing a strategic plan?

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A.

Yes. I explain below why the Commission's proposed changes to the current NUSF – both implementing a novel contribution methodology and enlarging the fund by nearly \$30 million – are contrary to state and federal policy and not supported by credible evidence, and thus will not achieve ubiquitous broadband deployment. There are two alternative paths available to the Commission that would lead to a better result. First, as CTIA previously urged the Commission, seeking legislation to transition funding from the current carrier assessment mechanism to a system of funding from the Nebraska general fund would encourage broadband deployment without distorting the market.¹⁰ The Commission's stated universal service goals are designed to enhance the general welfare of the state and its people: ensuring access to voice communications, facilitating access to emergency services, and allowing citizens to communicate with government, transact business, and communicate with family, friends and neighbors. An enhanced NUSF that targets the availability of Internet access services is driven by goals such as expanding educational opportunities, improving health care delivery, expediting economic development activities, and enabling better access to government information and services. These

¹⁰ See, CTIA's Comments dated June 6, 2016, at 10-11.

beneficial societal objectives should not be funded solely on the backs of telecommunications carriers and their customers.

A transition from a system of carrier assessments to a system of appropriations from the state's general fund will ensure the broadest possible contribution base for the NUSF and will better align those who support the fund with those who benefit from the fund – i.e., all Nebraskans. Such a change would also remove the concern that a carrier - or customer - based contribution methodology will distort the market. The Commission was correct in noting the importance of accountability. It is worth emphasizing that funding the NUSF through general tax revenues will also help to ensure that, through the legislative process which demands broad political accountability, the NUSF's progress toward meeting identified goals is regularly evaluated and that the NUSF sunsets when it is no longer needed.

Second, the Commission should, consistent with CTIA's prior recommendations, commence a proceeding to establish a strategic plan for the NUSF. However it is funded, it is crucial to launch a comprehensive and inclusive process as described above whereby a vibrant broadband strategic plan can be developed and implemented. How best to ensure Nebraskans' access to broadband raises important policy questions, and it is not in the state's best interests to back into these questions in a proceeding about how to assess contributions.

1 2	III.	CTIA'S POSITIONS ON ISSUES RAISED IN THE COMMISSION'S ORDER OF FEBRUARY 22
3 4 5	<u>A.</u>	The Order Proposes to Significantly Increase the NUSF and to Implement a Novel Contribution Methodology Without Credible Evidence that Either Proposal is Reasonable or Necessary
6 7		1. The Commission's Fixed Broadband Proposal is Contrary to State and Federal Policy
8	Q.	What is the Commission's proposed increase to the NUSF?
9	A.	The Commission's proposal would subject Nebraskans to a massive
10		contribution increase of nearly \$30 million, expanding the NUSF by more
11		than a sixty percent. 11 Of that amount, more than half, or \$17.3 million, is
12		proposed to increase the Fixed Broadband Program. With a proposed total
13		of \$54 million, this component of the fund is designed to support the
14		Commission's goal of supporting "fiber-based networks everywhere in high
15		cost rural areas." ¹²
16	Q.	In what way is the Fixed Broadband Program proposal contrary to state
17		and federal policy?
18	A.	In the realm of universal service, the Commission's role is prescribed in the
19		"declaration of policy" established by the legislature, set out in § 86-323 of
20		the statute:
21 22		The Legislature declares that it is the policy of the state to preserve and advance universal service based on the following principles:
23 24		(1) Quality telecommunications and <i>information services</i> should be available at just, reasonable, and affordable rates;

 $^{^{11}}$ Order at Table 4. An increase of more than \$27 million represents an increase of greater than sixty one percent over the \$43.9 million figure in the "Current (2016)" column of Table 4. 12 February 22 Order at 19.

- (2) Access to advanced telecommunications and *information services* should be provided in all regions of the state;
- (3) Consumers in all regions of the state, including low-income consumers and those in rural and high-cost areas, should have access to telecommunications and *information services*, including interexchange services and *advanced telecommunications and information services*, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas:
- (4) All providers of telecommunications should make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service;
- (5) There should be specific, predictable, sufficient, and competitively neutral mechanisms to preserve and advance universal service. $[...]^{13}$

A conflict is revealed in comparing the language of the Order with the statutory policies. On one hand, the Commission's general statement of the "goal of ubiquitous broadband"¹⁴ simply acknowledges the obvious fact that narrow-band networks are inadequate to provide the types of services consumers demand. But the Commission strays into the realm of picking winners and losers, violating technological and competitive neutrality, in expressing a "desire to support fiber-based networks everywhere in high cost rural areas." The policy directive in the statute is unambiguous – that telecommunications and information *services* should be available at "just, reasonable, and affordable rates" and "provided in all regions of the state."

 $^{^{13}}$ Neb. Rev. Stat § 86-323 (emphasis added). It is worth noting that the FCC makes reference to federal statutory language – "[a]ccess to advanced telecommunications and information services should be available to all regions of the Nation" – closely tracking the language of \P (3) above. USF/ICC Transformation Order at \P 72.

¹⁴ February 22 Order at 19.

¹⁵ <u>Id</u>.

1		The Commission's proposal expressly seeks to encourage a specific
2		technological solution, but it has provided no rationale as to how that is
3		consistent with its responsibility to ensure that "information services" are
4		widely available in all areas of Nebraska at affordable rates.
5	Q.	Why is the Commission's proposal also contrary to federal policy?
6	A.	In 2011, the FCC overhauled both its universal service program and the
7		system of intercarrier compensation to expressly refocus resources on the
8		goal of encouraging broadband deployment throughout the nation. In the
9		opening paragraph of its lengthy decision, the FCC summarized its purpose
10		as follows:
11		To provide industry with certainty and sufficient time to adapt to
12		a changed regulatory landscape, and establish a framework to
13		distribute universal service funding in the most efficient and
14		technologically neutral manner possible, through market-based
15		mechanisms such as competitive bidding. ¹⁶
16		
17		The Commission's Order expressing a preference for fiber deployment is
18		inconsistent with distributing universal service funding in a manner that is
19		"efficient and technologically neutral." Clearly, a program intended to favor

Anning sour file

¹⁶ USF/ICC Transformation Order at ¶ 1.

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fiber deployment (a specific technology and type of facility) is not

"technologically neutral." And as I discuss below, the Commission has not

shown (and cannot show) that its proposed Fixed Broadband Program is an

"efficient" distribution of universal service funding. While I am not an

attorney, it is my understanding that the Commission may not establish

1		universal service policies that are contrary to federal policies administered
2		by the FCC.
3	Q.	Are there additional ways in which the Commission's proposal violates
4		state and federal policy?
5	A.	Yes. I noted above the language in § 86-323 of the Nebraska statute. The use
6		of the word "sufficient" in paragraph (5) serves as a limit on universal
7		funding. The Commission has provided no analysis demonstrating a need for
8		additional fiber deployment, any credible evidence of the cost of fiber
9		deployment, and nothing indicating whether alternative service methods
10		would more economically meet the goal of ubiquitous broadband consistent
11		with the statute's policies. In other words, the Order fails to give meaning to
12		the word "sufficient," as the statute requires.
13 14		2. The Commission's Fixed Broadband Proposal is not supported by Credible Evidence
15	Q.	Why do you conclude that this component of the Commission's
16		proposal is not supported by credible evidence?
17	A.	No testimony of any witness was offered in support of the Commission's
18		Order. This deprives the parties of the opportunity to conduct discovery on
19		the proposal or to conduct cross-examination at the hearing.
20		This concern applies to both the overall proposal and the Fixed
21		Broadband Program portion of the Order. With a proposed budget of \$54
22		million, there should be substantial information identifying the baseline that
23		additional funding is required to achieve, as well as detail supporting how

the funds will support the goal of ubiquitous broadband deployment. A philosophy of "build it and they will come" ¹⁷ may make for an entertaining movie, but it is hardly the kind of evidence that is needed to impose such a massive funding burden on the people of Nebraska.

I took it upon myself to explore available data, and found helpful information on the Nebraska Broadband Mapping Project website. To obtain facts relevant to the Commission's emphasis on fiber deployment, I intentionally ignored information on broadband cable and wireless networks. What I found was a surprising degree of deployed fiber. I was most intrigued by the distribution of fiber networks in various regions of the state. The map reveals that fiber networks are deployed mostly in rural, agricultural areas with low population density. Examples include the far western portion of the state north of Alliance and south of Chadron, and large portions of Rock, Brown, Keya Paha, and Holt counties in the far north. Review of Exhibit 1 shows other areas in the state with existing fiber networks.

I also looked at the FCC's most recent Internet Access data in conjunction with my review of the Nebraska Broadband Mapping Project data. Significantly, of the nearly two million Nebraska households obtaining

¹⁷ Field of Dreams, Universal Pictures, 1989. The lead character made a personal choice to level a cornfield so as to construct a baseball field. While he deprived himself of likely revenue from the crop, the field was not constructed using public monies.

¹⁸ http://prodmaps2.ne.gov/Html5PSC/index.html?viewer=broadband; visited March 18, 2017.

¹⁹ See attached Exhibit 1 – screenshot of

http://prodmaps2.ne.gov/Html5PSC/index.html?viewer=broadband taken by the author March 18, 2017.

Internet access, only **2.1 percent** of households obtain their services over fiber technology.²⁰ Such an extremely low take rate has significant implications for public policy in Nebraska, indicating the need for substantial skepticism toward the Commission's proposed \$54 million budget for the Fixed Broadband Program.

Q.

These low utilization factors suggest that the Commission has performed insufficient economic assessment or business case analysis of the proposal, raising a number of questions. Are broadband service prices in the areas served by fiber such that subscribers are unwilling to pay them? Are the costs of deploying fiber networks justifiable? What service alternatives have been considered by the Commission (as I explain below, it appears that the answer is none), and how do the economics of those alternatives compare with fiber networks? Until the Commission analyzes and answers such questions, its proposal is unjustifiable.

Fixed Broadband Program component of the Commission's proposal?

A. Yes. The Commission has provided almost no information the parties can examine to assess the budget for the Fixed Broadband Proposal. The Order states, "the calculated funding needed to deploy fiber-based networks everywhere in Nebraska above the FCC's \$52.50/month benchmark would

Are there other evidentiary concerns with the proposed size of the

²⁰ Internet Access Services; Status as of December 31, 2015, Industry Analysis and Technology Division, Wireline Competition Bureau, released November, 2016, at 2. See, https://www.fcc.gov/general/iatd-data-statistical-reports.

be approximately \$255 million per year."²¹ For a number of reasons, however, this is not an appropriate approach to sizing the NUSF.

First, this approach has not been vetted through any process to determine whether it results in an appropriate fund size. In addition, the proposal ignores the fact that use of a "model" can be helpful in initially sizing a problem, but the results of the model alone are insufficient for purposes of establishing program budgets, and should be corroborated or augmented using other sources. For example, the FCC made clear that its model results will not be used to determine funding needs for extremely high cost areas, as reverse auctions will be used instead for establishing the budget(s).

The proposal also ignores that additional federal USF support will be forthcoming to many areas of Nebraska, including in Nebraska's highest cost areas, through the Connect America Fund (CAF) Phase II auction and the Remote Areas Fund (neither of which will use model results, as mentioned above). Effectively, the proposal's estimate assumes that the only federal support available will be the model-based support offered to price cap carriers, leaving any remaining support needs unfilled. This is incorrect, however. The FCC has yet to conduct the CAF Phase II competitive bidding process or to fully implement the Remote Areas Fund. Until these steps are completed, it would be premature to assume that the delta between the

²¹ Order at 22.

²² See, e.g., Connect America Fund, et al., Report and Order and Order on Reconsideration, FCC 17-12 (rel. March 2, 2017), available at https://apps.fcc.gov/edocs-public/attachmatch/FCC-17-12A1.pdf.

FCC's modeled deployment costs and funding level bears any relationship to the level of actual support needed in price cap areas. Further, the Commission would need to understand whether (and to what extent)

Nebraska price cap carriers are participating in CAF I and/or CAF II.

Information regarding the effects on Nebraskans is also needed regarding the support that rate-of-return carriers receive in Nebraska as well as the extent of participation by all providers in the Remote Areas Fund. Data regarding the various phases of the Mobility Fund may also be helpful. The \$255 million per year figure cannot realistically be evaluated absent such data. Further, all parties would benefit by having more granularity than a statewide number, given the reality that few (if any) providers operate in all areas of the state. The lack of such information means that the Commission's subsequent question -- "how do we close the gap" 23 -- is unanswerable at present.

3. The Commission's Order Contains No Discussion of Possible Alternative Broadband Solutions

Q. What is the relevance of considering alternative broadband solutions?

- A. The Commission's emphasis on the Fixed Broadband Program ignores a fundamental reality that broadband services can be provided using a variety of technologies. As the FCC explained in a 2014 Order:
- Historically, the physical medium over which fixed end-user communications were predominantly transmitted consisted of

²³ Id., at 23

twisted pairs of copper wire, which have served us well for over a century. Now providers in many places are sending communications over a diversity of physical platforms. In addition to twisted copper pair, providers today are increasingly using fiber optic cable, co-axial cable, and wireless technologies for fixed end-user voice and data transmissions.²⁴

The FCC recognizes that providers should take advantage of whatever technology or technologies provide the best service at the greatest economic efficiency for the demand at issue.²⁵ Further, the FCC recently reiterated the importance of allocating universal service funding in a way "that is technology-neutral and that balances the objective of maximizing the number of consumers that will be served with the value of the higher speeds, higher usage allowances, and lower latency," and insisted that universal service support be allocated so as not to "give an absolute preference to any type of technology or speed."²⁶

But the Commission's Order states its intent to "give an absolute preference to ... [a] type of technology." This is not only contrary to federal policy, but also shortsighted in terms of the Commission's obligation to limit the NUSF funding burden on Nebraskans. Completely ignoring the rapid evolution of a number of non-fiber broadband technologies in recent years fails the "sufficient" requirement, as discussed above.

²⁴ Tech Transitions Order at ¶ 18.

²⁵ CenturyLink made a similar observation in its Comments of June 6, 2016, at 4-5.

²⁶ Connect America Fund, et al., Order, 32 FCC Rcd 968, 983 ¶ 42 (2017).

1	Q.	Are there particular alternative broadband solutions the Commission
2		should evaluate?

- A. My point here is not to endorse a particular technology, but to urge that the
 Commission investigate a variety of options. I find it troubling, however,
 that the Commission failed to even mention two particular technologies –
 wireless and satellite -- that today provide broadband services. As noted
 above, more than two out of three Nebraska households obtain Internet
 access using wireless infrastructure.²⁷
- 9 Q. Please discuss wireless technology as it relates to possible broadband10 solutions.

A. Many are familiar with the terms "4G" and "4G LTE" because of their frequent use in advertising. A new term – "5G" wireless -- is on the horizon, although with somewhat less public awareness. Providers will continue to utilize their 4G networks for a number of years, and those networks will serve as the foundation for deploying 5G next generation technology. There is significant interest in 5G networks and much expectation that 5G will be radically transformative, much in the same way the Interstate Highway System in the 1950s represented a massive improvement over the earlier Lincoln Highway system. Phenomenal increases in broadband speeds, marked increases in number of devices connected, dramatic reductions in

²⁷ Internet Access Services; Status as of December 31, 2015, Industry Analysis and Technology Division, Wireline Competition Bureau, released November, 2016; Fig. 34. Download speeds over 4G can reach 100 Mbps, quite competitive with many terrestrial technologies.

latency, and much more should be anticipated as 5G is deployed.²⁸ Economists estimate that 5G will boost the nation's GDP by hundreds of billions of dollars, improving various aspects of business and lifestyle such as mobile health applications, automotive, wearables, smart homes and smart cities, agricultural and industrial applications, and countless more. I have seen discussion among commentators regarding how 5G could become a replacement for fiber-to-the-home broadband in the relatively near future.²⁹

This technology is not merely science fiction, but is becoming a reality. In fact, Nebraska lawmakers are currently considering LB 389, a bill regarding "small wireless facilities" addressing a number of factors to remove barriers and facilitate the private investment needed to bring the benefits of 5G to Nebraskans. No serious consideration of the future of broadband can be undertaken without examining wireless technology, including 4G and 5G. Yet, the Commission's Order contains no discussion of the potential for broadband wireless to play a role in the goal of ubiquitous broadband in the state.

Q. What comments do you have regarding satellite technology as a possible broadband solution?

 $^{^{28}}$ The term "latency" can be thought of in the same sense of delay in a communications system. The promise of 5G is latency in the range of 1-2 milliseconds. Such improvements in latency are important for applications in the Internet of Things ("IoT"). The significance is obvious when looking at such examples as vehicular crash avoidance systems.

²⁹ See, e.g., B. Arnason, "Will 5G Enable Wireless Replacement of Home Broadband and Disrupt FTTH?" *Telecompetitor* (May 26, 2016), available at http://www.telecompetitor.com/will-5g-enable-wireless-replacement-home-broadband-disrupt-ftth/.

Broadband via satellite is another technology the Commission should
consider. I previously referenced the efforts of the Nebraska Broadband
Initiative. The Initiative concluded that satellite broadband is available
throughout the state. I find it incredible that the Commission's Order
expresses a goal of ubiquitous broadband deployment in Nebraska, and yet
makes no mention of this conclusion, particularly given the reality that the
state is made up of many low-density areas. And satellite broadband speeds
continue to increase. Recently, Hughes Network Systems launched a new
"Gen 5" satellite, impacting perhaps as many as eighteen million households
across the United States that are either unserved or experiencing painfully
slow wireline internet services. ³⁰ The launch positions Hughes to offer
broadband in remote areas at 25 Mbps download speeds and upload
speeds of 3 Mbps—speeds that meet the FCC's definition for broadband in
the U.S. ³¹

A.

There is no evidence that the Commission has given any consideration to alternative technologies such as wireless 4G/5G or satellite. This is yet another substantial gap in evidentiary support for the Commission's proposal.

C. The Commission's Proposed Contribution Methodology is Unnecessary and Premature

 $^{^{30}\,}http://www.fiercewireless.com/tech/hughes-new-satellite-based-broadband-service-posited-as-alternative-to-slow-dsl; viewed on March 7, 2017.$

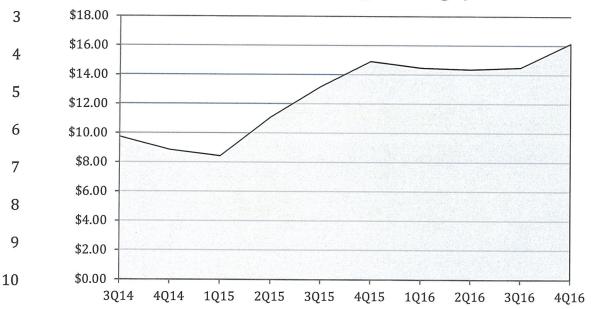
³¹ http://www.hughes.com/company/newsroom/press-releases/hughes-launches-worlds-largest-and-fastest-broadband-satellite-network?locale=en; viewed on March 7, 2017.

1	Q.	Why do you state that the Commission's proposed contribution
2		methodology is unnecessary?
3	A.	The Order refers to a decline in NUSF remittances, and predicts (based on
4		"current forecasts") that they will decline by noticeable percentages
5		between 2016 and 2017.32 The Commission concludes that it "cannot
6		achieve the goals and requirements of the NUSF Act" without replacing the
7		existing contribution methodology. However, to my knowledge, the
8		Commission has presented no date or time frame as to when that may occur,
9		let alone data supporting its contention.
10		I examined data from the Commission's website quantifying the
11		"uncommitted" revenues in the NUSF to try and corroborate the
12		Commission's contention. ³³ Using those figures, I calculated a moving
13		average. A moving average in effect "smooths" periodic fluctuations in data
14		series, and often helps to discern any identifiable trend in the data. As can
15		be seen in the chart, the "uncommitted" fund balances have generally
16		increased over the past few years not what one would expect if the
17		existing contribution methodology were declining precipitously and
18		threatening the fund's viability.

³² Id at 1

³³ See, http://www.psc.nebraska.gov/ntips/ntips nusf.html. Clicking the link downloads a spreadsheet entitled "NUSF Fund Information – all historical data." The author downloaded the data March 3, 2017.

Uncommitted NUSF Balances (in Millions; moving average)



To be sure, there may be pertinent data that tells a different story, but I am not privy to it. If such data exists, the Commission should present the data so parties have a realistic understanding of the situation. Until then, any urgency to dismantle a working contribution mechanism seems misplaced.

In addition, the Order ignores the caution urged in some parties' prior comments that moving forward with a new contribution methodology in a vacuum is not without substantial risks. Those briefs and comments identified various unknowns, uncertainties, and likely jurisdictional concerns with implementing a new contribution methodology at this time.³⁴ A number of parties recommended that the Commission take steps such as workshops to obtain public input for purposes of sizing the fund – steps

³⁴ See, CTIA's August 25, 2016 Reply Comments at 3-7.

2		methodology. ³⁵ Nonetheless, the Commission ignored that near unanimous
3		opinion and issued its proposals.
4	Q.	Now that the Commission has offered a specific "connections-based"
5		proposal, have CTIA's concerns about implementing a new funding
6		methodology prior to issuance of the Federal/State Joint Board's
7		recommendation been resolved?
8	A.	No. CTIA has consistently urged the Commission to await further
9		developments at the federal level before attempting to overhaul the NUSF
10		contribution methodology, arguing among other things that waiting for
11		federal guidance is the only path that will allow the Commission to "ensure
12		circumvention of significant, avoidable costs from multiple resource-
13		intensive implementation processes."36 The Commission's Order

nonetheless moves forward with its novel proposal, but it provides no

information demonstrating that its proposal would improve the stability of

the NUSF contribution mechanism. It would be quite helpful for the parties

to be presented with data showing the expected benefits over time, as such

data is necessary to provide an evaluation of the Commission's proposal.

Instead, without any rationale supported by evidence, the Order would

require carriers to incur significant expense and administrative burden to

modify billing and reporting systems, amend on-line and printed customer

they urged should be taken prior to implementing a new contribution

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³⁵ See, CenturyLink's July 15, 2016 Reply Comments, at 2-3.

 $^{^{36}}$ CTIA's Reply Comments of July 15, 2016 at 2, noting that similar concerns were voiced by CenturlyLink and Viaero.

materials, change internal practices and retrain customer-facing
representatives. CTIA again urges the Commission to put its proposal on
hold for now, and refocus its efforts on developing a viable, forward-looking
broadband strategic plan.

Q. Are there concerns with the contribution methodology the PSC has proposed?

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Yes. Examination of Appendix A to the Commission's Order reveals that its proposal is a "connection-based" contribution methodology in name only. The Appendix makes use of various inputs and assumptions to derive what it refers to as "Adjusted Connections" (Column D, rows 3.02 through 3.08), but in reality is a *revenue* distribution across various customer classes. There is no data to support the proposition that bills are actually distributed evenly or fairly among the apparently arbitrary categories that have been chosen, and there is no apparent basis for the average revenue per bill within each category. The distribution is predicated on inputs (Column A) accompanied by a note saying "No data to support these allocations." At least some circularity underlies the proposal. That is, the proposed surcharges for the "business fixed voice" categories seem to have been determined (at least indirectly) based on analyses of average bill sizes. This raises the risk that the receipts obtained via this novel methodology will not achieve the Commission's proposed "budget." The Commission's Order is silent as to how the Commission would seek to resolve such an outcome. This fact, in combination with the various assumptions and adjustments in

the Appendix, raise serious doubt as to whether the proposal represents an improvement over the existing mechanism.

A comparison of Tables 1 and 2 of the Order demonstrates the Commission's recognition that a true "connection-based" contribution methodology cannot be implemented at this time. The proposal would assess fees only on three of the five categories of "connections" identified in Table 1.³⁷ Further, there is no mention of assessing the "connection" fee on any dedicated facilities.

Q. What other concerns does CTIA have with the proposal?

A.

The only argument that has been offered in the proceeding to counter CTIA's and others' challenges to the legal risks involved in setting a state connections-based charge before the FCC has determined how it will assess contributions is CenturyLink's assertion that "a flat state universal service charge for an intrastate connection, without regard to usage or revenues is nondiscriminatory, because it assesses the same amount to every connection having the capability for intrastate calling."³⁸ Even if we were to accept this argument, however, the Commission's proposal makes no attempt to assess "the same amount to every connection," instead including no less than seven different proposed surcharges.

 $^{^{37}}$ See, CTIA's comments of August 25, 2016 at 3, stating that "none of the briefs supporting adoption of a connections-based mechanism have offered an approach that resolves the significant legal problems with adopting such an approach at this time."

³⁸ CenturyLink Reply Brief of August 26, 2016, at 9.

The proposal on its face would assess residential wireless and wireline users differently. The Commission has provided no explanation for its proposal to assess a wireless user at the rate of \$1.29, while the wireline rate is proposed at \$1.24. Without substantial evidentiary support, the proposal on its face is unreasonably discriminatory, contradicting the objective of technological and competitive neutrality.

As explained above, the Commission's own data does not provide support for implementing a novel contribution methodology in the near term. The methodology proposed by the Commission would require providers to undertake significant modifications to implement the new mechanism, even though it is well known that further (and perhaps conflicting) changes will be necessary when federal changes are implemented. The proposal raises a number of questions about the derivation of the proposed surcharges and how the Commission would try and remedy a situation where receipts fall short of its "budget." And there is no evidentiary support to justify the proposal.

CTIA again urges the Commission to postpone efforts to replace the existing contribution methodology (which at this time does not appear necessary), and instead either pursue legislation to shift funding to the state's General Fund or seek to develop a workable broadband strategic plan.

D. Additional CTIA Concerns With the Commission's Proposal

1	Q.	what are your thoughts on the commission's use of the GDF-F1 to
2		"restate" the NUSF 1999 dollars in today's values?
3	A.	As noted earlier in my testimony, the Commission has provided no credible
4		evidence to support its proposals. It has apparently performed no analysis
5		of industry-specific efficiencies and/or technological advances over the
6		period in question. Without such information, this part of the Commission's
7		proposal is not justified.
8	Q.	Have you reviewed the Commission's discussion of "wholesale
9		replacement of company networks" at p. 24 of the Order?
10	A.	Yes. First, the Order does not explain to which "company networks" it is
11		referring. Perhaps the reference is to those "companies" that previously
12		have drawn from the NUSF. If so, my criticisms above regarding the Fixed
13		Broadband Program apply with equal force here. Second, the Commission's
14		assumption that "replacement networks will most likely be more
15		expensive" ³⁹ is directly contradicted by language in a recent FCC order:
16 17 18 19 20 21		Modernizing communications networks can dramatically reduce network costs, allowing providers to serve customers with increase efficiencies that can lead to improved and innovative product offerings and lower prices. ⁴⁰
22		This aspect of the Commission's proposal has not been justified.
23	Q.	Is it a reasonable assumption that the LifeLine Program will continue
24		at the same levels as in the past?

 $^{^{39}}$ Order at 24. 40 Technology Transitions Order at \P 2.

- A. No. That assumption is inconsistent with the Commission's goal of
 encouraging wide deployment of broadband networks. The world of
 broadband is one where apps and widgets will continue to proliferate, and
 voice is only one of many broadband applications. It is reasonable to
 question how supporting voice services for low-income residents should be
 continued, but that issue should be evaluated as part of the larger process of
 developing a broadband strategic plan.
- Q. Please provide your thoughts on the Mobile Wireless Tower portion of
 the Commission's NUSF proposal.

A.

The Commission's Order simply observes without further explanation that prior demands have exceeded the historic commitments from this portion of the fund, but no additional information is furnished that the parties can use to evaluate the merits of the proposal. In the absence of a Commission process to formulate a broadband strategic plan, the parties are prohibited from exploring such factors and putting them into a broader context. For instance, the Commission should consider whether advances in wireless networks, such as deployment of 5G networks, provide a solution for both voice and broadband coverage goals. The Commission's "fiber everywhere" goal is inconsistent with a mobile deployment solution to meet the Commission's goals. Furthermore, it may behoove the Commission to consider whether the ever-growing number of wireless only-customers militates for the Commission to consider whether it has given its Mobile Wireless Tower program adequate stature.

1	Q.	The proposal suggests increasing "administration expenses" in the
2		NUSF by fifty percent. Does CTIA support this portion of the proposal?
3	A.	The parties' comments in earlier phases of this proceeding generally
4		concurred with the concept of increased accountability for entities drawing
5		from the NUSF, while urging the Commission to develop specific rules on
6		which they could comment. Because the Order contains no such proposal,
7		there is no justification for the proposed increase.
8 9	<u>E.</u>	The Commission Should Implement a "Point-of-Sale" Methodology for Contributions from Pre-Paid Wireless Customers
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11	Q.	What is the importance of a point-of-sale methodology for recovering
12		NUSF contributions from pre-paid wireless consumers?
13	A.	So long as NUSF contributions are obtained from communications providers
14		rather than from the state's general fund, the PSC should encourage
15		lawmakers to implement a "point-of-sale" methodology for the collection of
16		the NUSF assessment from prepaid wireless service, as that is the most
17		equitable and accurate approach for collecting such fees. Such a
18		modernization would be consistent with the growing trend towards point-
19		of-sale collection for similar fees that has been implemented in thirty-four
20		other states, the District of Columbia, and the U.S. Virgin Islands.
21	Q.	Please continue.
22	A.	The Commission's NUSF rules currently require prepaid wireless providers
23		to remit to the PSC an amount based on the face value of prepaid service

sold. However, this methodology predates the ways that consumers purchase prepaid wireless services today, including at retail stores. While postpaid wireless consumers pay the NUSF assessment directly on their monthly bills, accurate collection of the NUSF assessment from prepaid wireless customers on a monthly basis is not feasible due to the general lack of a direct and ongoing billing relationship between prepaid wireless providers and customers. The result is that prepaid wireless providers are required to pay the surcharge themselves, creating an inequitable distribution of the contribution assessment between prepaid and postpaid wireless consumers.

Establishing a point-of-sale methodology for collecting the NUSF assessment is the most accurate and modern approach, and will enable a more equitable assessment process among prepaid and postpaid wireless consumers. Further, it is consistent with the Commission's stated goal of "reform[ing] the contribution mechanism to promote an equitable and sustainable framework," and with federal universal service policy, rooted in the principle that the universal service mechanism be equitable for all contributors.⁴¹

Importantly, by having both prepaid and postpaid wireless consumers contribute directly to the NUSF, a point-of-sale methodology would be a more accurate approach to capturing the assessment. As an

 $^{^{41}}$ It is noteworthy that the PSC's discussion in its November 13, 2014 Order references 47 U.S.C. § 254(c)(1).

example, prepaid wireless providers frequently sell products on a wholesale basis to retail store chains, which then distribute them to their retail locations. In those situations, because NUSF contributions are currently assessed on the face value of prepaid cards and services, prepaid wireless providers would be assessed based on the amount paid to the retailer rather than the revenue received by the providers. The current assessment system is therefore inaccurate (and inequitable between prepaid and postpaid wireless customers) because prepaid wireless providers are assessed on the retail price of service even though they may only be recouping lower, wholesale revenues.

An additional complication relating to the providers' distribution model is that providers often have great difficulty establishing where their products are being sold or used. The majority of prepaid wireless transactions occur at national "big box" stores or other general retailers where the prepaid wireless provider generally lacks a direct and ongoing billing relationship with the customer. Unlike postpaid wireless consumers who are billed at an address that is used to determine where the service is likely used most often, the nature of prepaid wireless makes it difficult to determine where a consumer is located. This issue also arises when prepaid wireless providers sell their product wholesale to a "big box" retail chain that then distributes the product nationwide. The Commission's April 5, 2016 Order discusses the requirements of the state's Mobile

Telecommunications Sourcing Rule. [Order at 9] In that context, the general

lack of a geographical nexus for prepaid wireless service contravenes the rule's purpose, and results in needless inequities and complications in the current NUSF assessment methodology.

Q. Are there additional problems arising from the current methodology?

A.

Yes. Federal law and the Commission's rules mandate that the NUSF surcharge shall not apply on the interstate portion of telecommunications revenue, but the process described above through which consumers purchase prepaid wireless services makes it difficult, if not impossible, to determine which service is local to Nebraska. The result is that prepaid wireless providers are required either to request an allocation factor from the PSC or to use an FCC safe harbor provision, both of which merely estimate the portion of intrastate revenue. By adopting a point-of-sale methodology for collecting the NUSF assessment from prepaid wireless services, the PSC would more accurately assess the surcharge on the retail value of prepaid service in Nebraska and ensure that the surcharge is consistently and equitably collected on all prepaid wireless service sold in the state.

Adopting CTIA's recommendation would also be consistent with Nebraska's approach for the collection of similar administrative fees from prepaid wireless service. Both the Nebraska 9-1-1 surcharge and the Nebraska telecommunications relay surcharge are collected from prepaid wireless consumers at the point-of-sale, as mandated by Nebraska's Prepaid Wireless Surcharge Act. This statute provides the PSC with solid guidelines

for use in establishing a similar methodology for the NUSF assessment. And as noted above, this improvement would be consistent with a number of other jurisdictions. For example, thirty-five states (including Nebraska), the District of Columbia, and the U.S. Virgin Islands collect 9-1-1 fees at the point-of-sale, and both California and Maine recently adopted the point-of-sale model for collection those states' high-cost USF assessments.

A.

IV. Summary

9 Q. Please summarize your testimony.

I presented the Commission with a background on the history of universal service and explained how the concept as it was understood twenty years ago is only marginally relevant to today's broadband world. I recommended that the Commission should not try to "tweak" a NUSF that was designed for the purpose of increasing voice subscribership in a narrow-band world as a means of encouraging ubiquitous broadband networks. I offered the Commission two ideas as to how it can encourage broadband throughout Nebraska. One is to pursue legislation to transfer funding for the NUSF to the state's general fund. The other is that the Commission should institute a process to develop a broadband strategic plan consistent with the statutory framework and make efficient use of Nebraskans' contributions to the NUSF.

I also presented testimony on the Commission's proposals. First, I expressed concern about making determinations in this proceeding, without a thorough review, about how to ensure Nebraskans' access to broadband

1 services or how much it will cost to do so. I explained that the expressed 2 preference for "fiber everywhere," as evidenced by the Fixed Broadband 3 Proposal, is contrary to both state and federal policy and is not supported by 4 credible evidence. By completely ignoring potential alternative broadband 5 technologies, the Fixed Broadband component of the Commission's proposal 6 cannot be justified. The proposal's estimate of the cost of extending 7 broadband is without evidentiary basis and incorrect. Turning to the 8 Commission's novel contribution methodology, I discussed the Commission's failure to provide any reasoning for moving forward at this time with its proposal. I explained why the lack of supporting evidence means that providers should not be required to undergo expensive systems modifications and the accompanying administrative burdens. As to the methodology itself, I discussed the numerous questions it raises on the surcharges, and what action the Commission might take if its proposal fails to yield the target revenues. I further explained the problem of unreasonable discrimination arising from the proposal's failure to assess the same contribution on each "connection." Finally, I urged the Commission, if it chooses to not transfer funding to the state's general fund, to implement a point-of-sale collection methodology for prepaid wireless, following the state's existing funding mechanism for 9-1-1 for prepaid wireless. Q.

Does this conclude your testimony at this time?

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22 Yes. However, I reserve to right to augment or revise my testimony in light of A. 23 additional information that may come to my attention.

Exhibit 1

Mofficial Nebraska Government Website

BROADBAND MAPPING PROJECT NEBRASKA

