WILKINSON BARKER KNAUER LLP

1800 M STREET, NW
SUITE 800N
WASHINGTON, DC 20036
TEL 202.783.4141
FAX 202.783.5851
WWW.WBKLAW.COM
DAVID A. O'CONNOR
202.383.3429
DOCONNOR@WBKLAW.COM

November 9, 2017

VIA ELECTRONIC FILING (ECFS)
Marlene H. Dortch, Esq., Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

RE: **EX PARTE PRESENTATION**
Misuse of Internet Protocol (IP) Captioned Telephone Service; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities
CG Docket Nos. 13-24, 03-123

Dear Ms. Dortch:

On November 8, 2017, Dixie Ziegler, Vice President of Hamilton Relay, Inc. ("Hamilton") and the undersigned counsel on behalf of Hamilton, met with Zenji Nakazawa, Public Safety and Consumer Protection Advisor to Chairman Pai. Ms. Ziegler participated by phone.

The purpose of the meeting was to share a copy of a new white paper prepared by the Brattle Group concerning IP CTS costs and rate methodologies. A copy of the white paper is included with this filing.

This filing is made in accordance with Section 1.1206(b) of the Commission's rules, 47 C.F.R. § 1.1206(b). In the event that there are any questions concerning this matter, please contact the undersigned.

Respectfully submitted,

WILKINSON BARKER KNAUER, LLP

/s/ David A. O'Connor
Counsel for Hamilton Relay, Inc.

Attachment
cc (via email): Zenji Nakazawa

Economic Analysis of IP CTS Provision Costs and Rate Setting

PREPARED FOR

Hamilton Relay

PREPARED BY

Coleman Bazelon, PhD
Patrick Holder, PhD
Brent Lutes, PhD

November 8, 2017

THE Brattle GROUP

This report was prepared for Hamilton Relay. All results and any errors are the responsibility of the authors and do not represent the opinion of The Brattle Group or its clients.

IMPORTANT NOTICE:

This report was prepared at the request of Hamilton Relay in order to communicate the economic and financial environment in which Hamilton provides IP CTS. While the analyses described in the report may assist regulators and market participants in rendering informed decisions regarding the Captioned Telephone Service market, they are not a substitute for the exercise of anyone's own business judgment. Neither we nor Brattle will accept any liability under any theory for losses suffered, whether direct or consequential, arising from the reliance on the analyses presented, and cannot be held responsible if any conclusions drawn from this report should prove to be inaccurate.

Table of Contents

I. Introduction

We have been asked by Hamilton Relay, Inc. ("Hamilton") to provide economic analysis on issues relevant to Captioned Telephone Service ("CTS").[1] To that end, we have considered the sustainability of the Multistate Average Rate Structure ("MARS") methodology and the economic merits of a price cap rate methodology. In order to facilitate a more complete understanding of the economic environment in which CTS providers operate, Hamilton has allowed us to review their internal financial data.

There may exist concerns regarding the sustainability of MARS given the shrinking base of intrastate CTS call minutes and misconceptions regarding the state of competition for intrastate CTS. The decline in intrastate CTS call minutes is precipitated by the switch from non-IP CTS to IP CTS, the latter of which is treated as interstate call traffic. As discussed in Section II, our analysis suggests that non-IP CTS will continue to be a viable service for the foreseeable future, given current broadband adoption trends.

Price cap methods have been considered for rate setting. However, the flawed implementation of a price cap rate can disintegrate a market, as has been shown in the IP Relay market.[2] Although

---

[1] We use the term "CTS" to refer to all captioned telephone services and specifically distinguish between Internet Protocol ("IP") CTS and "non-IP CTS" when necessary.

[2] After an ill-conceived rate mechanism suddenly caused rates to decrease to a point at which no provider was willing to operate, the IP Relay market virtually collapsed. Emergency measures were taken and large concessions were made by the Commission in order to entice providers to stay in the market. Only one provider survived the episode. For relevant discussions, see, *e.g.*, Sorenson Communications, Inc. and CaptionCall, LLC Reply Comments on Rolka Loube Associates LLC Payment Formulas and Funding Requirements, *In the Matter of Misuse of Internet Protocol (IP) Captioned Telephone Service, Structure and Practices of the Video Relay Service Program, and Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket Nos. 13-24, 10-51, and 03-123, FCC, June 11, 2015, p. 12, accessed July 20, 2017, https://ecfsapi.fcc.gov/file/60001077812.pdf and Reply Comments of Hamilton Relay, Inc., *In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Structure and Practice of the Video Relay Service Program, and Interstate Telecommunications Relay Services Fund Payment Formula and Fund Size Estimate for the July 2015 Through June 2016 Fund Year*, CG Docket Nos. 03-123 and 10-51, June 11, 2015, p. 6, accessed July 20, 2017, https://ecfsapi.fcc.gov/file/60001078170.pdf.

such rates would be inferior to market-based rates, we discuss the concerns with and potential use of price cap rates in Section III.

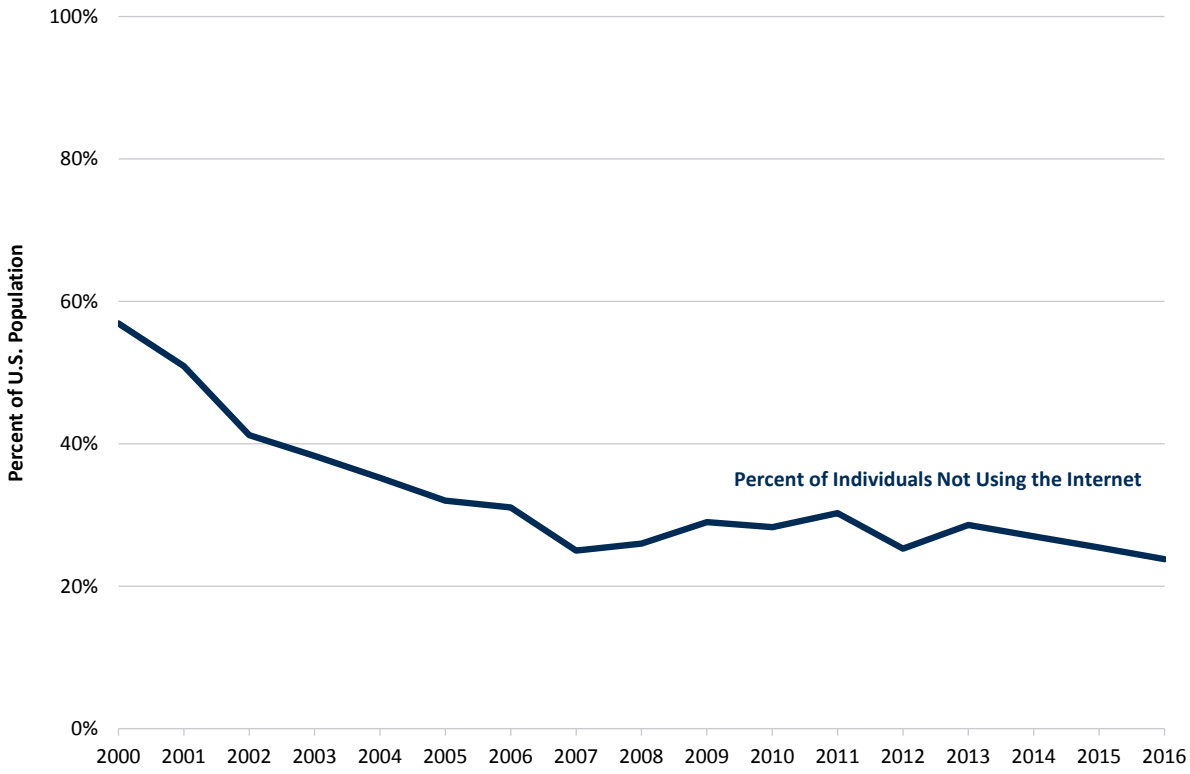
II. Sustainability of the MARS Rate

Because the MARS rate is based on intrastate CTS rates, a concern is that intrastate CTS services will disappear as more Americans connect to broadband internet. By adopting internet connectivity, current CTS users may shift from non-IP CTS to IP CTS and cause the basis of the MARS methodology to shrink to some degree. However, recent rates of internet usage suggest that at this point the segment of Americans who do not use the internet will remain fairly stable over time. As Figure 1 shows, the number of non-internet users in the U.S. as a percentage of the population has experienced little change since 2007.[3]

[3] "Percentage of Individuals Using the Internet," International Telecommunication Union ("ITU"), accessed October 6, 2017, http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2017/Individuals_Internet_2000-2016.xls.

Note that ITU aggregates data from various sources in order to compile its database. In its data on internet usage, ITU does not make a general distinction between fixed or mobile internet, nor does it make a distinction regarding the location or form of internet usage.

Figure 1: Percent of the U.S. Population Not Using the Internet, 2000-2016



Source: "Percentage of Individuals Using the Internet," International Telecommunication Union, accessed October 6, 2017, http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2017/Individuals_Internet_2000-2016.xls.

Though universal availability of broadband has been a goal of the Federal Communications Commission ("FCC") since at least 2010,[4] the set of individuals not connected to broadband appears to be sustained by more than a simple lack of access. Analysis by the Pew Center shows that 66% of Americans without internet access say that they do not use the internet because the internet "is just not relevant to them" or because it is "not very easy to use."[5] Thus, it is likely that, despite the FCC's push for universal broadband access, a material number of CTS users will

[4] Long-Term Goal No. 3 of the FCC's National Broadband plan states that "every American should have affordable access to robust broadband service, and the means and skills to subscribe if they so choose." See "National Broadband Plan Executive Summary," FCC, March 17, 2010, p. XIV, accessed October 6, 2017, https://transition.fcc.gov/national-broadband-plan/national-broadband-plan-executive-summary.pdf.

[5] Kathryn Zickuhr, "Who's Not Online and Why," Pew Research Center, September 25, 2013, accessed October 6, 2017, http://www.pewinternet.org/2013/09/25/whos-not-online-and-why/.

resist broadband adoption and continue to choose non-IP CTS services over IP CTS. This will preserve a base of customers and provide an underpinning for MARS's viability as an efficient rate methodology.[6]

A related concern lies in the parity between non-IP and IP CTS. The concern is that an IP CTS MARS rate based on non-IP intrastate CTS rates may be inflated if the costs incurred through the provision of non-IP CTS exceed those incurred in the provision of IP CTS. The concern stems from the idea that in a competitive bidding process, the prevailing bid will reflect provision costs plus a minimal return. If non-IP and IP CTS earned the same revenue per minute, but the costs for non-IP CTS were higher than those of IP CTS, then providers would realize higher than minimal returns for IP CTS.[7]

---

[6] Note that intrastate CTS usage has fluctuated over time and declined somewhat in recent years. In 2008, total intrastate CTS conversation minutes was 18,595,404, while in 2016, this figure was 17,706,054. This trend, however, is likely the result of normal and slowing IP CTS technological adoption trends that are separate from internet usage rates. Technology adoption typically follows what is known as an "S-curve." Early adopters of the technology fuel a slow but steady initial growth. This slow growth gives way to a period of rapid growth as mainstream users adopt the technology. This adoption, in turn, gives way to slow growth sustained by technologically-resistant late adopters. It is likely that IP CTS is in the third phase of this trend cycle, which implies that the decline in non-IP CTS will slow. This suggests that the remaining non-IP CTS users likely do not adopt IP CTS because they are resistant to the new technology for some reason, *e.g.*, lack of internet. For a general discussion of modeling technology diffusion as an S-curve, see, *e.g.*, Bronwyn H. Hall and Beethika Khan, "Adoption of New Technology," National Bureau of Economic Research, Working Paper 9730, May 2003, accessed November 6, 2017, http://www.nber.org/papers/w9730.pdf. For reported intrastate CTS conversation minutes, see National Exchange Carrier Association, Inc., Interstate Telecommunications Relay Services Fund Payment Formula and Fund Size Estimate, *In the Matter of Telecommunications Services for Individuals with Hearing and Speech Disabilities, and the Americans with Disabilities Act of 1990*, CC Docket 03-123, May 1, 2009, Exhibit 1-2, accessed June 14, 2017, https://ecfsapi.fcc.gov/file/6520215580.pdf and Rolka Loube Associates LLC, Interstate Telecommunications Relay Services Fund Payment Formula and Fund Size Estimate, *In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities and Structure and Practices of the Video Relay Service Program*, CG Docket Nos. 03-123 and 10-51, April 28, 2017, Exhibit 1-2, accessed May 26, 2017, https://ecfsapi.fcc.gov/file/10502844703091/2017%20TRS%20Fund%20Annual%20Report_Redacted.pdf.

[7] This is because returns are measured as revenue less costs. If per-minute revenue for the two services is the same, but the cost of one of those services is lower, that lower cost service will earn a higher return.

This is not the case. We have examined Hamilton's internal financial data and found that the cost of providing IP CTS is no less than the cost of providing non-IP CTS. Likewise, Hamilton's returns on IP CTS are no greater than those earned on non-IP CTS.[8] This is an unsurprising result given the operational integration of the two services—they share almost all of the same organization, administration, and operating costs. For example, when CTS calls are routed through a Hamilton call center, the same set of CAs are used irrespective of whether the call is IP-CTS or non-IP CTS; therefore, the two services necessarily incur the same Captioning Assistant ("CA") labor costs. Note that CA labor costs are a substantial portion of the costs incurred by Hamilton. Additionally, the use of a common CA pool for calls routed through Hamilton call centers results in IP and non-IP CTS having identical costs for other call center-related expenses such as facilities, equipment, CA management, and similar items. The implication of these results is that a rate based on competitive bids for intrastate CTS service is likely a fair representation of a market outcome for IP CTS.

III. Price Cap Rate

If the FCC moves away from a market-based rate method such as MARS, adopting a price cap method grounded in MARS, as the correct starting point, could preserve some of the desirable incentives embodied by a market-based rate, so long as the price cap rate calculations are independent of costs. The price cap method takes a given rate that is believed to be fair (*e.g.*, historical MARS rates) as a starting point. It then adjusts that starting rate over time, increasing the rate for inflation and decreasing it for efficiency. The net effect of these two adjustments is intended to keep the level of profit constant. The inflation factor is typically variable and linked to a price index. The efficiency factor is often fixed and meant to reflect a subjective belief about future efficiency gains and related costs savings.

Because a price cap is not based on costs, providers are incentivized to seek out and implement cost savings measures, as providers that do so are able to retain more of their revenue. As we discussed in a previous white paper,[9] linking rates to costs disallows providers from reaping the fruits of their innovations and efficiencies, therefore discouraging them from such efforts.

---

8 Hamilton Relay, Inc., Workpapers Related to 2016 Relay Services Data Request.

9 Coleman Bazelon and Brent Lutes, "Telecommunications Relay Services for Individuals who are Deaf or Hard of Hearing, Market and Policy Analyses" The Brattle Group, August 30, 2017, Section III.

Another advantage of a price cap method is that rates are more predictable over a longer period of time than those from other methods. This predictability diminishes idiosyncratic risk, which can reduce the cost of doing business.

There is, however, substantial systematic risk involved in adopting a price cap method compared to a market-based method. This risk stems from the fact that the efficiency factor reflects subjective beliefs about the ability of firms to gain efficiency and cut costs. If those subjective beliefs are not consistent with ex post reality and the efficiency factor overestimates reasonably achievable gains, then that efficiency factor could cause a rate to fall quicker than costs, eliminating returns and pushing providers from the market. This reality was exemplified by the collapse of the IP Relay market in 2013, following an abrupt drop in the price cap rate.[10]

Hamilton has previously submitted analysis of a price cap method. That rate method consisted of a starting rate equal to the rate paid in 2011 and was adjusted annually by the following equation:[11]

$$PCI_t = PCI_{t-1}[1+(GDPPI-X)]$$

Where,

PCI_t = Rate in the current time period,

PCI_{t-1} = Rate in the previous time period,

---

[10] For relevant discussions, see, *e.g.*, Sorenson Communications, Inc. and CaptionCall, LLC Reply Comments on Rolka Loube Associates LLC Payment Formulas and Funding Requirements, *In the Matter of Misuse of Internet Protocol (IP) Captioned Telephone Service, Structure and Practices of the Video Relay Service Program, and Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket Nos. 13-24, 10-51, and 03-123, FCC, June 11, 2015, p. 12, accessed July 20, 2017, https://ecfsapi.fcc.gov/file/60001077812.pdf and Reply Comments of Hamilton Relay, Inc., *In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Structure and Practice of the Video Relay Service Program, and Interstate Telecommunications Relay Services Fund Payment Formula and Fund Size Estimate for the July 2015 Through June 2016 Fund Year*, CG Docket Nos. 03-123 and 10-51, June 11, 2015, p. 6, accessed July 20, 2017, https://ecfsapi.fcc.gov/file/60001078170.pdf.

[11] Dan Davis and Edit Kranner, "Economic Analysis of the IP CTS Rate Methodology," Consortia Consulting, November 4, 2013, pp. 4-5, accessed October 12, 2017, https://ecfsapi.fcc.gov/file/7521319403.pdf.

GDPPI = Inflation factor based on U.S. Gross Domestic Product ("GDP"), and

X = Efficiency factor.

In an analysis conducted by Consortia and filed by Hamilton, Consortia argued that the efficiency factor should not reflect perceived efficiencies in the telecommunications industry as a whole, because a call center business is structurally distinct from the telecommunications industry on whole.[12] They further argued that the efficiency factor for IP CTS should be near to zero, as few opportunities exist to increase the number of calls handled per CA.[13]

We agree with Consortia's assessment. In general, gains in productivity are achieved with technology that augments or replaces the labor force. For example, robotizing a factory decreases the number of human workers required to produce a firm's product. If the labor cost savings surpass the cost of installing and maintaining the new technology, this would be an opportunity for productivity gains. However, such opportunities typically only exist in industries where physical capital (such as robotic assemblers) can reduce the need for or cost of labor. In industries where labor is a primary input and the utilization of that labor cannot be scaled in any meaningful way, opportunities for gains in productivity are greatly diminished. IP CTS is such an industry. CAs cannot relay more than one call at time. Hence, there is a real and firm limit to their productivity. Moreover, providers are likely already operating at or near this limit, as doing so minimizes their costs.

The idea that the productivity factor in the price cap formula is likely close to zero is substantiated by recently published research, which projects small negative growth of revenue per employee and small positive growth in the ratio of wages to revenue for call centers over the next five years.[14] See Table 1. Both of these trends indicate negative growth in productivity for

---

[12] Dan Davis and Edit Kranner, "Economic Analysis of the IP CTS Rate Methodology," Consortia Consulting, November 4, 2013, pp. 5-6, accessed October 12, 2017, https://ecfsapi.fcc.gov/file/7521319403.pdf.

[13] Dan Davis and Edit Kranner, "Economic Analysis of the IP CTS Rate Methodology," Consortia Consulting, November 4, 2013, p. 6, accessed October 12, 2017, https://ecfsapi.fcc.gov/file/7521319403.pdf.

[14] Madeline Hurley, "Hold the line: Offshoring and investment in technologies will hurt industry profit margins," IBISWorld, August 2017, p. 32 at Key Ratios, accessed October 2, 2017,

Continued on next page

call centers, which suggests that the productivity factor in the price cap formula should in fact be slightly negative.

Table 1: Telemarketing & Call Center Industry Revenue per Employee and Wages as a Percent of Revenue, 2018-2022

Year	Revenue per Employee	Wages as Percent of Revenue
2018	$ 46,970	58.6%
2019	$ 46,720	58.9%
2020	$ 46,530	59.1%
2021	$ 46,510	59.2%
2022	$ 46,430	59.3%

Source: Madeline Hurley, "Hold the line: Offshoring and investment in technologies will hurt industry profit margins," IBISWorld, August 2017, p. 32 at Key Ratios, accessed October 2, 2017, https://www.ibisworld.com/industry-trends/market-research-reports/administration-business-support-waste-management-services/administrative/telemarketing-call-centers.html.

Note: Figures are in inflation-adjusted 2017 dollars.

Note that an efficiency factor should be determined to reflect the market-specific potential for efficiency gains. Taking an efficiency factor from another service market, such as Business Data Services ("BDS"), would not reflect the unique set of potential efficiency gains in the CTS market. CaptionCall, LLC ("CaptionCall") has recently stated that "[t]he Commission's work in the Business Data Services proceeding to develop an X-factor based on telecommunications industry data greatly simplifies the path to price cap regulation here."[15] It is not clear in what way CaptionCall is suggesting that the path to price cap regulation will be simplified. However, we agree that the work done by the FCC to generate price cap parameters tailored specifically to the BDS market serves as a general model, as it highlights the need for market-specific tailoring. We do not agree that the specific price cap parameters applied to the BDS market should be applied to the CTS market, as those parameters reflect the BDS market, not the CTS market.

Continued from previous page
https://www.ibisworld.com/industry-trends/market-research-reports/administration-business-support-waste-management-services/administrative/telemarketing-call-centers.html.

15 CaptionCall, LLC, Ex Parte Filing, *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities and Misuse of Internet Protocol (IP) Captioned Telephone Service*, CG Docket Nos. 03-123 and 13-24, October 30, 2017, accessed November 6, 2017, https://ecfsapi.fcc.gov/file/1030247366428/2017-10-30%20CaptionCall%20Ex%20Parte.pdf.

In its analysis, Consortia calculated what the price cap rate would have been in 2013 had it been in place. We have continued that calculation through the 2016-2017 rate-year to understand how a price cap rate would have evolved if the price cap method discussed by Hamilton had been implemented.[16] See Table 2. There is a small divergence between the hypothetical price cap rate and the actual MARS rate. This difference is likely the result of using a productivity factor of zero, when in reality, the factor should be negative.

Table 2: Comparison of MARS Rate and Price Cap Using GDPPI as an Inflation Measure, 2011-2012 to 2016-2017

Year	MARS Rate	Inflation Rate (GDPPI)	Price Cap
[1]	[2]	[3]	[4]
2011-2012	$ 1.7630	1.98%	$ 1.7110
2012-2013	$ 1.7730	1.75%	$ 1.7409
2013-2014	$ 1.7877	1.70%	$ 1.7705
2014-2015	$ 1.8205	1.44%	$ 1.7960
2015-2016	$ 1.8895	1.11%	$ 1.8159
2016-2017	$ 1.9058	1.57%	$ 1.8445

Sources: U.S. Bureau of Economic Analysis, "Gross Domestic Product: Chain-Type Price Index (GDPCTIPI)," FRED, Federal Reserve Bank of St. Louis, September 28, 2017, accessed October 12, 2017, https://fred.stlouisfed.org/series/GDPCTPI; Dan Davis and Edit Kranner, "Economic Analysis of the IP CTS Rate Methodology," Consortia Consulting, November 4, 2013, accessed October 12, 2017, https://ecfsapi.fcc.gov/file/7521319403.pdf; Order, *In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities and Structure and Practices of the Video Relay Service Program*, CG Docket Nos. 03-123 and 10-51, FCC, June 30, 2014, p. 1, accessed October 12, 2017, https://apps.fcc.gov/edocs_public/attachmatch/DA-14-946A1.pdf; Order, *In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities and Structure and Practices of the Video Relay Service Program*, CG Docket Nos. 03-123 and 10-51, FCC, June 30, 2015, p. 1, accessed October 12, 2017, https://apps.fcc.gov/edocs_public/attachmatch/DA-15-774A1.pdf; Order, *In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities and Structure and Practices of the Video Relay Service Program*, CG Docket Nos. 03-123 and 10-51, FCC,

[16] Note that we use GDPPI as an inflation measure to be consistent with the price cap method previously discussed by Hamilton. Dan Davis and Edit Kranner, "Economic Analysis of the IP CTS Rate Methodology," Consortia Consulting, November 4, 2013, pp. 4-5, accessed October 12, 2017, https://ecfsapi.fcc.gov/file/7521319403.pdf. We do not necessarily endorse GDPPI as the most appropriate measure of inflation. In order to establish the most appropriate measure of inflation, a statistical study would be necessary to determine the measure that most closely tracks input costs in the provision of IP CTS.

June 30, 2016, p. 1, accessed October 12, 2017, https://apps.fcc.gov/edocs_public/attachmatch/DA-16-750A1.pdf; and U.S. Government Accountability Office, "Telecommunications Relay Service - FCC Should Strengthen Its Management of Program to Assist Persons with Hearing or Speech Disabilities," GAO-15-409, April 2015, Data Table for Figure 6, p. 54, accessed July 20, 2017, http://www.gao.gov/assets/680/670005.pdf.

Notes: Per Consortia's methodology, calculations assume no exogenous change and a productivity factor of 0.

[1]: Year covered by rate.

[2]: Actual MARS rate for [1].

[3]: Average percent change from previous year of Gross Domestic Product: Chain-Type Price Index (GDPPI) for [1].

[4]: For 2011-2012, $1.7110 was calculated by Consortia. For each subsequent year, [4] from the previous year * [3].

Although material efficiency gains are likely not possible in the foreseeable future, it is possible at some point in time that automatic speech recognition ("ASR") will partially or wholly replace human CAs. If that ASR technology is less costly than CA labor, it will represent a material change in efficiency. However, we understand that ASR technology is not currently advanced enough to be used directly by callers and instead relies on speech input by CAs. We also understand that ASR technology will not be advanced enough to both eliminate the need for all CAs in the near future and maintain quality standards that are acceptable to consumers of the service. It is conceivable that ASR will advance to be useful for a subset of calls that will grow over time.[17] Nevertheless, the initial switch to ASR will represent a discrete, sudden, and likely substantial change in efficiency. The efficiency factor in a price cap rate method is not designed for the abrupt and potentially dramatic change that would result from the sudden elimination of human CAs in the production process; rather, it is designed to account for gradual changes in efficiency.

Attempting to use an efficiency factor to adjust for an anticipated abrupt change in efficiency will magnify the ill-effects of prediction errors around the timing of efficiency gains. This is because such an efficiency factor can cause an automatic and precipitous drop in rates in anticipation of a precipitous reduction in costs at a given point in time. If the reduction in cost is delayed for any reason (*e.g.*, ASR technology proves more challenging to develop than was predicted), providers will likely suffer operating losses and exit the market, resulting in systemic market failure. In short, an efficiency factor is not the appropriate tool to account for large and abrupt changes in efficiency. A more reasonable and less perilous approach would be to

[17] This is based on discussions with Hamilton.

periodically recalibrate the price cap rate to account for market changes not captured by inflation and efficiency factors. However, such recalibration should take place on a predictable interval and have reasonable limits on the degree and speed at which rates can change in order to maintain provider incentives and market stability.

Another important consideration when implementing a price cap rate is the starting point—the initial rate that will subsequently be adjusted by the price cap formula. Regardless of how accurate the production and inflation factors are, a price cap formula that begins with an inefficient rate will likely continue down a path of inefficiency. Because MARS is a market-based rate, it is likely efficient and a suitable point of departure. However, it is important to use a MARS rate that reflects *current* market conditions; hence, the current MARS rate is appropriate. A multiyear average can also be used to hedge against concerns of anomalous single-year rates. However, averaging must be done in a way that accounts for economic conditions that change over time. The appropriate method for calculating a multiyear average would be to adjust rates from previous years to reflect inflation and weight years by projected IP CTS demand in minutes to reflect changes in scale. For example, the inflation-adjusted, minute-weighted average MARS rate between rate-year 2014-2015 and rate-year 2017-2018 is $1.9365.[18]

It should also be noted that implementing a tiered rate system in conjunction with a price cap (or in conjunction with any of the rate structures currently under consideration) would be inappropriate. The intention of a tiered rate is to subsidize small-scale, high-cost providers so that they may grow and eventually compete with larger providers. Competition is essential for a healthy market and should be encouraged by regulators in order to stimulate innovation and drive costs down. However, a tiered rate system is an inefficient and likely ineffective way to encourage competition. There are two reasons for this.

First, the cost efficiencies that come with scale are complex, which makes it difficult from an external regulatory perspective to choose an appropriate point of transition between tiers. If the

---

[18] U.S. Bureau of Economic Analysis, "Gross Domestic Product: Chain-Type Price Index (GDPCTIPI)," FRED, Federal Reserve Bank of St. Louis, September 28, 2017, accessed October 19, 2017, https://fred.stlouisfed.org/series/GDPCTPI; Interstate TRS MARS Rate Adoption Orders, In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities and Structure and Practices of the Video Relay Service Program, CG Docket Nos. 03-123 and 10-51, FCC, 2014-2017; and Rolka Loube Annual Reports, 2014-2017.

chosen transition point does not properly reflect the complex economies of scale for each provider, the system will either fail to spur competition or wastefully over-subsidize providers. Adding to this challenge is the fact that the markets may fluctuate over time and change the relationship between scale and costs.

The second reason that a tiered system would be inefficient is that even if the tiers properly reflect the complex economies of scale, the system would subsidize inefficient providers without discerning their ability to eventually become efficient. That is, poorly-operated providers that would have been forced out of an efficient market would be allowed to remain in the market and perpetually receive subsidies to do so. In effect, a tiered system circumvents the market forces that would otherwise drive provider efficiency.

It is not necessary to implement a tiered system in order to support small providers. Small providers can be supported through capital markets if prospective investors in those small providers can eventually realize reasonable and stable returns. Allowing small providers to be supported by capital markets rather than regulated subsidization has the added benefit of discernment. That is, because of investors' incentives to properly scrutinize potential investments, capital would likely flow away from poorly-operated providers and towards efficient providers.

IV. Discussion

In order to ensure the long-term viability and sustainability of any regulated market, firms in that market must be allowed to generate non-negative economic returns. That is, a firm must be able to cover all of its costs (operating costs and non-operating costs) and generate a fair return. If a firm believes it will generate negative economic returns, it will leave the market and allocate its resources to a more profitable activity.

The Americans with Disabilities Act of 1990 requires the FCC to ensure that citizens who are deaf or hard of hearing are capable of communicating in a manner that is functionally equivalent to the ability of a hearing individual.[19] In order to fulfill this mandate, it is necessary to, among

[19] Telecommunications Services for Hearing-Impaired and Speech-Impaired Individuals, 47 U.S.C. § 225(a)(3) (2010).

other things, compensate CTS providers at rates that will maintain a healthy, sustainable level of competition. The MARS rate is based on actual market competition at the state level and has proven capable of maintaining this level of competition, while providing quality service to users and remaining relatively stable. Although the basis upon which MARS is calculated—intrastate non-IP CTS—has declined, data suggest that there remains a core segment of the population who do not use the Internet and do not wish to do so. Moreover, our analysis implies that non-IP CTS intrastate rates are a fair proxy for what would be the market rate in IP CTS, due to the cost parity between the two.

If IP CTS providers cease to be compensated at a market-based rate, the next best option is likely a price cap rate based on historical MARS rates. Such a price cap rate would have substantial pitfalls compared to a market-based rate; nevertheless, it is superior to a cost-based rate, which would embody all of the pitfalls of a price cap in addition to disincentivizing cost-cutting innovations. When setting a price cap rate, it is important to start from an efficient rate and to avoid productivity factors that misrepresent the opportunities for gains in productivity for the specific industry.

BOSTON
NEW YORK
SAN FRANCISCO
WASHINGTON
TORONTO
LONDON
MADRID
ROME
SYDNEY

THE Brattle GROUP