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July 16, 2020

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 July 14, 2020, the following representatives of Hamilton Relay, Inc. ("Hamilton") spoke by telephone with Michael Carowitz, Special Counsel to Chairman Ajit Pai: Dixie Ziegler and Beth Slough of Hamilton; Coleman Bazelon, Brent Lutes, and Ben Thesing of The Brattle Group (economic consultants to Hamilton) ("Brattle"); and the undersigned counsel on behalf of Hamilton. During the meeting, Hamilton discussed its proposed rate methodology for Internet Protocol Captioned Telephone Service ("IP CTS"), and reviewed the analysis set forth in the attached report prepared by Brattle.[1] In addition, the parties discussed the following.

The Commission Should Freeze the IP CTS Rate Until December 31, 2020 or the End of the 2020-2021 Fund Year

As an initial matter, Hamilton noted that under Chairman Pai the Commission has taken significant steps towards stabilizing the IP CTS program, including by broadening the TRS

[1] The attached report is a redacted version, which was also shared with Ms. Ziegler, Ms. Slough, and the undersigned, none of whom have signed the Acknowledgement pursuant to the Third Protective Order in this proceeding. Each Brattle participant has filed the Acknowledgement, and Brattle provided Mr. Carowitz with a confidential, unredacted version of the report. A confidential, unredacted copy of the report is being filed with the Secretary by Brattle. No confidential aspect of the filing was discussed during the meeting.

contribution base to include intrastate revenue.[2] In addition, the Commission has imposed on IP CTS providers two rate cuts of ten percent each since 2018, and sought comment on proposals to adopt a new, permanent IP CTS rate methodology. In the interim, Commission staff elected to freeze the IP CTS compensation rate until September 30, 2020 while the staff assesses cost and demand issues related to the ongoing COVID-19 pandemic.[3]

The *Rate Freeze Order* notes that the pandemic has substantially increased the demand for IP CTS, both in terms of call volume and call length, and has likely increased provider costs.[4] However, these costs are not yet reflected in provider reports that the TRS Fund administrator uses to estimate average cost and demand for IP CTS. Accordingly, Commission staff instructed all providers to submit additional cost data to the TRS Fund Administrator no later than August 1, 2020.[5] Hamilton has been complying with the timelines prescribed by the TRS Fund Administrator for this purpose. However, Hamilton notes that there are still many unknowns about this pandemic, and it remains difficult to accurately project the impact and length of the economic fallout caused by the pandemic.

The *Rate Freeze Order* also notes that data uncertainties will complicate the Commission's task of adopting a compensation methodology and rates that align with the reasonable costs of providing IP CTS.[6] Hamilton agrees. Given all of the uncertainty at this time, Hamilton believes that the most prudent step for the Commission to take would be to extend the IP CTS rate freeze until the end of the year, if not the end of the 2020-2021 Fund Year.[7] Rate certainty for at least the remainder of the year is essential to ensure that providers can plan expenditures and focus on serving consumers during this time without concern for any potentially destabilizing rate change.

This is particularly the case as we move into the fall season, which is historically the time of year that IP CTS providers experience increased call volumes. Combined with already high call volumes due to the pandemic, there is a risk that a substantial rate change would be extremely difficult for the industry to absorb.

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[2] *Misuse of Internet Protocol (IP) Captioned Telephone Service; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Report and Order, 34 FCC Rcd 11265 (2019).

[3] *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities; Structure and Practices of the Video Relay Service Program*, Order, DA 20-570 (CGB May 29, 2020) ("*Rate Freeze Order*").

[4] *Id.* ¶ 5.

[5] *Id.* ¶ 10.

[6] *Id.* ¶ 6.

[7] Hamilton recognizes that it has previously proposed these dates, and that this proposal was rejected by staff in lieu of September 30, 2020. *Id.* ¶ 9. However, given the ongoing crisis, which has only increased in severity since the *Rate Freeze Order* was adopted in May, Hamilton requests that the Commission reconsider Hamilton's proposed extension dates.

For all of these reasons, Hamilton believes that an extension of the rate freeze beyond September 30, 2020 is essential.

At the Appropriate Time, the Commission Should Adopt a 4-Tiered Rate Methodology, with Price Caps Within Each Tier

Hamilton nonetheless remains committed to helping the Commission and industry stakeholders implement a reasonable, permanent rate methodology when market conditions permit. Accordingly, during the meeting Hamilton discussed its proposal for a permanent IP CTS rate methodology. Hamilton noted that in February 2020 a majority of IP CTS providers, including Hamilton, submitted a joint letter supporting the adoption of a 4-tiered permanent rate methodology.[8] No other rate methodology proposal has similar support.

Hamilton noted that, as part of analyzing the appropriate rates within each of the four tiers, the Commission should take a holistic view of the IP CTS marketplace, rather than the costs of any single provider. To that end, Hamilton's proposed tiered rates, which include price caps within each tier, are more reflective of broader IP CTS industry costs.

As further discussed in the Brattle report, under Hamilton's proposal, at the end of every rate year for the first four years, the rates within each tier would be: (i) decreased by an X-factor of -0.9% to reflect real efficiency gains; and (ii) adjusted to reflect year-over-year inflation as measured by the Gross Domestic Product: Chain-type Price Index ("GDPPI"). After four rate years, the base rates within each tier and the X-factor would be recalibrated to reflect realized costs and efficiency gains.[9]

Finally, Brattle noted that the data relied on its report is of necessity not reflective of any cost increases related to the pandemic.

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[8] Letter from Michael Strecker, ClearCaptions, LLC; Dixie Ziegler, Hamilton Relay, Inc.; Scott R. Freiermuth, Sprint Corporation, and Cristina Duarte, InnoCaption; to Marlene H. Dortch, Secretary, FCC, CG Docket Nos. 13-24 & 03-123 (filed Feb. 20, 2020). The parties to the filing universally support the same tier breaks but differ on the proposed rates within those tiers. *Id.* at 2. This filing reiterates that the Commission should adopt a permanent IP CTS rate methodology using those four tier breaks and a price-cap approach within each tier.

[9] See attached Brattle report, at 9.

This filing is made in accordance with Section 1.1206(b)(1) of the Commission's rules, 47 C.F.R. § 1.1206(b)(1). 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.

Enclosure

cc (via email): Michael Carowitz, Diane Burstein, Eliot Greenwald, Michael Scott, William Wallace, Eric Ralph, Jeffrey Prince, Virginia Metallo, Susan Lee, Andrew Mulitz, David Schmidt

IP CTS Costs and Reimbursement Rates

(Redacted – for Public Inspection)

PREPARED FOR

Hamilton Relay

PREPARED BY

Coleman Bazelon, PhD

Brent Lutes, PhD

July 14, 2020

THE Brattle GROUP

Notice

This white paper reflects the perspectives and opinions of the authors and does not necessarily reflect those of The Brattle Group's clients or other consultants. However, we are grateful for the valuable contributions of many consultants of The Brattle Group. Where permission has been granted to publish excerpts of this white paper for any reason, the publication of the excerpted material must include a citation to the complete white paper, including page references.

Table of Contents

I. Introduction

1. The Federal Communications Commission ("FCC" or "Commission") is currently considering options for a permanent reimbursement rate structure for internet protocol captioned telephone service ("IP CTS").[1] We have previously provided analyses and discussion on this topic through reports submitted in the record and conversations with Consumer and Governmental Affairs Bureau ("CGB") staff and FCC Commissioners' staff.[2] For instance, in a 2017 whitepaper we discussed the economic logic of retaining the mechanisms underlying the Multistate Average Rate Structure ("MARS"). The Commission concluded that the rates produced by MARS were not consistent with the Commission's mandate with respect to the Telephone Relay Service ("TRS") program.[3]

2. For that reason, we proposed a single rate price cap methodology as the best alternative to a market-based rate structure such as MARS. This is because a price cap effectively divorces reimbursement rates from short run costs, thereby disincentivizing excessive costs (so called "gold plating") and incentivizing innovation. Although a single rate price cap methodology provides efficient long-term dynamic incentives for reducing provision costs, the Commission has expressed concern insofar as a *single* rate (as opposed to tiered rates) may necessitate a rate that is too high, at least for some providers, in the short-term. While tiered rates can be economically inefficient, we recognize that the Commission must balance long-term efficiencies with short-term rates that are sustainable under the current financial structure of the TRS program and consistent with the Commission's mandate.

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[1] *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities; Structure and Practices of the Video Relay Service Program; Misuse of Internet Protocol (IP) Captioned Telephone Service*, CG Docket Nos. 03-123, 13-24.

[2] Coleman Bazelon and Brent Lutes, "Telecommunications Relay Services for Individuals who are Deaf or Hard of Hearing," August 30, 2017; Coleman Bazelon, Brent Lutes, and Patrick Holder, "Economic Analysis of IP CTS Provision Costs and Rate Setting," November 8, 2017; Coleman Bazelon, Brent Lutes, and Patrick Holder, "Economic Analysis of Subcontractor Fees Paid by Hamilton Relay," November 10, 2017; Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed May 2, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 15, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed March 6, 2020).

[3] IP CTS Modernization and Reform, 47 CFR Part 64, CG Docket Nos. 13-24 and 03-123; FCC 18-79, effective July 27, 2018, (petition for reconsideration pending), https://www.govinfo.gov/content/pkg/FR-2018-06-27/pdf/2018-13753.pdf.

3. For that reason, in June of 2019 we discussed a potential tiered solution with CGB staff that was designed to achieve a target average reimbursement rate while maintaining some of the efficiency of a price cap rate methodology.[4] Additionally, we have also discussed adjusting other tiered rate proposals to be more consistent with market data.[5]

4. In addition to the rate methodologies we have proposed on behalf of Hamilton, we have also analyzed the proposals put forth by other providers. Notably, CaptionCall has proposed reverse auction and price cap methodologies,[6] and InnoCaption and ClearCaptions have proposed tiered rate methodologies.[7] We have previously discussed these proposals,[8] and therefore do not discuss them further in this paper. However, for convenience, Table 1 below provides a summary of the likely TRS Fund requirements associated with all active rate proposals.

Table 1: 2019-2020 Summary of IP CTS Price Cap, Tiered Rate, and Auction Based Rate Proposals

	Provider	Proposal Type	Average Rate	Total Fund Requirement (MM)
[1]	CaptionCall	Reverse Auction	$1.45 - $1.70	$847 - $993
[2]	CaptionCall	Price Cap	$1.75	$1,023
[3]	ClearCaptions	Tiered Rates	$1.44	$842
[4]	InnoCaption	Tiered Rates	$1.36	$796
[5]	Hamilton	Price Cap	$1.95	$1,138
[6]	Hamilton	Two-Tier Rates	$1.58	$923
[7]	Hamilton	Adjusted ClearCaptions Proposal	$1.62	$946

Sources and Notes:

Total fund requirement equal to the average rate x total industry demand in 2019-2020.

[1]: CaptionCall, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed September 19, 2019), Appendix A. This estimate is based on assuming that bidders' uncertainty

4 The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019).

5 The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 15, 2019).

6 CaptionCall, LLC, Comments of CaptionCall, LLC, CG Docket Nos. 03-123 and 13-24, (filed September 17, 2018).

7 ClearCaptions, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 25, 2019); MezmoCorp (dba InnoCaption), Notice of Ex Parte Filing, CG Docket Nos. 03-123 and 13-24 (filed March 8, 2019).

8 Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed May 2, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 15, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed March 6, 2020).

about other bids are 10% of each firms' costs. The point estimate for the winning bid is $1.58. This is $0.09 lower than our reported Average Rate in Brattle's March 6, 2020 Ex Parte slide presentation due to an adjustment in the model inputs.

[2]: Comments of CaptionCall, LLC, CG Docket Nos. 03-123 and 13-24, (filed September 17, 2018), Section VI.

[3]: ClearCaptions, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 25, 2019), slide 13.

[4]: MezmoCorp (dba InnoCaption), Notice of Ex Parte Filing, CG Docket Nos. 03-123 and 13-24, (filed May 6, 2019).

[5]: Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, p. 18.

[6]: The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019).

[7]: The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 15, 2019).

5. Ultimately, we support implementing a tiered rate structure in conjunction with a price cap mechanism for adjusting rates over time. Although a tiered rate structure can be economically inefficient, as we have discussed in previous whitepapers,[9] we recognize that such a structure may serve other Commission objectives beyond long-run economic efficiency. That is, a tiered rate structure can avoid short-term over payments to large, low-cost providers. Instituting a price cap mechanism for the progression of tiered rates over time will incentivize providers to cut costs, as they will directly benefit from doing so.

6. An **adjusted version** of ClearCaptions' proposed tiered rates, as we have previously discussed with the Commission,[10] is a reasonable initial set of rates (these rates are reported in Section III). Moreover, it is reasonable to annually adjust these rates up by a measure of inflation and down by an efficiency factor ("X-factor") of -0.9%.[11] However, it may not be appropriate to apply this rate structure to IP CTS that utilizes automated speech recognition ("ASR") without the involvement of a captioning assistant ("CA").

7. In the remainder of this paper we discuss necessary considerations when constructing a price cap methodology in Section II, and in Section III we provide details of our proposed rate structure and demonstrate how the Commission may systematically recalibrate the rate in the future.

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[9] Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, Section V.

[10] Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed May 2, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 15, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed March 6, 2020).

[11] See Section III.B for details on how this value was determined.

II. Considerations when Constructing a Price Cap Rate

8. In constructing a price cap rate structure, whether a single price or tiered pricing, regulators must choose an initial rate (or rates) for the first period in which a price cap is employed. This rate (or rates) should be the most accurate representation possible of a rate that leads to a fair return to the service provider, and it should not in itself be viewed as a mechanism to drive future efficiency. One of the primary economic goals of a price cap rate is to elicit information on cost efficiencies that regulators would not otherwise be able to observe. This information is revealed through the actions of providers over the price cap period. Hence, at the time the initial rate is set, no new information on efficiency has been revealed to regulators. The initial rate should be set low enough such that it does not substantially overcompensate providers and high enough such that it does not cause a structural change in the market. The efficiency-enhancing incentives will result from the predictable rates that are divorced from costs.

9. It may be appropriate to choose an initial rate based on some measure of current industry-wide provision costs, so long as those costs 1) represent a full and accurate accounting of all provision costs to include such things as applicable overhead;[12] 2) do not push providers out of the market, thereby disrupting the market structure; and 3) leave room for any volatility or uncertainty that may relate to provision costs.

10. Once an initial rate is determined, the Commission must then carefully construct an X-factor, which reduces the reimbursement rate by a predetermined amount each year to account for anticipated efficiency gains. In constructing the appropriate X-factor several issues should be considered. The first of which is that, outside of recalibration periods, the X-factor must be decoupled from providers' realized provision costs. If the X-factor were to be linked to realized costs, then the price cap rate would, for all intents and purposes, be equivalent to a cost-based rate. This would negate providers' incentives to cut costs and reap the gains created and therefore undermine the goals of the price cap methodology. The information

[12] It is important to note that current measures of provision costs likely do not meet this criteria, as they are not a full accounting of costs. Notably, the iTRS Advisory Council, endorsed by the Fund Administrator, recognizes that current cost reporting is not a full accounting of provision costs. Rolka Loube, Ex Parte Comments, CG Docket Nos. 03-123 and 13-24, at 3 (filed December 4, 2018), https://ecfsapi.fcc.gov/file/1204051341584/Ex%20Parte%20iTRS%20Council%20Comments%20FCC%2018-79.pdf. For further discussion see, Coleman Bazelon, Brent Lutes, and Patrick Holder, "Economic Analysis of Subcontractor Fees Paid by Hamilton Relay," November 10, 2017; Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, pp. 31-35; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed March 6, 2020).

gained by regulators with respect to cost efficiencies should be taken into account only during predetermined recalibration periods.

11. Another issue to consider when constructing an X-factor is that the X-factor should reflect a *reasonable* expectation of future efficiency gains. Being overly aggressive risks being counterproductive. A price cap methodology locks in a reasonably expected amount of efficiency gains, but creates incentives for providers to exceed those expectations by allowing them to capture the benefits of any greater efficiency gains. It is intended to allow providers to retain a portion of the short-run gains from their efficiency enhancing activities. The purpose of the X-factor is to capture the remainder of those gains and redistribute them to the payers. It is unlikely that regulators have enough information to perfectly set the X-factor to capture all of those gains. Indeed, if such information were available, a price cap methodology would not be necessary – rates could just be set by the regulator.

12. Because it is unlikely that regulators can set an X-factor *ex ante* that perfectly reflects *ex post* realized efficiency gains, it is important to understand the relative consequences of selecting an overly aggressive X-factor versus setting an under-aggressive X-factor. If the X-factor is lower than realized efficiency gains (under-aggressive), the result will be that providers retain higher short run earnings than intended. However, such issues can be addressed in the recalibration period, which will prevent any long-run ill effects. In contrast, if the X-factor is higher than realized efficiency gains (over-aggressive), providers will become unprofitable and at some point exit the market. This damage to the market structure is unlikely to be rectified in the recalibration period. Indeed, events in the IP Relay market suggest that the damage caused by over-aggressive rate reductions may never be repaired.[13] Because the long-run consequences of being overly aggressive in setting an X-factor exceed those of being conservative, it would be rational to err on the side of setting a conservative X-factor. Ultimately, it is important that an X-factor not be aspirational, but rather reflect a realistically achievable path of efficiency gains.

13. When constructing the X-factor, it is also important to recognize that it is not intended to account for monumental or unpredictable shifts in efficiency. The effects of such shifts can be accounted for *ex post* through the recalibration process further discussed below, or they can be mitigated *ex ante* by compartmentalizing anticipated monumental shifts. For example, if the IP CTS market is treated as one cohesive market, including both future ASR-only calls and CA-assisted calls, it may be difficult to set an appropriate X-factor. This is due to the potentially unpredictable efficiency gains that may be driven by ASR. Moreover, since ASR has the potential to cause substantial shifts in efficiency, the ill effects of employing an inappropriate X-factor may be amplified. Relying on an underestimated X-factor will result in substantial over-payment to providers as they realize the efficiency gains of ASR faster than anticipated, while relying on an overestimated X-factor will result in providers

[13] Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, Section II.C.

incurring substantial losses as they realize the efficiency gains of ASR slower than anticipated. A natural way to mitigate this issue is to have separate and unrelated rates for ASR-only calls and CA-assisted calls. This would allow regulators to take advantage of the predictability of efficiency gains on the CA-assisted side while limiting the risk exposure that stems from the unpredictable efficiency path of ASR technology to only the ASR side of the market.

14. Another consideration when constructing a price cap methodology relates to how exogenous costs should be treated. Exogenous costs are typically thought of as costs outside the control of providers. However, in the context of a price cap rate methodology, a slightly narrower definition is required. This is because some costs that would otherwise be considered exogenous are captured by other elements of the rate methodology.[14] Hence, for the purposes of a price cap methodology, exogenous costs may be better thought of as those costs that are outside the control of providers *and* not effectively accounted for through other components of the methodology. Within that definition, exogenous costs can be further categorized as one-time exogenous costs and recurring exogenous costs.[15]

15. From an economic perspective, there is not a generalized answer as to whether exogenous costs should be compensated on top of the price cap rate or if they should be anticipated and incorporated into the price cap rate.[16] Exogenous costs will ultimately be borne by the payers, whether that is through the separate direct compensation of exogenous costs plus the associated opportunity cost,[17] or through increased price cap rates that include the

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[14] For example, the economy-wide average wage rate may increase, thus requiring providers to increase their labor expenditures. This may be thought of as an exogenous cost; however, it is also a component of inflation. So long as inflation is independently accounted for (*e.g.*, not linked to the X-factor) in the price cap methodology, it may be inappropriate to count increased wages as an exogenous cost.

[15] With this definition of exogenous costs, the current SARS-CoV-2 pandemic may be thought of as a source of exogenous cost under the assumption that pandemic-related costs were not anticipated when setting reimbursement rates and are not permanent.

[16] Of course, if exogenous costs are not separately compensated, the price cap rate must be high enough to compensate for expected (average) exogenous costs and an appropriate risk premium, in addition to an appropriate margin. We note that current rates may be intended to cover some portion of exogenous costs. This is because the Commission requires that allowable exogenous costs must cause total costs plus an appropriate operating margin to exceed revenues before such exogenous costs can be reimbursed. The implication of this requirement is that there may (or should) be some buffer for exogenous costs built into the rate. These reimbursement guidelines for exogenous costs are economically sound as long as 1) it is clear what the minimum operating margin should be; and 2) the reimbursement requirement is applicable to the aggregate of all exogenous costs, not just to individual exogenous costs. See FCC 17-86, CG Docket Nos. 10-51 and 03-123, July 6, 2017 ¶66; FCC 19-11, CG Docket Nos. 13-24 and 03-123, February 15, 2019, ¶26.

[17] Note that in addition to reimbursing providers for explicit exogenous costs, it is also necessary to reimburse them for the associated implicit costs. This is because a provider, in diverting its capital away from otherwise productive uses in order to cover exogenous IP CTS provision costs, must either forego

expectation of exogenous costs, the appropriate opportunity cost, and the appropriate risk premium.[18] The question of whether exogenous costs in this instance should be paid for separately or included in the price cap rate depends on which group (providers or payers) is situated to most efficiently bear that risk. That is, it depends on if the additional cost associated with the risk (the risk premium) is smaller when the risk is borne by providers or when it is borne by payers.

16. Because payers are a more dispersed and diversified group than providers, economic intuition implies that payers may be better able to efficiently bear the direct risk. Given that, it would be less costly to the TRS Fund for providers to be reimbursed separately for exogenous costs than it would be to build an allowance for average exogenous costs plus a risk premium into the rate. However, to the extent that an exogenous cost begins to recur with predictable regularity, it may be appropriate to adjust rates during the recalibration period to reflect such costs in order to simplify the reimbursement process.

17. Finally, in constructing a price cap rate structure, the Commission must consider periodic recalibrations. As previously discussed, regulators may not have enough information to set the X-factor in a way that perfectly corresponds to a reasonable expectation of efficiency gains. Allowing for recalibration at predetermined intervals provides regulators a chance to use the information revealed by providers to correct the rate path. This is not to suggest that the X-factor or base rate will always need to be corrected. If regulators set an X-factor that accurately reflected and continues to reflect the rate of efficiency gains, there may be no reason to recalibrate it. Likewise, depending on how exogenous costs are treated, there may be no reason to adjust the base rate if the rate at the time of recalibration appropriately reflects costs and a reasonable rate of return.[19]

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the earnings that it would have realized in the absence of exogenous IP CTS provision cost, or incur the cost of acquiring additional capital. Applying an appropriate margin to the reimbursable exogenous costs will, in principal, defray a provider's opportunity cost. It is also important to note that failing to reimburse providers for the opportunity cost associated with exogenous costs will effectively reduce a provider's margin relative to its capital expenditures, therefore making IP CTS a less attractive business opportunity for providers.

[18] The risk premium is the additional cost that stems, not directly from the exogenous costs themselves, but from ex-ante uncertainty with respect to the ex-post, realized level and variation in exogenous costs. If an allowance for expected exogenous costs is built into the price cap rate, payers do not directly bear the risk; instead providers bear the risk associated with realized exogenous costs differing from the allowance, and such risk imposes a cost on providers (the risk premium). Payers must compensate providers for this risk premium. Alternatively, if exogenous costs are reimbursed on top of the price cap rate, payers will directly bear the risk of uncertainty and variability in realized exogenous costs. However, since providers are not bearing this risk, payers need not reimburse providers for the risk premium. Nevertheless, there is an implied internal cost faced by payers related to the risk.

[19] If exogenous costs are incorporated into the base rate, then the base rate will clearly need to be periodically adjusted to accurately reflect expectations. If exogenous costs are compensated for separately, they would likely not factor into the recalibration of the base rate.

18. Irrespective of whether recalibration is ultimately enacted, the opportunity for recalibration should only be presented at predetermined times with sufficiently large intervals between changes. To incentivize providers to engage in potentially costly efforts to increase efficiency, rates need to be stable and predictable so that providers will be assured some reward for those efforts. The ability to unexpectedly recalibrate rates undermines the stability and predictability of rates and discourages providers from engaging in efficiency enhancing investments.

19. Similarly, it is necessary to have a sufficiently long time period between recalibrating rates in order for the price cap method to elicit efficiency enhancing behavior. This is because if rates are too quickly recalibrated based on providers' costs, then the price cap rate will devolve into a cost-based rate. Providers will realize that any earnings from the efficiency they are able to gain will simply be recalibrated away in the near future. The exact interval between recalibration periods should be based on the trade-off between incentivizing further efficiency gains in the long-term and reallocating the gains from realized efficiency to payers in the short-term. Longer intervals between recalibration periods will strengthen the incentives of providers to cut costs, as they can reap the benefits of doing so for longer. This may also delay the redistribution of some of those gains to payers. Alternatively, a shorter interval between recalibration periods will weaken providers' incentives to cut costs, but will also result in the gains from efficiencies being redistributed to payers more quickly. In sum, the trade-off is between potentially higher cost savings that are transferred to payers later versus lower costs savings that are transferred to payers earlier. While the optimal interval depends on a number of factors that may not be observable to regulators, intervals of three to five years are likely reasonable.[20]

[20] For example, the majority of U.S. states utilized price cap regulation in 2003 and typically employed recalibration periods of between four and five years. See David E.M. Sappington and Dennis L. Weisman, "Price cap regulation: what have we learned from 25 years of experience in the telecommunications industry?" *Journal of Regulatory Economics* 38 (2010): 233-234, accessed November 13, 2018.

III. Hamilton and Brattle's Proposed Four-Tiered Price Cap Rate Methodology

20. We have proposed a four-tiered price cap rate methodology such that:[21]

    a. Providers are reimbursed for the number of monthly minutes that fall within each tier given the reimbursement rate associated with each tier;[22]

    b. The tier breakpoints are those proposed by ClearCaptions and reported in Table 2 below;

    c. The initial reimbursement rates within each tier reflect the rates proposed by ClearCaptions after being adjusted to better represent broader industry costs (reported in Table 2 below);

    d. At the end of every rate year, rates within each tier are:

        i. Decreased by an X-factor of -0.9% to reflect real efficiency gains; and

        ii. Adjusted to reflect year-over-year inflation as measured by the Gross Domestic Product: Chain-type Price Index ("GDPPI");[23]

    e. After four rate years the base rates within each tier and the X-factor are recalibrated to reflect realized costs and efficiency gains.[24]

Table 2: Adjusted ClearCaptions' Proposed Tiered Structure

	Minute Threshold			Rate
Tier 1	0	to	3,500,000	$2.1869
Tier 2	3,500,000	to	7,000,000	$1.6052
Tier 3	7,000,000	to	10,000,000	$1.4014
Tier 4	10,000,000	>		$1.1686

Note: The tiers are the same as in ClearCaptions' proposal. Data for CaptionCall and InnoCaption at relevant values do not exist. Note that minutes are expressed monthly.

21. In the remainder of this section we discuss how we arrived at the appropriate values for the initial rates within each tier and the appropriate X-factor.

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[21] The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed March 6, 2020).

[22] To be clear, in a given month a provider will be reimbursed an amount equal to the number of minutes that fall in Tier 1 multiplied by the Tier 1 reimbursement rate, plus the number of minutes that fall in Tier 2 multiplied by the Tier 2 reimbursement rate, plus the number of minutes that fall in Tier 3 multiplied by the Tier 3 reimbursement rate, plus the number of minutes that fall in Tier 4 multiplied by the Tier 4 reimbursement rate.

A. Initial Rates

22. Our proposed initial rate is based on the tiered rates proposed by ClearCaptions after adjusting those rates to reflect the costs of the broader IP CTS market.

23. ClearCaptions proposed a tiered rate structure based on its "pro-forma opex curve."[25] In constructing its proposal, ClearCaptions estimated how its operating expenses may change with respect to provision volume in the future.[26] It then selected rates and tier breakpoints so that the average reimbursement rate would be between 8% and 12% above ClearCaptions' "pro-forma opex curve" at any given provision level. In that sense, ClearCaptions' proposed tiers are based on evidence of volume based cost changes, to the extent its "pro-forma opex curve" is constructed in a reliable manner.

24. The primary shortcoming of ClearCaptions' proposal is that it is based on the provision costs of a single provider (ClearCaptions), which are not necessarily representative of the costs of other providers.[27] Indeed, as we have previously discussed with the Commission,[28] provision costs vary across providers. However, it is important to note that the existence of cost differences does not necessarily indicate provider inefficiency. Cost differences may instead stem from product differentiation. The available evidence from MITRE and our own analysis suggests that providers are offering meaningfully differentiated services, with some providers

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[23] Inflation Factor for Year X = $\frac{GDPPI\ Value\ Year\ X}{GDPPI\ Value\ Year\ Y}$ where Year Y is the base year. Note this relies on GDPPI values for January of the years used in the calculation. For a discussion of GDPPI see Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, Section III.B; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019).

[24] See Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, Section III.B; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019).

[25] ClearCaptions, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 25, 2019), slide 10.

[26] ClearCaptions, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed November 25, 2019), slides 10-13.

[27] Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019.

[28] See Coleman Bazelon, Brent Lutes, and Patrick Holder, "Economic Analysis of Subcontractor Fees Paid by Hamilton Relay," November 10, 2017; Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, pp. 31-35; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019); The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed March 6, 2020).

focusing on captioning speed and other providers focusing on captioning accuracy.[29] Such differences in service characteristics are essential for true consumer choice; however, it is unlikely that the provision costs associated with one set of service characteristics will be the same as those associated with a different set of service characteristics. For that reason, basing rates on the costs of a single provider will favor the characteristics of that provider, thus crowding out providers with differing characteristics and effectively eliminating consumer choice. To mitigate this issue, we have adjusted ClearCaptions' proposed rates to reflect the costs of ClearCaptions, Sprint, and Hamilton (the providers for which appropriate data is available).

25. In order to make this adjustment we compared ClearCaptions, Hamilton, and Sprint's costs per minute at similar volume levels and similar points in time. We relied on Rolka Loube's confidential data from Exhibit 1-3.1 for ClearCaptions and Sprint, and internal cost data for Hamilton (note, data at appropriate volumes to make these comparisons for CaptionCall and InnoCaption is not currently available to us under the Third Protective Order). In particular, to make proper comparisons we identify per minute costs for Sprint and Hamilton at volumes similar to those of ClearCaptions in 2018-2019 and 2019-2020 rate years (see Table 3 below). We then adjusted all per minute costs to be in constant 2019 dollars. Next, we adjusted Sprint and Hamilton's cost per minute to reflect small differences in volume levels compared to *ClearCaptions*. This was done using an estimate of fixed cost and variable cost for both Sprint and Hamilton within the relevant volume range, as explained in the notes to Table 3. [30]

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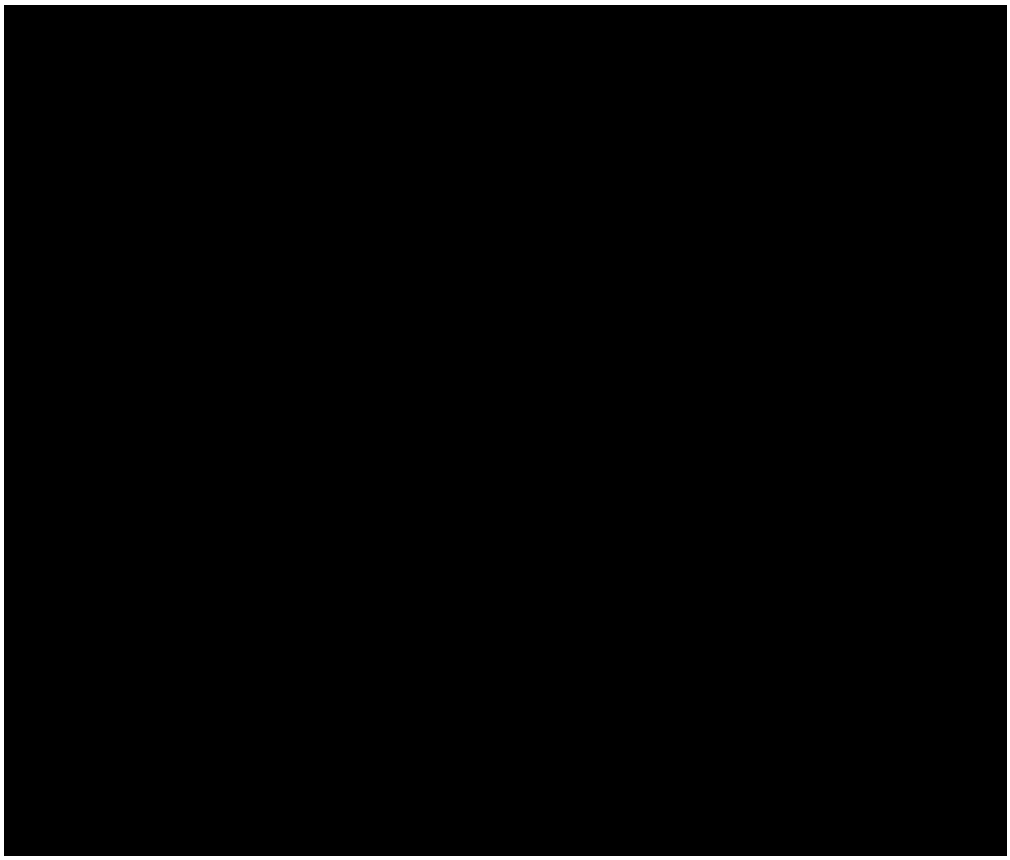
[redacted]

[29] The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed March 6, 2020), slides 8-10.

[30] Calculated as: $\frac{(ClearCaptions' \ Volume \ x \ Provider \ Variable \ Cost)+Provider \ Fixed \ Cost}{ClearCaptions' \ Volume}$



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26. The results of this analysis are reported in columns [3] and [4] of Table 3. Column [6] reveals that the average of ClearCaptions, Sprint, and Hamilton's cost curves is {{BEGIN HIGHLY CONFIDENTIAL [redacted] END HIGHLY CONFIDENTIAL}} Our adjustment to ClearCaptions' proposed rates reflects this difference. {{BEGIN HIGHLY CONFIDENTIAL [redacted] END HIGHLY CONFIDENTIAL}}

B. X-factor

27. An X-factor should reflect reasonable expected gains in cost efficiency over the time period in which the X-factor is to be applied. One method for predicting reasonable efficiency gains in the future is to use a measure of past efficiency gains. While taking a direct and precise measure of such efficiency gains may not be feasible, a measure of the change in real provision costs over time may be a reasonable proxy for efficiency gains.[31] Our proposed X-

[31] Note, changes in costs will reflect gains from both technological advancements and changes in production volumes over time, which may allow providers to capture economies of scale. Because the efficiencies from economies of scale are already accounted for by having multiple volume-based tiers,

factor of -0.9% is calculated using such an approach.[32] That is, it is calculated using the average year-over-year rate of change between 2017 and 2020. The remainder of this section provides details of those calculations.[33]

28. Our proposed X-factor is calculated using reported and anticipated provision costs for the calendar years 2017, 2018, 2019 and 2020.[34] In order to have a proper apples-to-apples comparison of costs across years, we adjust per-minute provision costs by a measure of inflation (*i.e.,* we convert figures from nominal provision costs to real provision costs). In particular, we use the GDPPI to calculate an inflation factor.[35]

29. An inflation factor is constructed using GDPPI data reported for January 1st between 2017 and 2019 and a forecasted inflation value for 2020.[36] The factor is calculated by dividing the GDPPI values for 2017, 2018, and 2020 by the value for 2019, which is the base year. Then, to obtain real costs for the industry, the inflation factor for each year is multiplied by the industry cost provided by Rolka Loube in that year. Table 4 below demonstrates these steps. Note that costs in row [1] of Table 4 represent only those costs reported by Providers to the Fund Administrator, and do not represent all provision costs.

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they need not be reflected in the X-factor. That is, in the case of a tiered rate structure, the X-factor should only reflect expected gains in technological efficiency and not gains in volume-based efficiency, in order to avoid double counting volume-based efficiency gains. However, because data is not available to parse these two components of efficiency, our proposed X-factor reflects both technological efficiency gains and volume-based efficiency gains, and therefore may be an overstatement of the relevant efficiency gains.

[32] Note that it is not appropriate to have a tier-specific X-factor. A tiered rate structure accounts for scale-related efficiencies. Therefore, in the case of a tiered rate structure, the X-factor is intended to capture only technological efficiency gains. It is unlikely that technological changes would occur that affect production costs in one tier, but not in other tiers, in a way that is not already captured by the tiered structure itself.

[33] For further details on calculation steps, see Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, Section III.C. For the calculation updated with 2020 numbers, see The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019).

[34] For prior discussions of the X-factor see Coleman Bazelon and Brent Lutes, "Economic Considerations of IP CTS Rate Structure and Methodology," March 27, 2019, Section III.C; The Brattle Group, Notice of Ex Parte, CG Docket Nos. 03-123 and 13-24, (filed June 17, 2019).

[35] U.S. Bureau of Economic Analysis, "Gross Domestic Product: Chain-type Price Index [GDPCTPI]," FRED, Federal Reserve Bank of St. Louis, updated April 26, 2019, accessed May 16, 2019, https://fred.stlouisfed.org/series/GDPCTPI.

[36] Note we rely on GDPPI data from April 2019 to remain consistent with our prior filings. As the GDPPI data is updated over time, the inflation factor input values may change and render a different X-factor.

Table 4: 2017 – 2020 Inflation Adjusted IP CTS Industry Costs

		2017	2018	2019	2020
[1]	Average Reported Per-Minute Costs	$1.3548	$1.3332	$1.3772	$1.3985
[2]	Raw GDPPI	107.23	109.35	111.38	
[3]	Inflation Factor	103.86%	101.86%	100.00%	97.85%
[4]	Inflation-Adjusted Costs	$1.4071	$1.3579	$1.3772	$1.3684

Sources and notes: The cost information above captures only those costs reported to Rolka Loube and deemed allowable by the Commission. These costs do not include items such as relay hardware and software used by the consumer, or other unreported costs.

[1]: Rolka Loube 2019 Annual Report, Exhibit 1-3.

[2]: U.S. Bureau of Economic Analysis, "Gross Domestic Product: Chain-type Price Index [GDPCTPI]," FRED, Federal Reserve Bank of St. Louis, updated April 26, 2019, accessed May 16, 2019, https://fred.stlouisfed.org/series/GDPCTPI.

[3]: 2019 GDPPI divided by 2017, 2018, 2019 respectively. For 2020, inflation factor is calculated using 2019's inflation factor divided by 100%*(1 + 2.2%). See Blue Chip Economic Indicators, March 10, 2019, p. 3 at "GDP Price Index."

[4]: [1] x [3].

30. After obtaining inflation-adjusted industry costs, we next measure the year-over-year percent difference in inflation-adjusted costs and then take the geometric mean of those differences,[37] as demonstrated in Table 5 below. This provides us with the average rate of change in costs, year-over-year (-0.9%), which we use as a proxy for the average rate of efficiency gains between 2017 and 2020. This is likely the best available predictor of future efficiency gains, and is therefore a reasonable X-factor.

[37] When averaging rates of change, it is appropriate to use a geometric mean rather than an arithmetic mean in order to account for compounding effects.

Table 5: Calculation of Proposed X-factor

	Year	Total Per-Minute Cost	% Change
		[A]	[B]
[1]	2017	$ 1.4071	
[2]	2018	$ 1.3579	-3.5%
[3]	2019E	$ 1.3772	1.4%
[4]	2020E	$ 1.3684	-0.6%
	Average % Change (X-factor)		
[5]	2017-2020E		-0.9%

Sources and notes: The cost information above captures only those costs reported to Rolka Loube and deemed allowable by the Commission. These costs do not include items such as costs of relay hardware and software used by the consumer, or other unreported costs.

[A][1]-[A][4]: Inflation-adjusted total per-minute IP CTS costs in 2019 dollars using GDPPI. See U.S. Bureau of Economic Analysis, "Gross Domestic Product: Chain-type Price Index [GDPCTPI]," FRED, Federal Reserve Bank of St. Louis, updated April 26, 2019, accessed May 16, 2019, https://fred.stlouisfed.org/series/GDPCTPI; Blue Chip Economic Indicators, March 10, 2019, p. 3. Note GDPPI data are from January 1 of each year and 2020 data are 2019 consensus projections.
[B][2]-[B][4]: Annual percent change in Total Per-Minute Cost.
[B][5]: ((1+[B][2]) x (1+[B][3]) x (1+[B][4]))^(1/3) - 1. Note that we use a geometric mean, which is the proper method for calculating average rates like this.

31. As discussed above, the -0.9% X-factor calculated in Table 5 would be used annually to scale down the reimbursement rates in all tiers as is demonstrated using hypothetical data in Table 6 below. Note that although real rates necessarily decrease year-over-year, nominal rates can increase or decrease depending on the level of inflation in a given year. If inflation is less than the X-factor in absolute terms, nominal rates will decrease (as demonstrated in the first and fourth panels of Table 6), and if the reverse is true, nominal rates will increase (as demonstrated in the second and third panels of Table 6).

Table 6: Applying the -0.9% X-factor: 2021 – 2024

Year	Prior Reimbursement Rate	Adjustment	Adjusted Reimbursement Rate
2021	**(Inflation = 0.4%)**		
Tier 1	$2.19	x (1+(0.4%-0.9%) =	$2.18
Tier 2	$1.61	x (1+(0.4%-0.9%) =	$1.60
Tier 3	$1.40	x (1+(0.4%-0.9%) =	$1.39
Tier 4	$1.17	x (1+(0.4%-0.9%) =	$1.16
2022	**(Inflation = 1.8%)**		
Tier 1	$2.18	x (1+(1.8%-0.9%) =	$2.19
Tier 2	$1.60	x (1+(1.8%-0.9%) =	$1.61
Tier 3	$1.39	x (1+(1.8%-0.9%) =	$1.41
Tier 4	$1.16	x (1+(1.8%-0.9%) =	$1.17
2023	**(Inflation = 2%)**		
Tier 1	$2.19	x (1+(2%-0.9%) =	$2.22
Tier 2	$1.61	x (1+(2%-0.9%) =	$1.63
Tier 3	$1.41	x (1+(2%-0.9%) =	$1.42
Tier 4	$1.17	x (1+(2%-0.9%) =	$1.19
2024	**(Inflation = .1%)**		
Tier 1	$2.22	x (1+(.1%-0.9%) =	$2.20
Tier 2	$1.63	x (1+(.1%-0.9%) =	$1.61
Tier 3	$1.42	x (1+(.1%-0.9%) =	$1.41
Tier 4	$1.19	x (1+(.1%-0.9%) =	$1.18

Notes: Hypothetical inflation figures are for demonstrative purposes only and are not intended as a measure or projection of actual inflation.

32. In future recalibration periods (which we have proposed to be at four-year intervals) the appropriate X-factor can be recalculated using this same method used to calculate the current X-factor using reported provision costs in future years. Using hypothetical data, Table 7 below demonstrates how the Commission can undertake these calculations.

Table 7: Hypothetical Recalibration of X-factor: 2021-2024

Calculating Weighted Average Nominal Per-Minute Cost

		2021		2022		2023		2024	
	Provider	Per-Min Cost	Market Share	Per-Min Cost	Market Share	Per-Min Cost	Market Share	Per-Min Cost	Market Share
[1]	Provider A	$1.6700	14%	$1.6600	16%	$1.6500	14%	$1.6400	13%
[2]	Provider B	$1.1230	55%	$1.1130	55%	$1.1030	52%	$1.0930	50%
[3]	Provider C	$1.5760	8%	$1.5660	9%	$1.5560	8%	$1.5460	9%
[4]	Provider D	$1.6980	20%	$1.6880	16%	$1.6780	22%	$1.6680	24%
[5]	Provider E	$1.5950	3%	$1.5850	4%	$1.5750	4%	$1.5650	4%
[6]	Weighted Avg Nominal Per-Min Cost	$1.3650		$1.3522		$1.3612		$1.3618	

Adjusting for Inflation

		2021	2022	2023	2024
[7]	GDPPI	117	118	120	122
[8]	Inflation Factor (2024 base year)	104%	103%	102%	100%
[9]	Real Per-Minute Cost	$ 1.4233	$ 1.3980	$ 1.3839	$ 1.3618

Calculating Average Annual % Change in Per-Minute Costs

		2021-2022	2022-2023	2023-2024	Average
[10]	Year-Over-Year % Change	-1.8%	-1.0%	-1.6%	
[11]	Average % Change (X-Factor)				-1.5%

Sources and Notes:

[1]-[5]: Hypothetical per-minute cost and market share for five providers. Per-minute cost calculated as total allowable costs reported by a provider divided by total minutes provided by that provider. Market share calculated as total minutes provided by a provider divided by the sum of minutes provided by all providers. All hypothetical cost and market share data reported in this table have been generated solely for illustrative purposes and do not represent any actual or forecasted provider data.

[6]: Weighted average nominal per minute cost calculated as the sum-product of per-minute costs and market shares of all providers in a given year.

[7]: GDPPI figures are hypothetical and not intended to represent a forecast of actual inflation. Retrospective inflation data is regularly reported by the U.S. Bureau of Economic Analysis. See e.g., "Gross Domestic Product: Chain-type Price Index [GDPCTPI]," FRED, Federal Reserve Bank of St. Louis, updated April 26, 2020, accessed May 16, 2020, https://fred.stlouisfed.org/series/GDPCTPI.

[8]: Inflation year in the present year divided by the inflation year in the base year (2024).

[9]: [6] x [8].

[10]: Annual percent change in real per-minute cost.

[11]: Geometric mean of the percent changes in [10]. -1.5% = {(1-1.8%)x(1-1.0%)x(1-1.6%)}^1/3 – 1.