KENTUCKY COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:	)	
ELECTRONIC APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR (1) AN ADJUSTMENT OF ELECTRIC RATES; (2) APPROVAL OF NEW TARIFFS; (3) APPROVAL OF ACCOUNTING PRACTICES TO ESTABLISH REGULATORY ASSETS AND LIABILITIES; AND (4) ALL OTHER REQUIRED APPROVALS AND RELIEF	)	CASE NO. 2022-00372

The Kentucky Broadband and Cable Association and its members[1] ("KBCA"), pursuant to the Commission's December 19, 2022, Order, submits these Responses to Duke Energy Kentucky, Inc.'s ("Duke Energy's"), First Request For Information To Kentucky Broadband and Cable Association.

[1] The KBCA's members are Access Cable, Armstrong, C&W Cable, Charter Communications, Comcast, Inter Mountain Cable, Lycom Communications, Mediacom, Suddenlink, and TVS Cable. Kentucky Broadband & Cable Association, Our Members, *available at* https://www.kybroadband.org/members.

Duke DR 1-1:

Other than Ms. Kravtin, please identify any persons, including experts, whom KBCA has consulted or retained with regard to evaluating Duke Energy Kentucky's Application in this proceeding.

Response: KBCA objects to this request to the extent it requires it to identify every person it "consulted" in any form or fashion related to this proceeding. KBCA further objects to the phrase "evaluating Duke Energy Kentucky's Application" as vague and ambiguous.

Subject to its objections, KBCA states it has not retained or consulted any witnesses other than Ms. Kravtin.

Witness: Jason Keller

Duke DR 1-2:

For each person identified in response to Interrogatory No. 1 above, please state:

a. the subject matter of the discussions/consultations/evaluations;

b. the written opinions of such persons regarding Duke Energy Kentucky's Application;

c. the facts to which each person relied upon; and

d. a summary of the person's qualifications to render such discussions/consultations/ evaluations.

Response: None.

Witness: None.

Duke DR 1-3:

For each person identified in response to Interrogatory No. 1 above, please identify all proceedings in all jurisdictions in which the witness/person has offered evidence, including but not limited to, pre-filed testimony, sworn statements, and live testimony and analysis. For each response, please provide the following:

a. the jurisdiction in which the testimony, statement, or analysis was pre-filed, offered, given, or admitted into the record;

b. the administrative agency and/or court in which the testimony, statement, or analysis was pre-filed, offered, admitted, or given;

c. the date(s) the testimony, statement, or analysis was pre-filed, offered, admitted, or given;

d. the identifying number for the case or proceeding in which the testimony, statement, or analysis was pre-filed, offered, admitted, or given; and

e. whether the person was cross-examined.

Response: KBCA directs Duke Energy to Exhibit 1 of Ms. Kravtin's testimony, Record of Prior Testimony.

Witness: Patricia Kravtin

Duke DR 1-4:

Identify and provide all documents or other evidence that KBCA may seek to introduce as exhibits or for purposes of witness examination in the above-captioned matter.

Response: KBCA objects to this Request because it asks for a legal analysis, and is untimely and unduly burdensome. Duke Energy has not submitted its testimony in this matter, and KBCA reserves the right to amend and supplement this response prior to the hearing in this matter.

Subject to its objections, KBCA identifies each document referenced in and attached to the testimony of Ms. Kravtin, as well as the Exhibits attached to these responses.

Witness: Jason Keller

Duke DR 1-5:

Please identify all proceedings in all jurisdictions in the last three years in which Ms. Kravtin has offered evidence, including but not limited to, pre-filed testimony, sworn statements, and live testimony and analysis. For each response, please provide the following:

a. the jurisdiction in which the testimony, statement or analysis was prefiled, offered, given, or admitted into the record;

b. the administrative agency and/or court in which the testimony, statement or analysis was pre-filed, offered, admitted, or given;

c. the date(s) the testimony, statement or analysis was pre-filed, offered, admitted, or given;

d. the identifying number for the case or proceeding in which the testimony, statement or analysis was pre-filed, offered, admitted, or given;

e. whether the witness was cross-examined;

f. the custodian of the transcripts and pre-filed testimony, statements, or analysis for each proceeding; and

g. copies of all such testimony, statements, or analysis.

Response: KBCA objects to this request because it is unduly burdensome and disproportionate to the needs of the case. KBCA further objects to the extent this information is equally available to Duke Energy.

Subject to its objections, KBCA responds that the proceedings in which Ms. Kravtin has testified, including the jurisdiction, court or agency, date, case, and whether she was cross-examined, are identified in the CV attached as Exhibit 1 to her testimony. As a courtesy, KBCA has attached to these responses her most recent white paper, submitted to the FCC on June 27,

2022, as well as an expert report she submitted in New York, which may not be readily available in the public domain. *See* Exhibits 1 and 2 to these responses.

Witness: Patricia Kravtin

EXHIBIT 1

****REDACTED -- FOR PUBLIC DISCLOSURE****

An Economic Study of the Barriers Erected by Current Utility Pole Replacement Practices and of Policy Prescriptions to Better Align Incentives and Promote Broadband Expansion

Submitted in The Matter of Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment, Federal Communications Commission, WC Docket No. 17-84

By:

Patricia D. Kravtin and Edward J. Lopez

June 27, 2022

* This paper has been underwritten by Charter Communications, Inc. The opinions and viewpoints expressed are those of the authors alone.

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**** REDACTED -- FOR PUBLIC DISCLOSURE ****

An Economic Study of the Barriers Erected by Current Utility Pole Replacement Practices and of Policy Prescriptions to Better Align Incentives and Promote Broadband Expansion

By:

Patricia D. Kravtin and Edward J. Lopez

I. INTRODUCTION

This white paper draws on widely established economic theory, coupled with extensive evidence on real-world pole attachments (including new field data provided by Charter Communications, Inc. ("Charter"), to demonstrate the presence of market distortions and economic inefficiencies in current practice regarding pole replacements, and to analyze the impact of proposed new cost-sharing rules around pole replacements.

This paper is founded on the basic principle that market competition promotes ***economic efficiency***—*i.e.*, that market competition serves the public interest and promotes overall societal welfare by incentivizing market participants to contain costs and to allocate resources to highest-valued uses.

As we have demonstrated in recent work, achieving full broadband expansion in the United States would generate between $83 billion and $314 billion of new economic gains to America's homes and small businesses.[1] These gains encompass the productive, commercial, educational, health and other benefits of connecting the more than 14 million currently unserved Americans.

[1] Edward J. Lopez & Patricia D. Kravtin, *Advancing Pole Attachment Policies to Accelerate National Broadband Buildout*, *Connect The Future* 7 (Nov. 2021), https://connectthefuture.com/wp-content/uploads/2021/11/Advancing-Pole-Attachment-Policies-To-Accelerate-National-Broadband-Buildout-National-Report.pdf ("*Advancing Pole Attachment Policies*").

Pole owners currently have the incentive and opportunity to use pole replacement charges to capture a portion of broadband providers' investment in deploying networks to unserved areas, at the expense of the public interest and societal welfare.

Drawing on our recent work, we identify the source of this inefficiency as what is known in economics as the ***holdup problem***, a form of inefficient concentration of ***market power*** that incentivizes pole owners to make decisions adverse to the public interest.[2] These incentives lead pole owners to impose added costs on third-party attachers, resulting in avoidable delays to broadband deployment and reducing incentives to invest in broadband expansion. This white paper demonstrates how the holdup problem manifests in real-world practice, and why the status quo harms economic efficiency to the detriment of the public interest and societal welfare as quantified by foregone consumer gains and downstream economic losses.

This white paper analyzes a number of corrective policy prescriptions to ameliorate the inefficiencies and social harms of the holdup problem, including standards for determining cost-causation and efficient allocation of pole replacement costs, thus facilitating mutually beneficial negotiations between pole owners and attachers as a means to expedite the deployment of broadband infrastructure. Drawing on standard economic theory including the field known as "mechanism design," which has been awarded multiple economics Nobel prizes, this paper focuses on the need for rules that induce honesty in bargaining[3] by instilling incentive compatibility among market participants[4]. The most efficient policy mechanism would: 1) elicit accurate information from pole owners regarding the true economic cost that pole replacements cause to their operations

[2] Lopez & Kravtin, *Advancing Pole Attachment Policies* at 5, 7.
[3] *See e.g.*, S. Brams, R.J. Quarles, D.H. McElreath, M.E. Waldron, & D.E. Milstein, *Negotiation Games.* London: Routledge (2d ed. 2002), doi:https://doi.org/10.4324/9780203180426.
[4] *See e.g.*, O.E. Williamson, *The Mechanisms of Governance.* New York: Oxford University Press (1996); J. Tirole, *The Theory of Industrial Organization.* Cambridge, Mass.: The MIT Press (1993)

(net of offsetting benefits they receive from new investment in improved assets); and 2) hold attachers responsible for the objectively determined "cost causative" incremental costs of accommodating new attachments. By contrast, the status quo creates incentives for pole owners to strategically misreport or under-report private information and to use holdup leverage to impose full replacement costs on attachers—even in circumstances where the utility is the primary, and immediate, beneficiary of the gain from the upgraded pole plant (frequently referred to as the "betterment" gain from improved assets). An economically equitable cost-sharing rule for pole replacements would correct these inefficiencies, achieve fair outcomes for market participants (*i.e.*, sufficient compensation for the pole owner and cost-causative allocation to attachers), and reduce risk of holdup problems, which would advance the desired public policy objective of expanding broadband access.

The paper is organized into eight sections. Following this Introductory Section, Section II develops the underlying logic of the holdup problem and how it (in the pole attachment context) manifests as a menu of five mutually inclusive strategies that pole owners can utilize to capture a portion of attachers' investment. Section III summarizes our previous quantitative analysis of the social costs of delayed broadband deployment and presents new market-wide data and econometric results that demonstrate how pole owner holdup is bearing out in actual practice. Section IV shows why these status quo practices result in significant economic inefficiencies. Section V presents a comparative analysis of alternative reform proposals before the Federal Communications Commission ("Commission" or "FCC"). Section VI argues that the Commission's alternative proposal to allow pole owners to recover pole replacement costs through capital recovery mechanisms built into recurring rates (as opposed to non-recurring charges) is supportable as a matter of economic theory and in practice. Section VII explains the sufficient recovery that utilities

would achieve under the proposed approach of allowing them to charge non-recurring pole replacement charges tied to the net value of the replaced poles. Finally, Section VIII demonstrates that neither theory nor evidence support claims that reform proposals under consideration by the Commission would adversely impact ratepayers.

II. CURRENT MARKET CONDITIONS CREATE OPPORTUNITIES FOR POLE OWNERS TO ENGAGE IN HOLDUP, INCLUDING THROUGH POLE REPLACEMENTS.

The current marketplace for broadband deployment is uneconomic at the initial point of pole attachments, due to inefficient and inequitable concentration of market power in the possession of pole owners, in the form of market power known as the holdup problem. This power manifests as various combinations of mutually inclusive pole owner strategies, each of which presents a specific need for correction.

In general, holdup leverage derives from incomplete contracts that empower one party to impede another party's ongoing investments. Holdup power arises in market situations whenever one party makes an investment that is ***relation-specific***, meaning that the returns on the investment depend on the investing party subsequently forming a transactional relationship with another market participant. Knowing that the investing party's investment is relation-specific, the non-investing party has an incentive to capture some of the investing party's downstream returns. In many market situations, the investing party can mitigate holdup power through certain contractual provisions (for example, reliance or duress), or through certain organizational changes (for example, merger). In those market situations, if market participants can work out private means of mitigating holdup, corrective regulation is not necessary to achieve equitable and efficient outcomes.[5] However, as a leading scholar in the field has summarized, "if such [mitigation] cannot

[5] B. Hermalin, *Holdup: Implications for Investment and Organization*, 52 Cal. Mgmt. Rev. 132-137 (2010).

be obtained or is less than 100%, the investing party will not invest optimally relative to the amount that maximizes total wealth or well-being"[6].

In the specific context of broadband deployment, such private mitigation of holdup between pole owners and attachers tends to fail for at least three reasons.

1) Pole owners uniquely control access to the post-investment transactional relationship, leaving attachers no practical "walk away" option other than to invest sub-optimally (*i.e.*, less build out and/or at greater cost and delay, such as by diverting underground or to less-efficient routes). Once attachers commit to relation-specific investment in broadband deployment, the downstream social returns on those investments depend uniquely, or at least substantially, on access to poles. Attachers cannot realistically seek out alternative pole networks and usually face significantly greater costs and delays with underground build options.

2) Pole owners often possess publicly disclosed information about the details of attachers' pre-investments, especially those underwritten by public funds. Insofar as public funds represent a share of investment resources—through RDOF, ARPA, BEAD, and state, local, and tribal initiatives—attachers make relation-specific investments on behalf of taxpayers. These public-private investments are pre-assigned and announced publicly. In the case of RDOF, for example, the public announcements include dollar amounts, geographic areas of deployment, and required number of locations to connect.

3) Pole owners possess private, internally kept information about their underlying cost structures, which under current practices define the terms of the downstream transactional relationships. Pole owners have a distinct informational advantage regarding the characteristics of their existing pole plant and whether new attachment requests can be accommodated with or without pole replacement. Additionally, pole owners lack adequate incentives to contain pole replacement costs under the current practice of passing these costs entirely onto attachers.

These factors provide pole owners with strong incentives and leverage to impose excessive costs on new attachers (excessive relative to what would prevail in absence of this unique holdup leverage) and to shut down the bargaining process with "take or leave it" offers. Attachers' lack of leverage makes it unlikely that private mitigation of pole owner holdup will consistently or reliably occur under market conditions.

[6] *Id.* at 133.

Regulatory intervention has the potential to mitigate the effects of holdup leverage in settings where market-based solutions are unavailable. A class of economic models from the field of "mechanism design," which is used to study bargaining under conditions of asymmetric information, is well-suited to evaluating regulatory corrections of pole owner holdup. The Commission itself relied on mechanism design theory during reforms to its spectrum allocation rules in the 1990s.[7] In the current context of pole attachments, bargaining mechanisms (rather than auction mechanisms, which were at issue in the Commission's prior proceedings) are at the heart of the Commission's call for solutions that align economic incentives.[8] From the perspective of mechanism design theory, the Commission's objectives could be advanced by adopting rules that (a) induce honesty in negotiations between pole owning utilities and attachers; and (b) compensate at an optimal level to incentivize investment in both pole plant and broadband facilities without creating adverse incentives to over- or under-invest in either.

Pole owners can exercise holdup leverage to impose excessive costs on communications attachers (either directly in the form of excessive pricing, or indirectly in the form of time delays); strategic misreporting or under-reporting of private information; and market foreclosure.[9] In the

[7] A vast literature has developed around the subject of mechanism design as applied to radio frequency spectrum auctions. For accessible reviews, *see* R.P. McAffee & J. McMillan, *Analyzing the Airwaives Auction*, 10 J. Econ. Perspectives 159-175 (1996) and more recently A.E. Roth & R.W. Wilson, *How Market Design Emerged from Game Theory: A Mutual Interview*, 33 J. Econ. Perspectives 118-143 (2019).

[8] *See In re Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, Second Further Notice of Proposed Rulemaking, WC Docket No. 17-84, FCC 22-20 ¶ 29 (rel. Mar. 18, 2022) ("*FNPRM*"), "We are particularly interested in additional information and analyses that expand the economic arguments made by utilities and attachers, including those addressing their respective economic incentives and how our rules do or do not effectively align them."

[9] As the authors have shown in previous work: "Through the make-ready process, pole owners have the opportunity and incentive to impose a number of direct and indirect cost and time related barriers on third party providers. . . ." *See* Edward J. Lopez & Patricia D. Kravtin, *Utility Pole Policy: A Cost-Effective Prescription for Achieving Full Broadband Access in North Carolina* 21 (Aug. 2021), https://nccta.com/report/ ("*Utility Pole Policy*"). The indirect strategies are specified in the strand of the mechanism design literature known as "raising rivals' costs." *See also* T.G. Krattenmaker & S.C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 Yale L. J. 209-293 (Dec. 1986).; S.C. Salop & D.T. Scheffman, *Raising Rivals' Costs*, 73 Am. Econ. Rev. 267-271 (1983).

absence of external constraints, such as regulatory requirements, pole owners can manifest their holdup leverage by selecting one or more of five mutually inclusive strategies, each of which can enhance pole owners' interests at the expense of the public interest. These holdup strategies include the following:[10]

A. Direct Strategies Via Excessive Pricing.

1. Excessive upfront, non-recurring dollar costs imposed on communications attachers at the point of initial attachments through make-ready charges (including pole replacement charges).

2. Excessive recurring dollar costs imposed on communications attachers for continued, ongoing attachment through recurring rental rates.

B. Indirect Strategies That Raise Attachers' Costs, Thereby Negatively Affecting Pole Attachment Negotiations to the Detriment of Broadband Deployment.

3. Time delays imposed on communications attachers in the form of lengthy reviews, pre- and post-construction requirements, and slow timetables as part of the make-ready process.

4. Strategic misreporting or under-reporting by the utility of private, internally kept information pertaining to characteristics of their existing pole plant such as pole height, condition, and net salvage value (salvage minus cost of removal).

5. Market foreclosure, the ultimate extension of leverage over existing pole networks by vertically integrating into the downstream market as broadband communications suppliers.[11]

From the perspective of pole owners, therefore, these five various strategies are all interchangeable—each is capable of utilizing pole owner leverage to increase pole owner interests at the expense of the public interest. The interchangeability of these strategies explains why regulatory interventions that constrain one or more of these available options, while leaving the others free, can alter the *composition* of exercised holdup power but may not succeed at reducing

[10] For discussion of various holdup strategies in bilateral bargaining between suppliers whose coordination is necessary for the provision of an end-user consumer good, specifically discussion of various market foreclosure strategies, *see* Tirole (1993) at 193-198.
[11] T. R. Beard, G. S. Gord, L. J. Spiwak, & M. Stern, *The Law and Economics of Municipal Broadband*, 73 Fed. Commc'ns L. J. 1-98 (Apr. 2021).

the *total* extent of holdup. For instance, a given pole owner subject to federal pole attachment regulations may be constrained (by the possibility of facing a complaint) in its ability to impose strategic time delays when handling attachment requests, yet could still exercise its preferred degree of holdup power by more heavily relying on strategic use of private information. For example, as described in Section VI below, pole owners can (by withholding complete information about their pole plant and instead opting to rely on more-advantageous presumptive values) impose substantially greater dollar costs on attachers in recurring rental rates, even without use of any delay tactics. To the pole owner possessing holdup power, time delays and misreporting of private information are substitute strategies.

Pole owners possess varying degrees of holdup power depending on prevailing market and regulatory circumstances in their area. This explains why pole owners subject to the regulated rate formulas and application processing timelines (such as investor-owned utilities) would rely relatively heavily on the other non-regulated strategies, whereas pole owners not subject to those requirements (such as electric cooperatives in jurisdictions where pole attachments are governed solely by private contractual agreements) may pursue a different mix of strategies.

When pole owners adopt holdup strategies in the specific context of broadband attachments, they raise societal costs in addition to the costs they impose directly on attachers. As detailed in Section III below, delayed broadband expansion costs Americans between $491 million and $1.86 billion of foregone economic gains per month, corresponding to potential lifetime gains of $83 billion to $314 billion. This harm to the public interest provides a basis for regulatory correction of the various holdup strategies that pole owners can choose to exercise. Evidence from the field reported in Section III below also suggests that current regulations that constrain only some of these strategies—such as strategic delay—are not overall optimal in achieving incentive

compatibility in the absence of regulations addressing the pole owner's ultimate holdup power over the attacher's investment outlay through excessive pole replacement costs.

III. POLE REPLACEMENT COSTS ARE A MAJOR BARRIER TO BROADBAND DEPLOYMENT AS POLE OWNERS ACT ON THEIR ADVERSE INCENTIVES TO HOLD UP ENTRY BY THIRD-PARTY BROADBAND ATTACHERS.

In this section, we utilize standard economic methods to calculate economic estimates of the social gains of full broadband expansion to currently unserved areas. Using the same methodology, we also calculate the social costs per month of delayed expansion. These calculations of economic gains and delay costs draw directly on our recent studies conducted at the national and state levels.[12] In addition, this section presents new field evidence and econometric estimates demonstrating actual consequences of strategic holdup in prevailing market practice.

A. Economic Gains of Achieving Full Broadband Expansion, and Costs of Delayed Expansion.

To calculate the social gains of closing the digital divide, standard economic analysis utilizes the concept known as *willingness-to-pay*. Widely used introductory economics textbooks define willingness-to-pay as "the maximum price a consumer will pay for a good or service".[13] Similarly, a leading law-and-economics treatise states, "the economic value of something is how much someone is willing to pay for it."[14] Willingness-to-pay has explicit origins extending back to at least Alfred Marshall's classic 1890 textbook, and it has been a fixture in the analysis of consumer value ever since.

[12] *See* Lopez & Kravtin, *Advancing Pole Attachment Policies* and Lopez & Kravtin, *Utility Pole Policy*.
[13] D. Mateer & L. Coppock, *Principles of Microeconomics* at 157 (3rd ed; New York: W. W. Norton and Company 2021).
[14] R.A. Posner, *Economic Analysis of Law* at 12 (4th ed.; New York: Little Brown and Company 1992).

In the broadband space, economists have researched various ways to quantify willingness-to-pay, and this white paper presents estimates of overall economic gain as a measurement of how important expanding broadband access would be to overall societal welfare. As described in our initial paper:[15]

> To estimate the household's [willingness-to-pay], a straightforward approach would be to simply ask them: "how much are you willing to pay to improve the speed of your access from mobile 5/1 Mbps to fixed 1000/100 Mbps?" A major limitation of this approach is that survey responses to unconstrained questions rarely reflect what responders would do in actual practice. Furthermore, real-world choices involve many different options that consumers select from, including a large variety of options for pricing, speed, data caps, latency, and more. Households in unserved areas have fewer options, which is a primary focus of this paper, but for purposes of estimating willingness to pay, part of the challenge to the analysis is how best to incorporate the wide variety of options. Furthermore, households also vary greatly in their usage rates (GB/month).
>
> Recent economics literature has provided two complementary approaches to empirically grapple with these measurement problems. One method is to gather granular data on broadband usage under a variety of different observed conditions, and from that data extrapolate a map of consumer demand across a range of broadband speeds and options. This is the approach taken in two studies by economists Aviv Nevo, John L. Turner and Jonathan W. Williams (Nevo et al. 2016, 2015). Another method, taken by economists Yu-Hsin Liu, Jeffrey Prince, and Scott Wallsten, is to combine survey analysis with "discrete choice experiments" designed to elicit realistic responses, and to then build the demand curve with laboratory instead of observational data (Liu et al. 2018). Liu et al. discuss various approaches to estimating broadband demand. The major advantage of their approach for our purposes is the ability to estimate WTP at various speed thresholds, which available observational studies cannot do. Table 1 below presents our main findings, which we organize along three speed thresholds that are comparable to existing and planned broadband service plan offerings at the time of this writing.[16]

Appendix B of the above-quoted paper provides complete details and step-by-step explanations of the methodology, including alternative assumptions considered. Utilizing that same methodology in a follow-up paper, the authors present estimates of the overall aggregate

[15] Lopez & Kravtin, *Utility Pole Policy*.
[16] Lopez & Kravtin, *Utility Pole Policy* at 14.

economic gains, broken down for three speed and latency thresholds under three sets of alternative modeling assumptions. The information summarized in the table below suggests that the economic gains to expanding broadband availability are substantial.

The methodology was further enhanced in our subsequent study expanding the analysis to unserved locations nationwide and accounting for an additional range of possibilities regarding unserved populations at varying broadband service quality levels (*i.e.*, speed, and latency). In the follow-up paper, we calculated willingness-to-pay estimates at thresholds of 150/25 Mbps with less than 10 ms latency, up to 1000/100 Mbps at less than 10 ms. All calculations are net present value over 25 years assuming a 5% discount rate. As Table III.A.1 reports, if all currently unserved RDOF locations are connected at the highest threshold, an estimated $98.07 billion of economic gains would result. If all currently unserved locations as estimated by the FCC become connected, we estimate that would create $104.87 billion in economic gains. And if all 42 million unserved population as estimated by BroadbandNow were connected, a resulting $313.92 billion in economic gains would ensue.[17]

[17] *See* Lopez & Kravtin, *Advancing Pole Attachment Policies* at 7–8.

Table III.A.1: Economic Gains if all Currently Unserved Population Achieves Broadband Access

	All Unserved RDOF Locations Gain Access	***All FCC Unserved Population Gains Access***	***All Broadband Now Unserved Population Gains Access***
150/25 Mbps at <10 Ms	$ 82.96b	$88.71b	$265.56b
300/100 Mbps at <10 Ms	$91.90b	$98.27b	$294.17b
1000/100 Mbps at <10 Ms	$98.07b	$104.87b	$313.92b

Note: Table entries equal net present value of annualized gains over 25 years at 5% discount rate.

Focusing on Table 2 below, this same computation methodology demonstrates the foregone economic gains, known in economics as deadweight loss ("DWL"), due to delayed broadband expansion (to which the pole owner holdup problem contributes). As our previous analysis demonstrated, the identified losses in the form of potential foregone consumer value welfare from the delay or unavailability in broadband access, are also quite substantial. As shown in Table 2, aggregated across the fifty states, we compute the magnitude of potential losses nationwide to be in the range of $491 million to $1.86 billion per month of delay.

Table III.A.2: Monthly Foregone Economic Gains (Deadweight Losses) of Delayed Access

	All RDOF Locations Gain Access	***All FCC Estimated Population Gains Access***	***All BroadbandNow Estimated Population Gains Access***
150/25 Mbps at <10 Ms	$0.491b	$0.524b	$1.57b
300/100 Mbps at <10 Ms	$0.543b	$0.581b	$1.74b
1000/100 Mbps at <10 Ms	$0.579b	$0.620b	$1.86b

Note: Table entries are monthly aggregate foregone economic gains.

The national and state-specific estimates in these studies are conservative, because they do not reflect higher broadband demand since the onset of the Covid-19 pandemic or the increases in broadband speed being deployed under existing expansion plans. True economic gains nationwide of full broadband expansion likely exceed the estimates shown in Table III.A.1 above.

The magnitude of total consumer value realized from full broadband expansion underscores the potential impact of the public's return on its broadband investment. Such returns would be more likely and quicker if policies aimed at reducing pole owner holdup power were implemented, facilitating the achievement of the full range of productive, commercial, educational, health, civic, and other social benefits widely associated with full broadband expansion.

B. Statistical Findings on the Prevalence and Evidence of Pole Owner Holdup in the Current Broadband Ecosystem.

Charter has collected detailed information on nearly 600 of its pole applications across 35 states since January 2020.[18] Almost half of these applications for which Charter has collected data

[18] The dataset was assembled by Charter's Field Operations teams during the spring of 2022. The goal in assembling the dataset was to achieve a representative sample of Charter's recent experience rather than a comprehensive view of all projects. The specific criteria used for sampling were: ****BEGIN**

are from RDOF builds. In the subsections below, we analyze and report on how these data demonstrate the prevalence and severity of pole owner holdup leverage.

Among the paper's key findings: In Charter's recent experience, replacement charges paid to pole owners account for roughly ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** of the construction costs of an average new deployment project. Pole owners are demanding, on average, that ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****poles to be replaced. Recent experience also shows how hard it can be to predict pole replacements in advance— ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****. And while the reasons provided for replacement requirements do vary, by far the most common reason is "mid-span clearance," with "red-tagged" poles (i.e., poles already identified by the utility as requiring replacement) ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****. As for height advantage, ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****. Finally, Charter is facing long timetables and delays to complete projects.

1. <u>High Variability and Unpredictable Nature of Pole Replacement Demands</u>

Table II.B.1 below summarizes information from as many as ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** recent applications regarding the percent of poles requiring replacement. The information is broken down by build type, namely RDOF projects versus those financed with private capital. On its recent non-RDOF projects, pole owners

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CONFIDENTIAL** [redacted] ****END CONFIDENTIAL****.

have required Charter to replace ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** of the number of poles to which Charter initially applies for attachment; on RDOF projects, the equivalent percentage equals ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****. Overall, combining both types of projects, pole owners demand pole replacement for ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** of poles to which Charter applies for access.

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The columns in Table III.B.1 labeled "Std. Dev." and "Coef. Var." help to illustrate just how unpredictable and highly variable these pole owner-imposed requirements are. As the table shows, the standard deviations of pole replacement requirements are relatively high compared to the means. The statistical concept (known as "coefficient of variation") is a measure of dispersion within a sample, or simply the variability of a data series about its mean. In non-RDOF as well as RDOF builds, the coefficient of variation is high, ranging from ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****.

To visualize the high variability and unpredictable nature of pole owner replacement demands, Figure III.B.2 below presents a simple histogram visualization. On the left of the histogram are graphed all pole applications for which less than 15% of poles require replacement.

On the right are applications with greater than 15%. The naked eye is able pick up the "all over the place" nature of pole replacement percentages, in a way that would not be as obvious without this split at the 15% mark. What stands out is that ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****. This high variability makes it difficult for Charter to predict and plan for pole replacement demands while working to deploy broadband.

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2. Percentage of Charter's Broadband Deployment Costs Absorbed by Pole Replacement Charges Paid to Pole Owners

One consequence of holdup can be detected in high and variable dollar costs imposed by pole owners at the point of initial attachment. Evidence of this is borne out in the dataset. Through data that tracks Charter's broadband deployment costs per mile closely, we have the capability to calculate the percentage of each project's costs that get absorbed by pole replacement charges. In addition, since Charter is deploying broadband under a variety of project sizes and geographic settings, we can also use different modeling assumptions to gain a rich understanding of the attacher's pole replacement costs under varying circumstances. Furthermore, we can also compare actual costs incurred in the field with Charter's anticipated costs for those same projects.

The calculations in Table III.B.2 represent the average pole replacement costs that Charter has incurred per pole application as a percentage of Charter's projected aerial build costs per

project.[19] Under moderately conservative to more conservative sampling assumptions, which incorporate a variety of Charter's project sizes and geographic settings, pole replacement charges have been accounting for between ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** percent of Charter's aerial construction costs on the reviewed projects.

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3. Frequency of Different Reasons for Requiring Pole Replacements

The dataset collected by Charter regarding its recent broadband deployment projects also includes qualitative information containing the primary reason for pole replacement cited by the pole owner in response to each application. We emphasize that the unit of observation in this

[19] ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****. To ensure consistency across projects, actual (field-collected) pole replacement costs were compared to projected aerial construction expenses based upon historical data..

[20] There is substantial variety in the size and location of Charter's recent broadband expansion projects. As a consequence of this variation, the table presents the share of pole replacement charges under alternative ways of defining what constitutes an "average" project for purposes of extrapolating, from the sample, conclusions regarding the overall profile of Charter's construction costs. We conducted an outlier analysis that was used to define the 6 alternative scenarios reported in the table. The "Moderately Conservative" and "More Conservative" rows of the table remove sequentially greater numbers of outliers. Thus, the table provides a range of calculations based on the varying ways to define what is the "average" project. The number of outliers removed can be seen from the column labeled "N" for number of observations.

dataset is at the project level, not at the level of individual poles.[21] Table III.B.4 below summarizes the frequency of pole replacements per project. Notice that the vast majority of cases show "Mid-Span Clearance" as the stated reason for pole replacement, making up ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** total responses in the dataset. By comparison, "Red-Tagged" ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** cases reporting reasons. In the moderate range of this series, "Loading" and "Capacity" are cited each ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** of the time.

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4. Average Pole Replacement Charges Per Project by Pole Owner Type

In Table III.B.5, we summarize how pole replacement charges per project can vary by pole owner type. Among the nearly ****BEGIN CONFIDENTIAL**** [redacted] ****END**

[21] The data were collected at the project level rather than the individual pole level for reasons of practical feasibility. Charter's ongoing broadband expansion projects number in the hundreds nationwide and involve thousands of individual poles. Collecting data at the individual pole level would be practically infeasible.

CONFIDENTIAL** pole attachment applications in the dataset, **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL**of them report both the project total pole replacement charges and the pole owner type. These data show that although many costly pole replacement demands are driven by pole owners outside of the Commission's pole attachment regime,[22] such as municipal pole owners, electric cooperatives, and public utility districts, investor-owned utilities also play a significant role in driving pole replacement costs.

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5. Height Increments Pole Owners Acquire When Replacing Poles

The dataset also contains information about the heights of old poles being replaced and new poles. Figure III.B.6 provides a visual understanding of the height differences between old, replaced poles and new poles. On the left, the **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL** of old poles are **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL** feet, with the greatest number of those being [redacted]. **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL** of replaced poles are **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL**. On the other

[22] Even for pole owners outside of the Commission's jurisdiction, many of those are subject to state jurisdictional authority that looks to the FCC rules as guidance.

hand, the right side of the figure shows that ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****.

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In Tables III.B.6.A and B, we summarize the height increments that pole owners have been acquiring in Charter's recent broadband builds. On average, new poles exceed old poles by ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** feet. Since pole heights are uniformly denominated in increments of five feet, the table also reports the frequency of applications in which the majority of replaced poles gain 5 feet, 10 feet, and over 10 feet. Of all the applications in the dataset, ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL**** of them feature no gain in pole height. Meanwhile, ****BEGIN CONFIDENTIAL**** [redacted] ****END CONFIDENTIAL****.

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In addition, Table III.B.6.B cross-tabulates the frequency of height increments against the replaced pole height. This table shows that **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL**cases of height increases are acquired in cases where the replaced pole height is **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL**. By far the most common scenario is when **BEGIN CONFIDENTIAL** [redacted] **END CONFIDENTIAL**.

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6. Number of Days to Complete Pole Attachment Projects, by Stages, Weighted by Size of Project

Finally, the dataset contains information that can show how long projects are taking. Since larger projects are naturally expected to take longer, Table III.B.7 weights the durations by the number of poles in an application. For example, if a project has 8 poles and takes 80 days to complete, the table will report (80 / 8) = 10 *days per pole*. However, a project that is twice as big but also takes 80 days to complete would report as (80 / 16) = 5 *days per pole*. Since 10 is twice as big as 5, the table entries enable comparisons of small and big projects. As the table reflects, the data show that investor-owned utilities take longer to complete make-ready and other pole attachment tasks than cooperative or municipal pole owners.

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IV. THE STATUS QUO PRACTICE OF CHARGING ATTACHERS THE ENTIRE COST OF A NEW REPLACEMENT POLE AS DETERMINED BY THE POLE OWNER—IN ADDITION TO A RECURRING POLE RATE—RESULTS IN SIGNIFICANT ECONOMIC INEFFICIENCIES AND SUBSTANTIAL FOREGONE CONSUMER GAIN.

A. The Common Exercises of Holdup Power.

As described in the conceptual framework underlying the holdup problem,[23] pole owners can exercise holdup using combinations of a number of mutually inclusive strategies. Over the past several decades, the Commission has made strides in mitigating pole owners' ability to exercise holdup power using these available strategies.

However, pole owners' ability to deny access to attachers due to a purported lack of capacity, to control the decision about whether a pole replacement takes place, and to charge attachers for the entire cost of a new replacement pole, remain as areas where pole owners have been able to take advantage of the gap in the Commission's existing regulations. The status quo, under which new attachers are required to reimburse utilities for the entire cost of replacing poles as a condition of attachment,[24] is economically inefficient, at odds with the economic reality of utility pole replacement requirements, and impedes broadband development.

B. Pole Owners Can Leverage Asymmetric Information to Impose Holdup Power.

Current rules require a pole owner to comply with its engineering and safety standards in deciding whether to grant or deny access. However, because a utility is permitted to rely on its *internal* engineering and safety standards in making those decisions, utilities' ability to set those

[23] *See* II for expanded discussion.

[24] With the limited exception of poles already found to be out of compliance with current safety or construction standards or explicitly "red tagged" by the pole owner and specifically scheduled for replacement (a process the attacher has no information to affirm at its end).

standards creates a strategic opportunity for pole owners to hold up access by setting and applying standards in excess of industry norms and minimums.

Opportunities within the status quo for a pole owner to strategically exercise holdup power include the incentive and ability to:

- overstate the need for pole replacement (versus remediation) to accommodate a new attachment;
- overattribute the reason for a pole replacement to a new attachment, as opposed to the utility's own core need to replace the pole proactively, whether as part of a hardening program, or as part of its normal life cycle replacement program; and
- misreport or underreport the number of red-tagged poles or poles out of compliance prior to the attachment request.

The Status Quo of Pole Replacements. Absent incentives to exercise holdup power, replacement of the older (and typically undersized) poles would be expected to be occurring as part of a utility's normal capital planning process, and at a level commensurate with the useful life assumptions relied on by the utility for purposes of supporting the depreciation allowances it uses to set existing electricity rates and recurring pole attachment rental rates. The purpose of depreciation in general, as applied to any fixed assets of a utility, is to capture the expectation that depreciated assets will be replaced at or near the end of their useful life, using funds generated by annual depreciation expenses that are allowed to accumulate on the utility's books, at an accrual rate specifically tied to the average useful life of the asset group. Poles are no exception to this general purpose of depreciation, and it underlies why utilities treat depreciation as an expense that they recover from attachers and ratepayers.

The current practice of charging new attachers the full cost of a replacement pole as a condition of their attachment is inconsistent with the classic treatment of depreciation within utility accounting. It erroneously implies that depreciation allowances enjoyed by the utility for

ratemaking purposes (and reflected in recurring pole rates) are only sufficient to provide a source of funding for utility-initiated pole replacements (such as those poles specifically identified as "red tagged" or previously targeted by utility for replacement failing inspection). However, a utility's rates for both electric customers and attachers are set, pursuant to utility group depreciation accounting practices, at levels designed to provide the utility with capital recovery (through both depreciation accruals and/or adjustments to the utility's accumulated depreciation reserve for poles) sufficient to replace the utility's *entire inventory of poles* over a period matching the designated useful life of poles applied by the utility for depreciation purposes—including prematurely retired poles.

Pole replacements are a long-term fact of life for utilities, and the inevitable need for the replacement of any given pole is a "but for" consequence of the pole owner's core utility service. A new attacher's request to attach to a pole changes only the timing of the pole's eventual replacement. In other words, the replacement of poles is an inevitable or unavoidable cost to a utility that will occur in the normal course of utility operations, independent of the existence of the third-party attacher, and a utility is reimbursed for that cost through depreciation allowances in both its electric distribution rates and its recurring pole rental rates charged to attachers in accordance with identified finite useful life assumptions.

Utility poles invariably need to be replaced—whether due to failure, destruction, storm hardening, or routine retirements and capital replacement activities. This is especially true in recent years as utilities face additional pressures and mandates to upgrade and harden their existing pole networks to provide more reliable power for their electric customers.[25] As part of utility

[25] *See, e.g., Application of the Connecticut Light and Power Company d/b/a Eversource Energy to Amend its Rate Schedules*, Docket No. 17-10-46, Pre-filed testimony of Kenneth B. Bowes at 38 (Conn. Pub. Utils. Regul. Auth. Nov. 22, 2017) (stating that in addition to replacing shorter poles with stronger taller poles, the company is installing "cross-arms made of stronger, man-made composite materials rather than wood");

hardening objectives, utility best practices increasingly call for the replacement, rather than reinforcement or restoration, of potentially undersized poles showing signs of deterioration or decay in order to better protect against future outages.[26]

Utilities have the unilateral opportunity to set the replacement costs for poles, giving them the incentive and opportunity to force attachers to bear more than their economically efficient, fair share of the costs of pole replacements. Such actions result in a market failure, as utilities shift a disproportionate cost recovery onto attachers. Pole owners fail to take into account the harms of this cost-shifting to the public interest, including their own customers who would otherwise benefit from broadband expansion, and the loss of positive welfare gains resulting from broadband expansion to their customers' communities.[27]

Application of the Connecticut Light and Power Company for Approval of its System Resiliency Plan — Expanded Plan, Docket No. 12-07-06RE01, Decision at 2, 7, 8 (Conn. Pub. Utils. Regul. Auth. June 3, 2015); *In re Petition of Public Service Electric and Gas Co. for Approval of The Second Energy Strong Program (Energy Strong II)*, Docket Nos. EO18060629 and GO18060630, Direct Testimony of Edward F. Gray, Attachment 2 at 23, 25 (N.J. Bd. Pub. Utils. June 8, 2018) (outlining, as part of larger safety, reliability, and resiliency efforts, a subprogram that would replace approximately 7,100 poles along 450 miles of circuits, specifically targeting "smaller diameter poles that are greater than 30 years of age" and other "aged facilities"), https://nj.pseg.com/aboutpseg/regulatorypage/-/media/6DCDE89354844F93975C0DA2D98825C6.ashx; *In re Filing by Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company of a Grid Modernization Business Plan*, Case Nos. 16-481-EL-UNC et al., Stipulation and Recommendation at 2 (Ohio Pub. Utils. Comm'n Nov. 9, 2018) ("…the [s]tipulation provides for electric distribution grid modernization initiatives [that will improve system reliability, enable faster restoration of services after outages, improve voltage conditions on the distribution system, allow customers to make more informed choices about energy usage, facilitate access to customer data by authorized competitive retail electric service providers, and better enable the Companies to make future electric distribution grid modernization investments"); *see also In re Proceeding to Examine Options Pertaining to Pole Viability, Pole Attachments, and all Areas that may Affect the Reliability and Sustainability of Louisiana's Electric Utility Distribution Grid*, Docket No. R-35394, RFP 21-32 Louisiana Public Service Commission Request for Proposals (La. Pub. Serv. Comm'n Dec. 14, 2021).(seeking proposals to upgrade the resiliency of the Louisiana electrical grid).

[26] *See Public Service of New Hampshire d/b/a Eversource Energy*, Docket No. DE 21-020, Response to New Hampshire Public Utilities Commission Staff, Request No. TS-1-001 (witness Lee G. Lajoie) (N.H. Pub. Utils. Comm'n May 28, 2021) ("Response to New Hampshire Public Utilities Commission Staff, Request No. TS-1-001") ("Replacing a pole which has failed in service can preempt pole failure, thereby enhancing public safety by keeping overhead lines and equipment in place, enhance reliability by preventing a potential outage, and decrease the need for an emergency replacement which is generally more expensive than planned work performed during normal business hours.")

[27] *See* Lopez & Kravtin, *Advancing Pole Attachment Policies* at 4-6.

C. Pole Owners Receive Primary Direct Benefit from Pole Replacements.

The pole owner's imposition of the entire cost of replacing a pole on a new attacher is based on the false assumption that a utility receives no benefit from the replacement of a pole.[28] As articulated in Kravtin 2020, the economic reality, however, is that when a new attacher replaces a pole, red-tagged or non-red-tagged alike, the primary direct benefit is to the utility—it immediately gains an improved, hardened pole facility with joint economic value to both the utility and the attacher.[29]

Moreover, the overwhelming share of the betterment value inherent in the replacement pole accrues to the utility, who has the most to gain from the replaced pole. Very little of that value flows to the attacher, who obtains no additional rights of ownership, control, preferential access, or improved terms and conditions pertaining to the replaced pole. Indeed, once attached, the new attacher immediately assumes the same role as any other lessee and begins paying the fully allocated rental rate charged to all other attaching entities. At best, the new attacher can be said to be the direct beneficiary of the earlier than otherwise naturally occurring upgrades and replacements of the utility's pole plant. In limited cases, the new attacher can also be said to be the beneficiary of any incremental improvements in pole height/strength over what the utility

[28] *See, e.g., In re Electronic Investigation of the Proposed Pole Attachment Tariffs of Rural Electric Cooperative Corporations*, Case No. 2022-00105, Kentucky Power, Response to Kentucky Broadband and Cable Associations' ("KBCA's") Initial Request For Information 1.6 (Ky. Pub. Serv. Comm'n May 4, 2022) ("Kentucky Power does not derive any benefit, financial or otherwise, from the early replacement of a pole with remaining useful life to accommodate an additional communications attachment, unless the replacement happens to coincide with Kentucky Power's own plans for infrastructure upgrades.").

[29] *See* Patricia D. Kravtin, *The Economic Case for a More Cost Causative Approach to Make-Ready Charges Associated with Pole Replacement in Unserved/Rural Areas: Long Overdue, But Particularly Critical Now in Light of the Pressing Need to Close the Digital Divide* at 16-17, 37-38 (Sept. 2, 2020) ("Kravtin 2020"); *see also* Response to New Hampshire Public Utilities Commission Staff, Request No, TS-1-001 (witness Lee G. Lajoie) ("The sooner a reliability project is completed, the sooner its intended purpose of improving reliability takes effect.")

would have installed "but for" the attachment. Otherwise, the new attacher's betterment is limited to the same incidental benefits that accrue to any other attacher to the shared pole facility.

The post-replacement condition of the pole owner, conversely, is entirely different. As laid out in Kravtin 2020,[30] "early" pole replacements confer a number of substantial direct, exclusively realized, and immediately incremental benefits to the pole owner. These come in multiple forms:

- Operational/functional benefits of the replacement pole, *i.e.*, additional height, strength, and resiliency. These features enhance the productive capacity of the plant to meet higher service quality, safety, and performance standards, as well as other regulatory mandates applicable to the utility's core business, such as the achievement of pole hardening goals.

- At a minimum, the pole owner enjoys immediate additional capacity of 4 feet, since poles come in standard 5 feet increments, and attachments typically require only 1 foot of space, inclusive of required clearances. Recent data from Charter show that in at least half of Charter's projects, pole owners have replaced older poles with new ones that are *more* than 5 feet taller than the replaced pole, adding height, capacity, and strength well beyond what is needed to accommodate the new attachment.

- Operational cost savings in the form of lower maintenance and operating expense inherent to added features of the new, upgraded/higher class replacement pole, or as a result of the earlier time shift of the removal and installation of the new pole, given the generally rising costs of labor and materials.

- Reduced liability exposure in connection with failed poles creating or exacerbating potential hazards (*e.g.*, in the case of wildfires or storms) and especially where remedial or replacement work may have been deferred.

- Freed up capital reserves that would otherwise been needed to fund the future planned plant upgrades and normal cyclical replacement programs cost needs, including the future replacement of the replaced pole had it remained in service and left to age and obsolesce.

- Strategic benefits including the ability to offer additional service offerings and enhancements of its own, such as new smart-grid applications, and the utility's own broadband or fiber service (including internal communications functionalities).

[30] *See* Kravtin 2020 at 37-38.

- Enhanced rental opportunities from the increased capacity on the replacement pole, including rents paid immediately by the new attacher, as well as any subsequent attachers that can be accommodated at a later date.

- Other enhanced revenue expansion opportunities related to the utility's own new smart-grid offerings and broadband or fiber services.

- And enjoyment of additional tax savings from the accelerated depreciation and/or interest deductions as allowed under the tax code for new asset purchases.[31]

D. The Economic Inefficiencies of the Status Quo.

Requiring an attacher to pay the entire cost to replace a pole without acknowledging the betterment value to the utility and/or the capital recovery built into the utility's depreciation allowances is contrary to the economic principles of cost causation and economic efficiency, and it leads to inefficient outcomes.[32]

This status quo distorts efforts to achieve widespread broadband deployment, resulting in substantial welfare losses. These distortions emanate from the effective subsidy by broadband providers to the capital expenses of the pole owner. Economic theory maintains that current practices reduce incentives for broadband providers to invest in broadband deployment, given that the investment amount required is suboptimal and the broadband provider's capital budgeting dollars are limited. Current practices also create delays in broadband deployment due to pole owner exercise of holdup power, resulting in foregone economic gains.[33] Current practices can also result in increased rates for broadband customers insofar as broadband providers seek to

[31] *See* IRS Publication 946 at 106 (2022), establishing a recovery period for Electric Utility Transmission and Distribution Plant of 20 years under the Modified Accelerated Cost Recovery System ("MACRS") as compared to a Class Life straight line (ADS) recovery period of 30 years. By comparison, regulatory depreciation lives for electric utility poles are typically between 35 and 50 years. *See also*, Tracey M. Roberts, *Stranded Assets and Efficient Pricing for Regulated Utilities: A Federal Tax Solution*, 11 Colum. J. Tax L. 1, 23 (2019) ("As a result of the timing differences in tax and financial accounting rules, the utility enjoys tax savings from accelerated tax depreciation.")

[32] *See* Kravtin 2020 at 11, 15-17.

[33] *See* Lopez & Kravtin, *Advancing Pole Attachment Policies* at 4-6.

recover the resulting added costs for project redesigns and deployment delays, and delays in or loss of economic multiplier effects associated with broadband.[34]

Current practices also provide utilities added incentive to misreport and/or under-report red-tagged poles or poles failed in service, as well as to defer normal life cycle replacement of their pole plant. Doing so allows them to shift an even greater proportion of the costs of their normal life cycle utility pole replacement onto attachers.

Pole owners also have both the opportunity and incentive to exploit their informational advantage as to which poles are identified (or likely candidates) for red-tagging or up for inspection in the current inspection cycle. Attachers have no independent or reliable way to verify whether the utility's classification of a pole to which they wish to attach as "red-tagged" (subject to cost sharing requirements under current Commission rules) or non-red-tagged (exempted from cost sharing requirements) actually matches to current utility replacement best practices, or whether the utility's classification of the pole is consistent with the utility's own hardening objectives.[9] Available data shows that utilities have differing and *ad hoc* approaches for designating red-tagged poles, with no objective mechanism for attachers to question or verify the designation.[35]

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[34] *See* Kravtin 2020 at 25-26.

[35] *See*, Before the Commonwealth of Kentucky Public Service Commission, *In re Electronic Investigation of the Proposed Pole Attachment Tariffs of Rural Electric Cooperative Corporations*, Case Nos. 2022-00105 (Investor Owned Utilities), 2022-00106 (Rural Electric Coop. Corporations), 2022-00107 (Rural Local Exchange Carriers), 2022-00108 (Incumbent Local Exchange Carriers) ("*Kentucky 2022 Pole Amendment Tariff Investigations*"); *e.g., Id.* Case No. 2022-00105, LG&E and KU, Response to KBCA's Initial Request For Information 1-3 (May 5, 2022) (stating Attachment customers can "observe 'red-tagged'" poles, or "if the proposed pole attachment route is in a location where the Companies' regulatory inspections have not yet identified a 'red-tagged' pole, the Companies' design teams will identify any 'red-tagged' poles during their review of the Attachment Customer's application"); *Id.* Case No. 2022-00106, Jackson Energy, Response to KBCA's Initial Request For Information 1-8 (May 5, 2022) ("If there is any question . . . [the attacher] can contact Jackson Energy Cooperative and have a Jackson Energy employee check it."); *Id.* Case No. 2022-00106, Jackson Purchase Energy, Response to KBCA's Initial Request For Information 1-8 (May 5, 2022) (Red-tagged poles that have been visited by technicians will have red ribbons. Otherwise, the attacher will have to obtain verification from Jackson Purchase.); *Id.* Case No. 2022-00106, Taylor County R.E.C.C., Response to KBCA's Initial Request For Information 1-8 ("There is no way to pre-determine poles that will fail inspection. The attacher can contact the Cooperative if there

An example illustrates this point. In a recent ratemaking proceeding in Kentucky, pole owners provided information in discovery regarding their classification of poles.[36] The data show that, in many cases, the number of poles that pole owners identified as red-tagged are inexplicably low relative to the replacement rates implicit in the useful life assumptions used by those utilities in their depreciation analyses. In other words, the utilities' reported depreciation schedules suggest the utilities should have far more red-tagged poles than they are reporting. As illustrated in Table IV.D.1, the Kentucky data showed reported red-tag rates that are, in many instances, fractions of the expected utility replacement rates.

are questions about whether a pole is red-tagged."); *Id.* Case No. 2022-00108, Cincinnati Bell Response to KBCA's Initial Request For Information 1-3 (May 5, 2022) (Dangerous poles will have a literal red tag attached to them. If it has been designated for replacement but not tagged as dangerous, that "will be reported in the results of the pre-license survey.").

[36] *See Kentucky 2022 Pole Amendment Tariff Investigations*, Case No. 2022-00105, Kentucky Power Company Response to Commission's Initial Request For Information 1-9 and KBCA Initial Request For Information 1-3, 1-4; *Id.* Case No. 2022-00106, Blue Grass Energy Cooperative, Corp. Response to Commission's Initial Request For Information 1-8 and KBCA Initial Request For Information 1-6, 1-7 (May 5, 2022); *Id.* Case No. 2022-00106, Fleming-Mason Energy Cooperative, Inc. Response to Commission's Initial Request For Information 1-8 and KBCA Initial Request For Information 1-6, 1-7 (May 5, 2022); *Id.* Case No. 2022-00106, Grayson R.E.C.C. Response to Commission's Initial Request For Information 1-8 and KBCA Initial Request For Information 1-6, 1-7 (May 5, 2022); *Id.* Case No. 2022-00106, Owen Electric Cooperative, Inc. Inc., Response to Commission's Initial Request For Information 1-8 KBCA Initial Request For Information 1-6, 1-7 (May 5, 2022); *Id.* Case No. 2022-00107, Brandenburg Telephone Co. Response to Commission's Initial Request For Information 1-8 and KBCA Initial Request For Information 1-1, 1-2 (May 5, 2022); *Id.* Case No. 2022-00107, South Central Rural Telecommunications Cooperative, Inc. Response to Commission's Initial Request For Information 1-8 and KBCA Initial Request For Information 1-1, 1-2 (May 5, 2022); *Id.* Case No. 2022-00108, Cincinnati Bell Telephone Company Response to Commission's Initial Request For Information 1-8 and KBCA Initial Request For Information 1-1,1-2.

Table IV.D.1
Comparisons of Expected Normal Life-Cycle Pole Replacement Rates and Percentage of Reported Red-Tagged Poles for Illustrative Utilities

Pole Owner	Total Poles	Expected Annual Utility Replacement Rate (100 / Useful Life)	Current Utility Identified Red- Tag Percentage	Difference Between Utility's Replacement Rate and Red-Tag Pct.	Projected Red Tag Percentage (Annual Basis)
Investor-Owned Utilities					
Kentucky Power Company[37]	218,310	3.571%	.138%	(3.433%)	.105%
Rural Electric Cooperative Corporations					
Blue Grass Energy Cooperative Corp.[38]	100,700	2.564%	.15%	(2.414%)	n/a
Incumbent Local Exchange Carriers					
Cincinnati Bell Telephone Co.[39]	48,532	3.448%	.087%	(3.361%)	.383%

The shortfall in the reported red-tag rate, as compared with the expected rate of replacement implied by the utility's own capital recovery procedures, suggests that utilities have strategized an effective loophole to shift a disproportionately high amount of replacement costs onto attachers. This is especially apparent for older, typically undersized poles near or at the end of their depreciation life. For older poles, the utility will likely have accrued sufficient (if not more than sufficient) capital recovery for replacement through the depreciation allowances built into their ratepayer and attacher rates. The expectation therefore would be that a large percentage of these

[37] *See Kentucky 2022 Pole Amendment Tariff Investigations*, Case No. 2022-00105, Kentucky Power Company, Response to Commission's Initial Request For Information 1-9, 1-10 and KBCA Initial Request For Information 1-3, 1-4.
[38] *See id.*, Case No. 2002-00106, Blue Grass Energy Cooperative, Corp., Response to Commission's Initial Request For Information 1-8, 1-9 and KBCA Initial Request For Information 1-6, 1-7.
[39] *See id.*, Case No. 2002-00108, Cincinnati Bell Telephone Company, Response to Commission's Initial Request For Information 1-8, 1-9 and KBCA Initial Request For Information 1-1, 1-2

poles would be red-tagged or otherwise identified as ready for normal life-cycle replacement by the utility consistent with the capital recovery provided through its depreciation allowances. The data show that pole owners can use new attachers to fund the utility's deferred replacement of older vintage undersized poles with newer, taller, stronger poles, without facially violating the existing rules.[40]

This white paper supports Commission adoption of policies to remedy the status quo that has permitted utilities to transfer all pole replacement costs onto attachers. This practice is inconsistent with the economic reality that pole owners derive the primary, direct betterment value from pole replacements, including early pole replacements, and the utility's group depreciation allowances factor in along with average and late pole retirements. As described in the next section of this white paper, adoption of efficient and equitable cost sharing arrangements between new attachers and pole owners, such as embodied in the NCTA proposal, would ensure attachment costs are efficient and competitive, and would better promote social welfare.

V. REFORMS TO THE COMMISSION'S APPROACH TOWARDS POLE REPLACEMENTS ARE NEEDED TO ALLOCATE COST OF POLE REPLACEMENT IN ECONOMICALLY EFFICIENT AND EQUITABLE MANNER.

As described in Section II of this white paper, pole owners have several strategies available to them to exercise holdup power over attachers.[41] These strategies are mutually inclusive and therefore effectively interchangeable. Accordingly, regulatory intervention is required to address each of the available strategies and reduce pole owners' incentives and ability to exercise this power. Pole owner incentives to holdup third-party entry are best mitigated through a mix of

[40] *See In re Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, Declaratory Ruling, 36 FCC Rcd 776, 780-81 ¶¶ 8-9 (WCB 2021). Although the specific example arises in the case of a Kentucky proceeding, Kentucky operates under cost-sharing rules substantially similar to those applied by the Commission. *See* 807 Ky. Admin. Regs, 5:015 amended.
[41] *See supra* Section II.

policies addressing both cost and non-cost manifestations of holdup, and addressing both recurring and non-recurring charges. Such regulatory interventions include:

- Rules to correct for excessive upfront charges;
- Rules to correct for excessive recurring charges;
- Rules to correct for incentives to strategically delay;
- Rules to correct for incentives to misreport, under-report, or withhold private information;[42] and
- Rules to correct for market foreclosure, for example in connection with the utility's actual or potential vertical integration into broadband supply.

The current *FNPRM* focuses on the first of these regulatory interventions—rules to correct the inefficient upfront charges that new attachers face in connection with pole replacement. Historically, this area has been less of a focus in pole attachment regulation, but its importance has increased as inefficient upfront charges can create a bottleneck to the national priority of broadband expansion into underserved or unserved areas. To effectively constrain pole owners' ability and incentives to exercise holdup power, any regulatory intervention must take into account the interplay of the various sources of holdup and, accordingly, be prepared to implement complementary rules as required to fully mitigate pole owners' holdup powers.

From a pure perspective of allocating shared resources, the most desirable economic solution to correct for inefficient upfront charges would be to limit upfront make-ready charges for pole replacement to pole owners' incremental cost, as opposed to the gross, total out-of-pocket costs (or outside contractor costs that could be even higher) that utilities typically assess today.

[42] These would include rules that impose a set of standard discovery requirements on the utility regarding the provision of accurate, actual internally kept data concerning the utility's pole inventory at the simple request of the pole attacher in pole rental negotiations. *See also* mechanism design literature for incentive compatible bargaining rules (not auctions) that induce honesty, including Brams et al., *Negotiation Games* (2d ed. 2002).

The true economic incremental cost of a pole replacement to a pole owner is the cost of the replacement, net of all offsetting betterment value of any capital recovery provided in the recurring rate.

In this case, a pole owner's incremental costs are equal to the temporal costs—*i.e.*, the time-adjusted costs from replacing the pole earlier than would have occurred in the course of the utility's provision of its core electric distribution service. Reimbursement of temporal costs would still efficiently compensate pole owners, particularly given the cost recovery that utilities are provided through recurring charges,[43] and would better align with principles of cost causation, economic efficiency, and distributional equity.

A proposal for cost sharing measured by temporal costs was advanced in the 2020 Kravtin Study.[44] It was based on the regulatory principle of "stranded investment," which established the remaining net book value ("NBV") of the pole being replaced (*i.e.*, the remaining undepreciated value of the replaced plant) as an appropriate measurement for the temporal incremental costs caused by a replacement. A pole replacement charge based on NBV is analogous to a stranded investment recovery charge, a widely accepted practice for making utilities whole when plant is replaced earlier than planned or before the end of the plant's historical useful life.[45]

Applying a stranded cost model in the pole replacement context is, in fact, even more generous to the utility. Stranded investments are typically reimbursed in situations where a utility can no longer make economic use of the remaining value of its investment (such as in the case of a nuclear power plant decommissioned ahead of schedule). However, there is no corresponding

[43] *See infra* Section VI.
[44] *See* Kravtin 2020 at 6, 16, 45-46.
[45] There is a rich literature on the use of remaining net book value in the utility "stranded investment" context. *See* Kravtin 2020 at 46 & n.76.

"stranding" of the utility's investment in an old utility pole taken out of service prematurely.[46] The remaining (if any) undepreciated value of poles replaced earlier than anticipated is not removed from a utility's capital expense components for purposes of calculating its rates—rather, that value is accounted for on the utility's books for full recovery through the utility's depreciation allowances. Additionally, stranded investment recovery vehicles typically provide a utility the ability to recover its stranded investments over time, through the creation of a special class of regulatory assets on which it is allowed to earn a return on unamortized balances over a prescribed period.[47] The NCTA proposal to reimburse utilities for pole replacements using a one-time charge

[46] *See, e.g.*, 18 C.F.R. Ch. 1, pt. 101 Account 342. Following the FERC guidance, when an existing pole asset is retired from service, the historical original book cost of the retired plant is credited from the FERC Account 364 pole asset account (Part 101 – [P]lant in [S]ervice) and also debited to (charged against) the Accumulated Depreciation (Part 108 – Accumulated [P]rovision for [D]epreciation of [E]lectric [U]tility [P]lant). In debiting the total original cost of the retired plant from the Accumulated Depreciation, the utility effectively charges the Accumulated Depreciation for any remaining undepreciated amount of the original cost of the retired poles. Additionally, the utility is able to charge against the depreciation reserve for current costs of removal of the retired plant. *See also* Cal. Pub. Utils. Comm'n, *Standard Practice for Determination of Straight-Line Remaining Life Depreciation Accruals*, Standard Practice U-4 at 5 (San Francisco, California, revised Jan. 3, 1961) ("CPUC Standard Practice"), "Accounting Transactions Relating to Depreciations" detailing the various accounting entries pertaining to the retirement of pole plant, including the debit (-) entries to the accumulated depreciation reserve account for the full historical cost of the retired plant and the costs of removal pertaining to the retired plant applicable at the time of the plant's retirement from service.

[47] *See, e.g.*, FERC USOA Accounting Rules, 18 C.F.R. pt. 101, at 320, 329-330, 364, defining regulatory assets as probable future revenues associated with costs the utility expects to recover through customers through the regulatory ratemaking process and directing the booking of those future amounts to FERC account 182.3 ("Other [R]egulatory [A]ssets"). Inherent to deferred asset accounting is a regulatory assurance of future recovery. A regulatory asset allows the utility to carry the net book value of plant in its rate base even though the plant has been retired, permitting the utility to recover – and earn a return on its investment and of its investment through depreciation allowances. *See* Kenneth Rose, *Electric Restructuring Issues for Residential and Small Business Customers*, The National Regulatory Research Institute, NRRI 00-10, at 4, 22, 27 (June 2000) (describing customer charges relating to "three basic types of uneconomic or 'stranded costs:' potentially 'stranded' production or generation costs, net regulatory assets, and state and federal mandated program costs."). *See also id.* at 26, and Roberts, 11 Colum. J. Tax L. at 38 (describing amortized recovery of stranded investment through securitization mechanisms: "Historically, several states have authorized utilities to securitize their stranded costs. Under securitization, utilities issue bonds, the revenues of which will be used to repay investors for their remaining unrecovered capital expenditures in plant, property, and equipment ('PPE'). The bonds will be repaid by consumers over time…" (footnotes omitted)). In a recent rulemaking proceeding, the State of Connecticut Public Utilities Regulatory Authority ("PURA") proposed creation of a regulatory asset to recover from ratepayers anticipated make-ready costs to be incurred by the utility in coming years for work not properly billed to

is more equitable to the pole owner, as it would provide for the full return of the remaining undepreciated plant value of the replaced pole upfront in one lump sum payment.

The NBV is the original net pole cost not yet depreciated or recovered by the utility that, "but for" the new attachment, could have remained in service until such time as it was fully depreciated and/or reached the end of its useful life. In other words, the NBV is the accounting value of the old pole as recorded on the utility's regulatory books of accounts. The NBV approach is a ubiquitous and straightforward method, is based on publicly available data, is used in the valuation of stranded investment, and is used as the basis of the appropriate measure of pole costs in the Commission's existing recuring rate formula.

The NBV approach relies on the same depreciation assumptions regarding average useful pole life, cost of removal, salvage, and retirement experience for poles incorporated in the utility's depreciation allowances. Utilities have significant experience with the application of NBV-based recovery mechanisms in the stranded investment context, and in other regulatory settings, utilities have embraced the use of remaining NBV as a compensatory capital recovery vehicle for plant prematurely taken out of service.[48] As such, it is a familiar metric whose application in the pole context would benefit from utilities' experience with it in other settings. The large body of

third-party attachers. *See PURA Investigation of Developments in the Third-Party Pole Attachment Process – Make Ready*, Docket No. 19-01-52RE01, Proposed Final Decision at 42-43 (Conn. Pub. Utils. Regul. Auth. Apr. 12, 2022) ("The EDCs may record these costs in a regulatory asset and seek approval for them in the next general rate case.").

[48] *See, e.g.*, Order Instituting Rulemaking to Promote Policy and Program Coordination and Integration in Electric Utility Resource Planning, R.04-04-003, Opinion Adopting Pacific Gas & Electric, Southern California Edison Company, and San Diego Gas & Electric Company's Long-Term Procurement Plans, D.04-12-048 Section I. A. 2. A at 56-60 (Cal. Pub. Utils. Comm'n Dec. 16, 2004) ("The IOUs support the concept of stranded cost recovery for their investments and believe it is a critical factor that needs to be resolved in order for them to plan their future procurement strategies…. For the above reasons, it appears that the utilities may need to make longer-term commitments for capacity and energy that may become stranded at some point during the life of these projects…Therefore, the utilities should be allowed to recover the net costs of these commitments from all customers…. This does not mean they the utility should recover the total costs of these commitments, only the uneconomic portion."); *see also* Me. Stat. tit. 35, § 3208.

precedent about how to calculate and apply the method would also facilitate the resolution of any disputes.

The NBV approach aligns with the intrinsic nature of the avoidable costs causally linked to a pole replacement to accommodate a new attachment request, *i.e.*, the temporal costs of shifting forward the inevitable replacement of the existing pole that otherwise would have ensued in the normal course of utility operations. Of the out-of-pocket costs incurred to replace a pole, the only component that aligns with the marginal or incremental costs—*i.e.*, the costs "but for" the attacher would not be incurred by the pole owner in its normal course of operations—are the costs associated with the temporal shift of the replacement or upgrade to the pole. These are mainly in the form of the remaining (yet to be depreciated) NBV of the retired pole, corresponding to the amount of the original plant capital-related costs that the utility has yet to recover through its depreciation allowances.

As described in Kravtin 2020, in limited cases there may also be additional unique, incremental costs (*e.g.*, the use of a taller pole than the utility would have installed in the absence of the new attachment) that could be directly traced to the attacher rather than the utility's normal course of operations.[49] However, absent regulatory intervention, pole owners will have an incentive to claim such costs as a strategy for exercising holdup leverage, and to selectively disclose private information (such as the utility's typical pole replacement practices) in support of such claims. Therefore, effective mitigation of this adverse incentive requires a regulatory regime that places the burden of objectively demonstrating such costs on the pole owner.

The Commission could mitigate pole owner use of its informational leverage by requiring any additional cost recovery above the NBV to be demonstrated with verifiable, substantiated data

[49] *See* Kravtin 2020 at 49.

for the specific poles to be replaced. Given current utility construction practices that routinely install standard pole heights of 40 to 45 feet, and because utilities typically use standard pole heights of 40 to 45 feet when performing pole replacements for broadband attachers, use of more expensive non-standard installation poles to accommodate new attachments may not be common.[50]

Specific Valuation Methods to Implement NBV Standard:

There are several viable methods by which the NBV standard could be implemented in the pole replacement context. This paper identifies three straightforward valuation methods for determining the pole investment "stranded" by the earlier replacement in connection with a new attachment.

Method 1: Pole-Specific Valuation. Where a utility has accounting records reflecting the vintage (age) of the pole, individual measurements can be used; this method would use the pole owner's records of the actual vintage of the replaced pole in order to accurately calculate and target the appropriate reimbursement. Under such a regime, parties would have the opportunity to rely on actual cost data for the specific pole or pole vintage at issue. The pole owner would have the opportunity to establish that a pole is at an early stage of its lifecycle, not otherwise scheduled to be replaced by the utility, and that the remaining value is greater than the average net book investment. The exact evidence appropriate to calculate these factors likely will vary case-by-case, but still may be derived primarily using either publicly available or routinely reported and verifiable information. For instance, the utility's fixed asset accounting records pertaining to FERC Account 364 (poles, towers, fixtures) detailing depreciation for regulatory purposes may provide a more specific measurement of a pole's remaining net book value than on either an average vintage or mass asset basis.

[50] *See supra* Section III for expanded discussion.

While the pole-specific option affords the most accuracy and hence theoretically would produce the most efficient rate outcome, it is more transactionally complex, and requires use of the pole owner's internal accounting and survey records. If the Commission authorizes this method where data is available, mechanism design theory suggests that it would be made more effective through a companion rule that induces honesty, namely, to ensure that utilities do not use their informational leverage to "game" it by selectively disclosing individual pole information only when advantageous. Specifically, the Commission could require any utility relying on pole-specific cost data in this manner to make such accounting information available to attachers in order to enable them to determine the appropriate reimbursement for pole replacements, and also to ensure against the utility's exercise of holdup power in the calculation of the *recurring* rate. In its calculation of *recurring* rates, the utility possesses leverage over the data inputs in that it can choose between relying on actual utility data and Commission-set presumptive values.[51] To mitigate use of holdup leverage to game the measurement of non-recurring and recurring charges, an effective regulatory intervention would require any utility that uses actual pole cost data to make such data available to attachers and use it consistently for both make-ready charges and pole rental fees.

As identified in the 2020 Kravtin Study, a pole-specific valuation could also be derived based on the utility's identified current cost of a replacement pole by applying standard industry cost indices to discount the current value based upon the age of the pole being replaced. This method could be applied when the age of the pole is known, but where individual pole costs are either not available or cumbersome to obtain. Table V.1 below provides an illustrative calculation of this method.

[51] *See infra* Section VI for expanded discussion.

Table V.1
Illustrative Calculation of Estimated Remaining Net Book Value of an Installed Pole, Under Method No. 1, Where Age of Pole Is Known, but Original Cost Data by Pole Vintage May Not Be Available

Description	Younger than Average [8]	Older than Average [8]
L 1 Identified/Verified Age of Pole Being Replaced	12 years	26 years
L 2 Utility Current Installed Per-Pole Cost (2021)	$3,500.00	$3,500.00
L 3 Cost Deflator from 2021 to Year Corresponding to Identified Age of Pole Being Replaced [1]	0.7893	0.5108
L 4 Estimated Installed Per-Pole Cost [2]	$2,762.55	$1,787.88
L 5 Depreciation Rate [3]	3.75%	3.75%
L 6 Annual Depreciation [4]	$103.60	$67.05
L 7 Accumulated Depreciation [5]	$1,243.15	$1,743.18
L 8 Accumulated Deferred Taxes [6]	469.63	-303.94
L 9 Net Installed Per-Pole Cost (2021) [7]	**$1,049.77**	**$348.64**

Notes:
[1] The Handy Whitman Index, Bulletin No. 175, North Central Region, was used to deflate pole from current 2021 cost to year corresponding to placement of pole of identified age. For 12-year pole, deflator based on change in index 2009-2021, for 26-year pole, change in index 1995-2021.
[2] Line 2 x Line 3
[3] Annual depreciation (straight-line) using composite depreciation rate of 3.75% (2.50% Life Rate based on a pole life of 40 years plus 1.25% Negative Net Salvage Rate). Based on actual reported utility depreciation parameters for Account 364 and/or used in the setting of depreciation allowances for ratemaking purposes and in the calculation of the recurring rate formula.
[4] Line 4 x Line 5
[6] Accumulated deferred taxes (ADT) are allocated to pole at same proration as used in the calculation of the recurring rate formula. This illustrative example assumes a proration of 17%. The ADT applies an offset to younger than average poles, and as an add back to older than average poles, consistent with the manner in which the tax benefits are realized over the life of the asset.
[7] Line 4 minus Line 7 minus Line 8.
[8] Average age assumed one-half of useful service life used by utility for depreciation purposes.

Method 2: Valuation Based on Pole Age Ranges. As a practicable, streamlined adaptation of the pole-specific valuation method, the Commission could alternatively establish, as a rebuttable

option, the application of various pole age range categories with fixed or sliding percent adjustments up or down from average net book value (*e.g.*, different cost-sharing percentages for newer poles, average poles, older poles). This would allow for a continuum of cost sharing from attachers, for example, from a smaller share for the oldest/older pole age ranges to average NBV for the middle pole age ranges, to much larger cost share for the newer pole age ranges. This could include at the most upper bound of the continuum, a multiple of NBV up to 100% of the cost of replacement in the limited case of the replacement of a newly placed pole. This pole age range approach provides a built-in layer of guarantee the utility is afforded sufficient recovery for temporal costs associated with the new attachment. It would do so by explicitly linking a new attacher's cost-sharing obligation to the useful life of poles embodied in the utility's current depreciation rate used for purposes of calculating its ratepayer rates and pole rental charges. Electric utilities apply a wide range of assumptions regarding the useful lives of their poles for purposes of the depreciation analyses they use for electric ratemaking purposes; this method would consistently reimburse utilities based upon the expected pole life and other capital recovery-related depreciation parameters that they themselves have chosen based upon the circumstances of their specific operations.[52]

To effectuate such a methodology, the Commission could establish a predetermined set of pole age range categories based on (1) the data provided in response to the instant *FNPRM* and as reported in the FERC Form 1 for electric utilities (generally between 35 and 50 years), (2) prior findings related to pole lives of the Commission (most recently noting a pole life of 23 years),[53] (3) and in accordance with useful lives for utility distribution plant codified in IRS regulations (30

[52] *See infra* Section VI for an expanded discussion.

[53] *See In re Comprehensive Review of the Part 32 Uniform System of Accounts*, Report and Order, 32 FCC Rcd 1735, 1746 ¶ 36 n.98 (2017) ("*Part 32 USoA Order*") (noting "a typical life is 23 years.").

years).[54] For example, the Commission could establish rules specifying that poles between 0 and 24 years are valued at a multiple of 1.5 to 2 times the utility's average net book value, poles between 13 and 25 years old have a remaining book value equal to the utility's average net book value, and poles between 26-39 years retain one quarter of this value, and so on.

While this method would sacrifice some accuracy, it would allow for faster calculations and benefit from ease of administration so long as the pole owner retains and makes available records of the vintage of its pole plant, or there are discernable visible age tags on the physical pole. In order to reduce the costs of imprecision (since there will be many cases where the age of the pole alone should not be solely determinative of the value of the pole), the Commission could also presume that relying on the age range categories to determine the value of a pole is reasonable but allow parties to rebut this presumption with additional facts—including depreciation accounting data—where appropriate. In addition, to achieve greater accuracy, the Commission could allow for the NBV retention factors to vary according to the utility's own depreciation parameters. This would be somewhat analogous to the Commission's rules pertaining to cost factors used to calculate the telecom formula. In its original rules, the Commission established only two presumptive cost factors (.44 corresponding to 3 attaching entities for rural, and .66 corresponding to 5 attaching entities for urban) to apply to all utilities,[55] but later revised its rule to require the interpolation of the cost factor according to each utility's actual number of attaching entities.[56] Table V.1 above provides an illustrative calculation under this second method, corresponding to the utility depreciation parameters modeled above.

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[54] *See* IRS Publication 946 (2022).

[55] *See In re Implementation of Section 224 of the Act*, Report and Order and Order on Reconsideration, 26 FCC Rcd 5240, 5303-04 ¶ 147 (2011) ("*2011 Pole Attachment Order*"), *aff'd sub nom. Am. Elec. Power Serv. Corp. v. FCC*, 708 F.3d 183 (D.C. Cir. 2013).

[56] *See In re Implementation of Section 224 of the Act*, Order on Reconsideration, 30 FCC Rcd 13731, 13756 Appendix A (2015) ("*2015 Order on Reconsideration*").

Method 3: Average Net Book Value Presumption. Where records on individual pole or pole vintage are unavailable or cumbersome to obtain, the average net book value of the utility's pole assets as a group as used in the Commission's recurring rate formula can be used to establish a presumptive value. The average NBV approach is a simple, commonly applied calculation based on publicly available and reported utility cost information and is widely accepted and used throughout the country in calculating recurring rates.[57] Parties can rely on existing agency and judicial precedent relating to the recurring rate formula accumulated over the past four decades to provide guidance on how to apply the NBV calculation for nonrecurring charges.

The use of the average historic NBV method offers a number of key advantages in addition to the administrative ease. This approach achieves consistency with the same depreciation assumptions regarding average useful lives, cost of removal, salvage, and retirement experience for poles incorporated in the utility's depreciation allowances. This is because pole assets are classified as a "mass asset" and depreciated in accordance with group depreciation accounting practices,[58] such that the use of average booked net book value for the utility's fixed pole asset as a group automatically aligns with the life assumptions (total service life and/or remaining life) used by the utility in developing its pattern and timing of capital recovery for regulatory purposes. Under mass asset group accounting practices, depreciation allowances take into account both the earlier-than-average and later-than-average retirement of some poles relative to their average useful life, such that requiring attachers to pay the utility the average net book value of a pole as

[57] The one data point required by this method that is not already publicly available is the pole owner's aggregate utility pole count. That data point is regularly provided in recurring rate calculations, and therefore should be readily accessible. Nonetheless, it would be helpful for rules to specifically direct utilities to provide supporting pole count data used for these purposes to ensure transparency and ease of administration.

[58] *See infra* Section VI.

recorded on the utility's books of account for any given pole replacement will, in the aggregate, ensure adequate recovery.

Additionally, the use of the average historic net book value method will dampen a utility's ability to exercise its informational advantage to raise attachers' costs by strategically under-identifying, misreporting, or withholding private information pertaining to its net book valuations. Using the same average net book value used to calculate recurring charges for purposes of determining non-recurring charges would make it much more difficult for a pole owner to arbitrage its informational advantage by choosing to rely on individual pole-specific data for purposes of non-recurring charges while choosing to rely on group average actual or presumptive values for purposes of recurring charges.

Table V.2 provides an illustrative example of the average NBV calculation for an electric utility as determined under the Commission's recurring rate formula. The per-unit net bare pole cost is calculated in the following four steps:

1. *First*, the electric utility's gross investment in pole cost is determined based on amounts reported in the utility's books of account in Account 364 (Poles, Towers, Fixtures).

2. *Second*, this gross investment amount is converted to a net investment figure by subtracting accumulated depreciation for pole plant, and accumulated deferred taxes applicable to poles (not applicable to cooperatively and municipally owned utilities).

3. *Third*, the net investment in bare pole plant is determined by making a further reduction to remove amounts booked to Account 364 for "appurtenances," such as cross-arms, used in the provision of the core electric service only and from which communications attachers do not derive benefit.

4. *Fourth*, the net investment in bare pole plants is divided by the total number of poles the utility has in service to derive a per-unit pole cost figure, which can then be scaled to the number of poles replaced in the course of a particular project.

Table V.2		
Illustrative Example of Per-Pole Average Remaining Net Book Value Based on FCC Recurring Rate Formula Methodology		
Formula Calculation: Net Bare Pole Cost Component	**Data as of 12/31/xx Current Cost Year**	*Sources/Notes*
Investment in Pole Plant Acct 364	$675,000,000	FERC Form 1 Report Acct 364
- Accumulated depreciation for poles	$300,000,000	Prorated from Electric/ Distribution Plant or Internal Utility Records
- Accumulated deferred income taxes for poles	$120,000,000	Prorated from Total/Electric Plant including Excess ADIT Amounts
= Net Pole Investment	$255,000,000	
x (1- Appurtenances Factor)	.85	FCC 15% Rebuttable Presumption or Actual
= Net Pole Investment allocable to Attachments	$216,750,000	
/ Total Number of Poles	400,000	Utility Records
= **Estimated Average Remaining Net Book Value/Pole**	**$541.88**	

While this method is well suited to provide the *default* valuation, either party should have the opportunity to challenge the use of the average net book cost based on the average age of the utility's pole plant and support instead of the use of a net book value amount associated with the actual vintage of the removed pole (*i.e.*, apply the first method described above) or the pole range valuation (*i.e.*, apply the second method). In particular, the pole owner could seek to use a higher net book value to calculate pole replacement charges where it could demonstrate with verifiable data that the age of the removed pole was younger than the average vintage pole and hence subject to fewer than average years of depreciation-related capital recovery. Similarly, an attacher could seek to use a lower net book value where it could demonstrate that the age of the removed pole was older than the average vintage pole and hence subject to more years of depreciation-related capital recovery (*i.e.*, write-down) by the utility.

As with the rebuttable presumptions in the recurring rate formula, the parties would have the opportunity to challenge the presumption based on actual, well-supported and documented data that could be substantiated and verified. The Commission could mitigate the utility's opportunity and incentive to leverage its informational advantage regarding the status of its pole plant to seek additional cost recovery in excess of true "but for" costs by permitting such additional cost recovery only in those instances where the utility can provide actual, detailed factual documentation in support of such a claim. Additionally, given the utility's informational advantage relative to the attachers, the utility should be required to provide, upon request by an attacher who has reason to challenge the presumption, any pertinent pole inventory records or data available to the utility that would support such a challenge.

Table V.A.3 below presents illustrative calculations of the Net Book Value approach under three methods described below in a side-by-side comparison.

Table V.3.
Illustrative Calculations of Net Book Value Approach for Pole Replacement for Three Methods for Determining NBV: Pole-Specific, Average Pole in Service, Pole Age Ranges

Method	**Method #1:[1] Pole-Specific Age Data**	**Method #1:[1] Pole-Specific Age Data**	**Method #2:[2] Pole Age Ranges**	**Method# 2:[2] Pole Age Ranges**	**Method# 3:[3] Avg Pole In Service**
Applied to:	**Pole Younger than Average**	**Pole Older than Average**	**Newer Pole Ranges**	**Older Pole Ranges**	**Average Age Pole Rebuttable Default**
Estimated Average Remaining Net Book Value (NBV)/Pole	$541.88	$541.88	$541.88	$541.88	$541.88
+/– Reasonable Adjustment for Years Younger or Older than Avg. to Accumulated Depreciation	+$507.89	-$193.24	+$270.94 to +$541.88	-$135.47 to -$406.41	n/a
+ Additional Unique Cost/Pole (in Limited Cases Where Documented Costs Caused by Attacher)	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation
– Less Net Cost Savings from Earlier Replacement/Lower Maintenance Amortized over Life)	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation	Presumed zero or no sufficient documentation
Adjusted Average NBV/Pole	$1049.77	$348.64	$812.82 To $1,083.76	$352.22 to $135.47	$541.88

Notes:
[1] #1: Add/Subtract Annual Depreciation Accrual x # Yrs. Younger/Older than Average from Original Installed Cost
[2] #2: Apply Adjustments Based on Presumed NBV Retention Multipliers for Pole Age Ranges (*e.g.*, .25 to .65 for Older Age Ranges, 1.0 for Average Age Range, 1.5x to 2.0 x for Newer Age Ranges based on Utility Parameters
[3] #3: Uses Net Book Value per pole as determined in the Recurring Rate Formula (see Table V.A.2)

As shown in Table V.3 when the data and assumptions used to calculate the net book value are aligned with the depreciation parameters and capital recovery patterns used by a utility for

ratemaking purposes, the valuations produced by the various methods will converge. There are trade-offs between the three methods for determining net book value, as described above. That said, the use of any of these methods (or combination of) that base the share of pole replacement costs allocated to attachers on the net book value of the pole being replaced is highly superior to the methodology typically used today, under which pole owners charge attachers the full out-of-pocket cost of installing a new pole.

Permitting the pole owner to assign the full cost of the replaced pole onto attachers deviates from cost causation principles, and results in an inherently inefficient amount of excess capital recovery to the pole owner, given (a) the "betterment" value it receives from the new asset, and (b) the recovery it separately obtains through *recurring* charges, as described in the next section of this paper. Current practices allowing pole owners to shift the entire cost of replacement onto third-party attachers also produce highly inefficient outcomes in that pole owners have no incentive to control costs of replacements, especially in regard to the use of outside contractors. This is particularly an issue in connection with the costs of removal of the old pole, which—as described in the next section—have grown substantially in recent years, in many cases, to multiples of the original cost of the installed poles.

VI. RECOVERY OF POLE REPLACEMENT COSTS THROUGH RECURRING RATES WOULD BE ECONOMICALLY EFFICIENT AND ADMINISTRATIVELY SIMPLE, AFFORDING SUFFICIENT CAPITAL RECOVERY TO THE POLE OWNER FOR POLE INVESTMENT WHILE ADVANCING BROADBAND INVESTMENT.

A. Overview of the Two-Part Pricing Structure for Pole Attachments and the Commission's Alternative Proposal for Capital Recovery of Pole Replacement Costs in the Recurring Rate.

In paragraph 31 of the *FNPRM*, the Commission asks a series of questions concerning the "relationship between the upfront costs incurred to replace a pole versus the recovery of pole

replacement costs through recurring rates," to better understand the relative efficiency and effectiveness of recovering the costs of pole replacement through depreciation allowances in the recurring rate rather than through the upfront make-ready fees.[59] The overarching question posed by the Commission in paragraph 31 is as follows:

> Specifically, would it be more efficient and effective to require all costs incurred to replace a pole (except where a pole replacement is solely necessitated by a new attachment) to be recovered over time through the allowance for depreciation reflected in recurring rates calculated pursuant to the Commission's pole attachment rate formula, rather than upfront though make-ready fees?

This inquiry recognizes that the allocation of pole replacement costs through non-recurring charges is not independent of how utilities recover their capital expenses from attachers through recurring rates under existing Commission rules.

Under existing rules, pole owners charge attachers pursuant to a two-part pricing structure: (1) a recurring pole rental rate, which (under the Commission's formula) is based on the utility's average embedded costs associated with accommodating pole attachments and is applicable to all attachers,[60] and (2) a set of attacher-specific non-recurring charges (set by the utility) to recover the costs of any upfront make-ready work performed in connection with the accommodation of a third-party attachment. Attachers that pay non-recurring costs to attach to a pole do so in addition to an annual recurring pole rental rate.

Recovering pole replacement costs through non-recurring charges can be done efficiently, as set forth in Part V. However, the option posited in the *FNPRM* to allow pole owners to recover pole replacement costs through recurring rates would have the added advantage of administrative simplicity because it would rely on existing and familiar mechanisms for sharing the fully allocated

[59] *FNPRM* ¶ 31.
[60] *See* 47 C.F.R. § 1.1406(d).

costs of utility poles across all attachers (on an equivalent per foot of occupancy basis). An alternative approach that relies *solely* on recurring rates to recover pole replacement costs, while a different approach from the Net Book Value approach discussed in Part V, would also appropriately balance incentives for pole owners to invest in pole plant with the goals of promoting broadband deployment, *if* implemented as described above.

B. Depreciation Allowances Factored into the Recurring Rate Provide Capital Cost Recovery for All Utility Poles in Service — Including Poles Retired "Early" and Retired "Late."

The *FNPRM* focuses on the capital recovery opportunities in recurring rates through allowances for depreciation. However, it bears noting that cost recovery associated with pole replacement reflected in recurring rates goes far beyond the "allowance for depreciation" identified in the *FNPRM*.[61] Recurring rates are, by design, set to entirely recover a pole owner's fully allocated costs ("FAC") applicable to pole attachment. In addition to including depreciation costs, the FAC also includes the full range of operating and capital costs incurred by the utility in connection with pole replacement, including a rate of return on total net pole investment.

As explained further below, under the "group depreciation" accounting practices that utilities apply to poles, utilities include—in both their recurring rental rates, and, in the case of rate-regulated electric distributors and rate-of return telecommunications carriers, in the retail rates that they charge to ratepayers—capital costs that afford them sufficient recovery. This recovery takes places through depreciation allowances, both in the form of depreciation expenses and in the form of adjustments to a utility's accumulated depreciation reserve for poles to which the depreciation expenses are allocated and accrue.

[61] *See FNPRM* ¶ 31; *see also* Kravtin 2020 at 53-56.

These depreciation allowances are designed to be sufficient to replace a utility's entire inventory of poles, and to do so over the time period matching the estimated useful life of poles that the utility uses to set those depreciation rates. A utility's use of the widely applied "Straight-Line Remaining Life method" of group depreciation[62] provides additional assurances that the timing pattern of the utility's depreciation allowances will align with the utility's current retirement (or survival) distribution of plant in the pole account, although sufficient capital recovery mechanisms are also provided under the "Total Service Life" method.

The fact that utilities account for poles as "mass assets"[63] subject to group depreciation does not limit their ability to be made whole for poles that are replaced earlier or later than anticipated. Because the depreciation rates that utilities apply to their poles correspond to an average estimated useful life, the average necessarily includes the cost of replacing poles that are retired either earlier or later than anticipated.[64] The respective probabilities of early and late pole replacement are simply incorporated into the utility's aggregated estimated pole life used to set those group depreciation rates.

Utilities vary in the depreciation rates (and implicit estimated life) they set for their pole plant. However, this variation affects only the timing of the utility's full capital recovery of the costs for pole replacement through depreciation allowances built into utility rates; it does not affect the wholeness of the utility's capital recovery. The application of group accounting methods to poles affords the opportunity for enhanced cost recovery. This is because group accounting provides the opportunity to leverage the depreciation parameters driven by the costs of earlier

[62] The straight-line remaining life (SL-RL) method distributes the unrecovered cost of the utility's fixed capital assets over the remaining amortization period identified for each retirement plant account. *See* Table 6.1 for an illustrative example as applied to pole plant.
[63] *See infra* n.77. *See also supra* Section V.
[64] *See FNPRM* ¶ 31.

replacements (which are characterized by larger negative net salvage and shorter average remaining lives, and which support higher depreciation allowances) by applying those parameters to the utility's total pole assets, including poles remaining in service longer than expected. Utilities acknowledge this opportunity.[65]

Utilities' recovery of pole expenses through recurring rates is also enhanced by the guaranteed rate of return that the Commission's pole rental rate provides on their net investment in total pole plant in service. The Commission's default rate of return of 9.75% may exceed the rates of return approved by state regulatory authorities for utilities' recovery of their expenses through ratepayer rates. Like a utility's group depreciation allowances, the rate of return provides the utility with a source of capital recovery for its total pole plant in service. This rate of return applies equally to poles retired earlier than the utility's reported useful life and to those retired later.

A utility's ability to recover its capital costs pertaining to pole replacement is also not conditioned on the reason that a pole is replaced (*e.g.*, normal life cycle replacement, physical or functional obsolescence,[66] and/or whether or not the replacement involved an attacher). Rather, it is conditioned only on a pole's usefulness to the utility in the provision of its core electric service. Pole attachments have no impact on a utility's ability to recover its capital costs through its depreciation accruals and associated accumulated depreciation reserves, and through the return on capital. For these reasons, and others described below, recurring rates assure the utility sufficient capital recovery of any pole replacement costs that are included within the recurring rate formula, including those in connection with a new attachment.

[65] *See id.* ¶ 30 n.96.

[66] Physical factors include wear and tear, decay or deterioration, and climate events, while functional factors include inadequacy, obsolescence, changing service/reliability standards/hardening requirements.

C. Pole Owners' Ability to Charge Non-Recurring Pole Replacement Costs While Also Charging Recurring Rates Presents Opportunities for Double Recovery, Which Existing Commission Rules May Not Fully Mitigate.

The questions posed in paragraph 31 of the *FNPRM* build on the prescriptive policy foundation the Commission established in its 1987 seminal decision in CC Docket No. 86-212; namely, that the recurring rate formula already provides for recovery of the utility's total fully allocated costs of the pole, including a wide range of operating and capital costs incurred by the utility in the course of providing its core or primary electric distribution service. This cost, by definition, exceeds the avoidable, incremental "but for" costs caused by an attacher.[67] Few, if any, fees beyond the fully allocated cost-based recurring charges are needed to ensure compensatory cost recovery to the pole owner.[68] In the Commission's 1987 Order, as in the present *FNPRM*, the Commission was focused on eliminating unreasonably high recovery through additional fees assessed on top of the recurring rate.[69]

The Commission evaluated a similar phenomenon in 2011, when it recognized that the two-part structure of pole attachment fees (with both recurring rates and non-recurring charges) provided pole owners an opportunity to impose unreasonable fees and to over-recover.[70] In that decision, the Commission explicitly recognized that the capital carrying costs (depreciation, tax, and return) recovered in the recurring rate formula were not cost causatively related to pole

[67] *See In re Amendment of Rules and Policies Governing the Attachment of Cable Television Hardware to Utility Poles*, Report and Order, 2 FCC Rcd 4387, 4397 ¶ 74 (1987); *id.* at 4394 ¶ 53 n.31; *id.* at 4394 ¶ 54 n.34.
[68] *See id.* at 4397 ¶ 74 ("In theory, if a utility is purportedly charging a rate based on fully allocated costs, then it should not also be charging additional fees because, by definition, fully allocated costs encompass all pole-related costs. In addition, if a particular condition is so onerous as to be unreasonable, we will eliminate the unreasonable condition rather than adjusting the rate.").
[69] *See id.*
[70] *See 2011 Pole Attachment Order*, 26 FCC Rcd 5240.

attachments and duplicative with costs recovered in upfront make-ready charges.[71] The current *FNPRM* provides an opportunity to apply the same principle as these earlier findings.

In principle, the Commission's rule requiring pole owners to exclude make-ready fees from the pole line capital account (Account 364)[72] should mitigate the double recovery of pole replacement costs that would otherwise be inherent in assessing non-recurring charges to replace poles whose fully allocated cost (and anticipated replacement) is already recovered through the recurring rate formula. Such credits *should* have the effect of reducing utilities' total gross pole investment to which carrying charge factors are applied, and thereby reducing (by a corresponding amount) the annual costs of the poles allocated to attachers. This rule, however, is administratively complex and confirming compliance with it is difficult. This is due to many factors, including the lack of publicly reported data, lack of visibility into internal utility credit tracking mechanisms, and absence of uniform guidelines on how, or to which FERC account, the required make-ready credits are reflected in the calculation of the recurring rate. Additionally, the rule was not codified until late 2017,[73] calling into question the application of credits to booked Account 364 balances used to calculate recurring rates for pole vintages prior to 2018.

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[71] *See id.* at 5302 ¶ 144 ("In the case here of applying cost-causation principles to identify the lower bound telecom rate, the record includes findings by economists and analysts that capital costs are justifiably excluded from the lower-bound rate[s] because the attachers cause none or no more than a *de minimis* amount of these costs, other than those that are recovered up front in make-ready fees." Having so found, however, the Commission did not mandate the use of the lower-bound formula such that the formula is only applied when the rate produced by the "lower-bound" formula paradoxically produces a *higher* rate than the regular FAC formula.)

[72] *See* 47 C.F.R. § 1.1406(b) ("The Commission shall exclude from actual capital costs those reimbursements received by the utility from cable operators and telecommunications carriers for non-recurring costs."); *see also In re Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, Report and Order, Declaratory Ruling, and Further Notice of Proposed Rulemaking, 32 FCC Rcd 11128, 1131 ¶ 7 (2017) ("*2017 Pole Attachment Order*") (describing codification of rule requiring credit "utility's corresponding pole line capital account to insure that. . . operators are not charged twice for the same costs" (quotation marks omitted)); *see id.* ("make-ready costs are non-recurring costs for which the utility is directly compensated and as such are excluded from expenses used in the rate calculation" (quotation marks omitted)).

[73] *See 2017 Pole Attachment Order*, 32 FCC Rcd at 11132 ¶ 8.

These challenges are further compounded by the time lags inherent in utilities' accounting processes. These processes are multi-step and require expenses for actual construction work in the field, based on an individualized work order system, to be processed and recorded on the pole owner's books in accordance with the FERC accounting system, a process referred to as "unitization." Utilities do not allocate or classify specific construction activity costs into the applicable FERC accounts at the time the work is performed; rather, they translate those costs into the appropriate investment and expense categories at a later date.[74] Even a utility that is properly tracking and accounting for make-ready reimbursements received from attachers (and excluding them from capital investment, as envisioned by the Commission's rules, by crediting them to the relevant pole Account 364 instead of spreading them across other FERC accounts not included in the rate formula), they may not be matching them to the appropriate cost year. The increasingly common use of outside contractors to perform the work further complicates the accounting of the make-ready credit.

[74] *See* Response to Complainant CCTA Data Request No. 1 to Defendant SDG&E (Date Received: January 2, 2018, SDG&E Revised and Supplemental Response Dated October 16, 2018), C.17-11-002 (Cal. Pub. Utils. Comm'n Oct. 16, 2018) (identifying a 7-step flow chart and accompanying narrative: "i) Poles are input into a GIS data base as work orders are sent to EGISS. They are entered in GIS in a preliminary status and are then moved to an energized or in-service status as SDG&E receives notification from Electric Distribution Operations and Grid Operations. ii) Upon installation, poles are designated as providing service to either distribution and transmission, and their installation costs are then recorded to FERC Accounts 364 or 355, respectively."). *See also*, *Kentucky 2022 Pole Amendment Tariff Investigations*, Case No. 2022-00105, Kentucky Power Company Response to KBCA Initial Request For Information 1-6 ("Work order costs (i.e. the costs that comprise a make-ready pole replacement reimbursement) are charged against various capital and O&M accounts according to percentages that are dependent upon the project. When an attacher reimburses Kentucky Power for the pole replacement, the reimbursement payment is initially credited to account 1860092, then allocated as a credit to the same accounts to which the work order costs were originally charged in the same percentage.").

Outside of detailed discovery into a utility's accounting records, it is difficult to determine whether (and if so, the extent to which) the Commission's requirement to exclude make-ready charges from recurring rate inputs is actually mitigating double recovery.[75]

D. Utilities are Made Whole for Pole Replacement Expenses As Long as the Depreciation Rate Used in the Recurring Rate Formula is Aligned with the Accrual Rate Applied to the Pole Asset Group for Ratemaking Purposes.

As a threshold question, the *FNPRM* asks whether utilities would be "made whole for early replacement of a structurally sound pole" (*e.g.*, one not "red tagged" for near-term replacement)[76] "through the allowance for depreciation expense reflected in the recurring rental rate, given the use of accurate depreciation rates."[77] The answer is yes.

Before addressing those multiple avenues of capital recovery for pole replacement factored into the recurring rate formula, it is first necessary to clarify the meaning of "accurate depreciation rates" in the context of poles. As the *FNPRM* alludes to, utilities classify poles as "mass assets" subject to group depreciation accounting practices.[78] Because the parameters used to develop

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[75] Access to detailed utility accounting records is generally unavailable to attachers outside a formal complaint or litigated proceeding.

[76] An important caveat, as noted in the discussion of holdup power earlier in this paper, is that utilities under current practice have an incentive to leverage their informational advantage to claim the structural soundness of a pole (or under-identify red-tagged poles to the attacher) to shift the cost of a pole replacement onto the attacher.

[77] *FNPRM* ¶ 31.

[78] *See* 18 C.F.R. pt. 101 (allowing a single continuing plant inventory record to be maintained on a group or categorical basis for mass property). Mass assets record all costs (including labor, materials, contractors, and overhead costs) incurred in connection with newly installed poles or "retirement units" as a group. *See also* PriceWaterhouseCoopers, LLP, *Questions and Answers: Interpretations for the Utility Industry*, 1 (2005), https://www.pwc.com/gx/en/energy-utilities-mining/pdf/ppe.pdf ("Utilities often apply the mass-asset convention of accounting (also known as the 'group' method) to certain fixed assets such as utility poles and other components of their transmission and distribution systems which are too numerous to practically track on an individual basis given the small relative value of each individual asset." (footnote omitted)). In lay terms, "'Mass Property' refers to assets such as poles, wires and transformers that are continually added and replaced." Direct Testimony of Ned W. Allis, Florida Power & Light Company, Docket No 20210015-EI, at 16:4-5 (Fla. Pub. Serv. Comm'n Mar. 12, 2021) (distinguishing "life span" from "mass property" accounts and noting that transmission, distribution, and general plant accounts are considered mass property accounts). *See also id.*, Exhibit NWA-1 at 733-36 (noting that retirements are not expected to occur on the same data for mass property accounts that include transmission poles assets).

depreciation allowances for poles are determined for poles as a group, not on the basis of individual poles, utilities' ability to obtain sufficient recovery of pole replacement costs through the recurring rate does not hinge on the "accuracy" of the depreciation rate in the conventional parlance, *i.e.*, whether utilities in fact keep poles in service for the estimated useful lives implied by those depreciation rates. Rather, it depends upon whether the depreciation rate reflected in the formula's depreciation allowances aligns with the accrual rate and depreciation lives (underlying that accrual rate) applied for ratemaking purposes to the capital recovery of the utility's fixed asset pole group. A secondary factor is whether or not the depreciation parameters utilized to determine the accrual rate are current. Both of these criteria are readily met with use of the recurring rate.

The Commission's rules for recurring pole rental charges require the capital-related components of the formula (*i.e.*, the rate of return and depreciation rate) to use, where available, the utility's most-current state-approved figures for rate-of-return ratemaking.[79] State regulatory commissions exercise oversight of electric utilities' depreciation accrual rates and accumulated depreciation reserve balances; however, utilities enjoy substantial leeway in their selection and revision of the basic parameters used to set these depreciation allowances (*i.e.*, estimated total service life, estimated remaining service life, future net salvage (cost of removal less salvage), and survivorship/mortality experience or survivor curves). Utility depreciation allowances are largely set at levels sought by the utility, based on routinely performed utility depreciation studies and analyses performed by specialized depreciation professionals, using internal utility accounting

[79] *See* 47 C.F.R. §1.1404; *see also In re Verizon Maryland LLC, Complainant v. The Potomac Edison Company, Defendant*, Order on Reconsideration, FCC Proceeding No. 19-355, Bureau ID No EB-19-MD-009, FCC 22-26 ¶¶ 21-23 (rel. Mar. 31, 2022).

data, subject matter expert opinions and projections—a process that provides utilities with substantial flexibility to ensure that their capital expenses are fully reimbursed.[80]

The process of estimating depreciation parameters is based on informed judgment, and hence involves a certain level of subjectivity. This is evident in the observed variation among utilities as to the service lives, net salvage values, and retirement patterns implicit in the depreciation allowances applicable to each fixed asset group. However, this variation does not affect utilities' ability to use those depreciation allowances to fully recover the costs of current and expected future pole replacements. It affects only the timeline and manner in which they achieve this recovery (*e.g.*, through higher depreciation accrual rates and/or periodic amortizations to correct any demonstrated non-minor depreciation reserve imbalances).[81]

But the purpose of group accounting practices, as overseen by state public utility regulators, is to accurately reflect historical evidence and projected future conditions.[82] Any changes to underlying depreciation parameters for a utility's pole plant (*e.g.*, if the "average" pole is retired

[80] *See* Direct Testimony of Matthew Vanderbilt, San Diego Gas & Electric Company (U 902 M) Proceeding: 2019 General Rate Case Application: A.17-10-007, Exhibit: SDG&E-34 at MCV-8, (Cal. Pub. Utils. Comm'n Oct. 6, 2017), https://www.sdge.com/regulatory-filing/22261/sdge-2019-general-rate-case ("While calculation of rates is a mechanical process, development of the depreciation parameters requires significant effort to identify the appropriate ASL, survivor curve type (*i.e.*, retirement dispersion), and FNS%.").

[81] *In re Amortization of Depreciation Reserve Imbalances of Local Exchange Carriers*, Report and Order, 3 FCC 984, 988 ¶ 26 (1988) ("Minor reserve imbalances resulting from routine revisions in life and salvage factors and changes in retirement patterns are inevitable, and it is not necessary that a carrier so fine-tune its amortization in this regard.").

[82] *See In re: Petition Rate Increase, by Florida Power & Light Company*, Direct Testimony of Roxie Mccullar at 11:19–23, Docket No. 20210015-EI (Fla. Pub. Serv. Comm'n June 21, 2021) ("Direct Testimony of Roxie Mccullar") ("Informed judgement is a term used to define the subjection portion of the depreciation study process. It is based on a combination of general experience, knowledge of the properties and a physical inspection, information gathered throughout the industry, and other factors which assist the analyst in making a knowledgeable estimate." (quoting National Association of Regulatory Utility Commissioners (NARUC), *Public Utility Depreciation Practices* (1996) at 128)). *See also* CPUC Standard Practice at 4, pdf page 9 ("Depreciation charges even in the simplest projects should be re-examined from time to time. It is obvious that, until final retirement, deprecation charges involve estimates of future life and salvage.").

earlier as a result of a subset of those poles being retired earlier in connection with utility hardening programs or other reasons), therefore, can be used to update utilities' depreciation allowances accordingly.

One place this has happened is in the context of utility grid-hardening initiatives. State public utility commissions have supported, and in many instances, have mandated utility efforts to harden and modernize their electric distribution networks (including accelerated pole replacement programs) to better meet the needs for greater resiliency in the face of wildfires, storms, and increased customer demand for reliability. State regulators have enabled utilities to obtain the additional capital funding to fulfill those mandates, by, among other cost-recovery mechanisms, authorizing higher depreciation allowances.[83] Depreciation is a "non-cash" expense to the utility, so that annual accruals of depreciation expense accumulate over time to provide an important, free source of cash for the utility to fund current and expected future pole replacements of the utility's plant in service.

[83] *See, e.g.*, San Diego Gas and Electric, *2020-2022 Wildfire Mitigation Plan Update*, at 194-95, 218 (Feb. 5, 2021), https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf (describing SDG&E's Pole Replacement and Reinforcement program to "replace[] deteriorated wood distribution poles, as well as other asset-related components identified through SDG&E's various inspection programs. . . in an effort to reduce the risk of ignitions" and listing "the replacement of wood to steel poles" as part of SDG&E's overhead distribution hardening program); News Release, Florida Power and Light, *FPL Delivers Best-Ever Service Reliability in 2018, Plans to Harden All Main Power Lines Within Six Years* (Mar. 1, 2019), http://newsroom.fpl.com/news-releases?item=126077 (noting that FPL plans to "continue hardening the energy grid over the next three years by investing approximately $2 billion, which includes hardening its main power lines and replacing all remaining wooden transmission structures...Hardening means that FPL is installing power poles, which can be a combination of wood and concrete, that will be able to withstand major hurricane-force winds. Hardening includes shortening the span between poles by installing additional poles and possibly placing some sections of power lines underground."); News Release, Ameren Illinois, *Ameren Illinois Files Electric Rate Update with Illinois Commerce Commission* (Apr. 16, 2021), https://ameren.mediaroom.com/2021-04-16-Ameren-Illinois-Files-Electric-Rate-Update-with-Illinois-Commerce-Commission (describing "[i]ntegration of storm-hardening equipment and other updates to the electric grid (stronger wires and poles and new substations)" amongst major investments planned for 2022). *See also* Kravtin 2020 at 31 nn.50-51.

E. Utilities' Varying Assumptions Regarding Pole Life Expectancy, and Variation in Retirement Patterns for Poles, Do Not Detract from the Ability of the Recurring Rate to Fully Compensate Utilities for Pole Replacement Costs.

Under the "group depreciation" accounting method that utilities use for poles, there is no expectation that the depreciation rate applied to poles will reflect the actual retirement experience of any *individual* pole. Rather, the calculation of depreciation expense for poles is based on depreciation parameters applied to the pole fixed asset group *as a whole*, with the expectation that the utility will periodically update these parameters to reflect both recent historical experience and expected future experience.

The fact that any given individual pole or set of poles may have an actual life that differs from the utility's average useful life (such as a pole retired early to allow a pole replacement to accommodate a new attachment) is largely irrelevant to the question of whether the utility is made whole through depreciation allowances for the cost of replacing it. This is because, for cost allocation purposes, the utility enjoys capital recovery of poles through depreciation allowances determined on an average group basis and subject to mass asset accounting retirement principles. In this regard, the average net investment per pole component of the recurring rate formula best aligns cost recovery of utility pole investment (without distinction amongst pole replacement, transfers, or new pole additions) with the manner in which the underlying depreciation allowances for utility poles as a mass asset accounting group are determined. This is also why, as addressed below, the proposal put forward by NCTA—to allow utilities to recover a non-recurring charge for a pole replacement that matches the net book value of the pole being replaced—provides assurance the utility will be made whole for early retirement of the replaced pole. Pole Account

364, under mass asset accounting, already incorporates an expectation that some poles will be retired early and some will be retired late.[84]

For purposes of allocating pole replacement costs, it is important to keep in mind the relationship between (1) the average useful life of poles as a group; and (2) the expected rate of utility pole replacement that is already implicit in the depreciation allowances that utilities use to recover their capital expenses through their rates (both ratepayer rates and pole rent). Utilities already set those rates at levels designed to fully recover their depreciation expenses and capital costs, using the most current depreciation parameters applied to the pole asset group as a whole.[85] Operating as designed, this recovery system, along with the attendant tax benefits, provides utilities with the cash needed to fund current and expected replacement of their pole plant.

To best ensure the utility's full recovery of pole replacement capital costs, the depreciation rate used in the recurring rate formula should equal the most current depreciation rate used by the utility for ratemaking purposes. As long as these depreciation rates align, the utility is assured recovery that encompasses poles retired earlier and later than average. This is because, by design, the application of depreciation group accounting to pole plant booked to Account 364, allows the utility to recover on an average group basis sufficient capital recovery to fund the current and expected future replacement of its total pole plant in service (including net salvage) over that assumed average life for its pole plant as a group.

Take the example of a utility whose depreciation accruals assume an average pole service life of 35 years, which (by design) will provide the utility with enough cash to replace each of its

[84] *See* Comments of Altice USA, Inc. at 4, WC Docket No. 17-84 (Sept. 2, 2020) (as cited in *FNPRM* ¶ 31 n.97).

[85] This is subject to some degree of regulatory lag in between rate cases or updates by the utility, but regulatory lag is an inherent part of utility ratemaking and work in both directions, as opportunities to over-earn during the lag period balance any opportunities for under-earning. In addition, use of future test years based on forecasted data provides the utility additional opportunities to protect against regulatory lag.

poles in service an average of once every 35 years. On average, this implies a pole replacement rate of approximately 3% per year. For a utility applying a shorter remaining life of 17 years, the depreciation allowances built into utility rates would provide a source of cash sufficient to replace each of the utility's poles every 17 years, or approximately 6% per year.

Current data available from utility rate cases in distribution capital budgeting workpapers, state pole rulemakings, and other pole-related matters reporting "red-tagged" or replacement incidence rates suggest that utilities are not replacing poles at a faster rate than is contemplated in their depreciation allowances. But if pole replacements driven by broadband attachments were to cause utilities to accelerate pole replacements earlier than projected levels, the utilities could (and would have incentives to) respond to any such acceleration by performing updated depreciation studies to support higher accrual rates and/or by seeking additional depreciation expense amortizations to resolve any resulting imbalance between book and theoretical depreciation reserves.[86]

However, such imbalances are unlikely to occur given utilities' increasing use of the straight-line remaining life (SL-RL) method of depreciation. Table VI.E.1 below presents an illustration of this method. Under this method, a utility is able to distribute the unrecovered cost of the pole fixed asset group over the (typically shorter) estimated remaining useful life of its poles. The SL-RL method provides a self-correcting mechanism that modifies a utility's depreciation

[86] Utilities may, in some instances, realize a periodic infusion of capital recovery through additional amortizations to their annual depreciation accruals. Utilities can seek out these additional amortizations when their booked accumulated depreciation reserves are out of balance with the "theoretical" reserve. *See e.g., In re The Prescription of Revised Percentages of Depreciation Pursuant to the Communications Act of 1934, as Amended*, Order, 4 FCC Rcd 1148, 1148 ¶ 2 n.3 (1989) ("An amortization amount is a specific amount to be charged to depreciation expense each year as opposed to a depreciation rate which is applied to plant investment to determine the depreciation expense charge." (citing *Amortization of Depreciation Reserve Imbalances of Local Exchange Carriers Report and Order*, 3 FCC 984 (1988))).

expense to account for any imbalances between its book and theoretical reserves.[87] Importantly, this includes any imbalance that may arise in connection with any early retirement of poles and/or associated projected increases in projected costs of removal.

Table VI.E.1

Illustration of Common Straight-Line Remaining Life Group Depreciation Method[1] for Calculating the Annual Depreciation Expense for Poles							
(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1)-(3)-(4)	(6)	(7) = (5)/ (6)	(8) = (7) / (1)
Gross Pole Plant Investment	Estimated Future Net Salvage		Accumulated Depreciation Reserve	Depreciable Balance	Estimated Avg. Remaining Life	Annual Depreciation Accrual	Accrual Rate (%) Gross Plant)
	%	Amount					
$675,000,000	(150%)	($1,012,500,000)	$275,000,000	$1,412,500,000	38.7	$36,498,708	5.41%

Table VI.E.1 demonstrates the mechanics by which a utility accrues capital recovery under the SL-RL method over the estimated remaining life of its poles as a group — compared to an unadjusted straight-line accrual rate based on the estimated average total service life of the utility's poles[88] as shown in Table VI.E.2. But, under either method, the utility has opportunity to build in sufficient capital recovery related to earlier-than-planned pole replacement costs.[89] For this illustrative utility based on its selected depreciation parameters, *i.e.*, estimated average service life of 45 years, an estimated average remaining life of 38.7 years, and future net salvage of negative 150%, and

[87] In formulaic terms, the SL-RL method achieves this by adjusting the calculated depreciation accrual rate by the ratio of the depreciation reserve to the original cost (as recorded in the booked gross plant investment) where:
SL-RL Depreciation Rate = [(1-Future Net Salvage) – (ADR/Gross Plant Investment)]/Estimated Future Average Life Expectancy for the Group.
See CPUC Standard Practice at 8. *See also id.* at 9 ("Where the total life plan has been used and original estimates prove inaccurate, excessive or deficient accumulations in the depreciation reserve frequently occur. To overcome this, the use of remaining life principle has been adopted by many utilities."). *See also* Direct Testimony of Roxie Mccullar at 10:1–4 ("The desirability of using the remaining life technique is that any necessary adjustments of depreciation reserves, because of changes to the estimates of life or net salvage, are accrued automatically over the remaining life of the property" (quoting NARUC, Public Utility Depreciation Practices (1996) at 65)).

[88] In formulaic terms, the depreciation rate is derived under SL-ASL method is follows: [(1 – Future Net Salvage/Estimated Average Total Service Life (ASL) for the Group].

[89] *See* Direct Testimony of Roxie Mccullar at 9 ("The whole life technique is almost identical to the remaining life technique when a reserve imbalance amortization over the average remaining life is included.").

the current ratio between the utility's accumulated depreciation reserve and gross plant investment, the annual accrual rates are similar under both depreciation methods. Under the SL-RL method, the two main differences affecting the accrual rate are: (1) the recovery of costs over a shorter estimated average remaining life of the plant group; and (2) the sensitivity of the accrual rate to the relationship of the accumulated depreciation reserve as a percentage of gross plant investment, such that the accrual rate automatically calibrates to correct for any deficiencies or excesses in the utility's Accumulated Depreciation Reserve (ADR) in response to changing retirement patterns.

Table VI.E.2

Illustration of Common Straight-Line Total Life Group Depreciation Method for Calculating the Annual Depreciation Expense for Poles							
(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1)-(3)-(4)	(6)	(7) = (5)/ (6)	(8) = (7) / (1)
Gross Pole Plant Investment	Estimated Future Net Salvage		Accumulated Depreciation Reserve	Depreciable Balance	Estimated Avg. Service Life	Annual Accrual	Accrual Rate (%) Gross Plant)
	%	Amount					
$675,000,000	(150%)	($1,012,500,000)	$275,000,000	1,412,500,000	45	$37,530,000	5.56%[90]

Depreciation allowances provide the utility a source of capital recovery amortized over the useful life of the asset of the full costs pertaining to the installation and retirement of the fixed asset, including the original cost of the asset (*i.e.*, the "life" cost) and the cost of removal ("COR") net of gross salvage ("GS") (*i.e.*, net salvage). Historically, the net salvage component was a small increment or decrement to the original installed cost of a pole as the two components tended to offset each other.[91] In more recent years, it has become common for utilities to build additional cost recovery into their depreciation allowances for distribution poles, primarily pertaining to the increased early pole replacement in connection with pole hardening programs,

[90] The total composite SL-ASL rate can also be expressed into its two component parts: a life rate [1/ASL] plus a net salvage rate [(1-FNS)/ASL]. In the example above, the SL rate breaks down into a life rate of 2.22% and a FNS rate of 3.33%.

[91] The outlay by the utility for the cost of removal applies as an addition to the original cost whereas the proceeds from gross salvage apply as a reduction to the original cost.

with the factoring in of negative net salvage rates of upwards of *negative* 150 to 200 percent.[92] This means for every dollar of pole investment retired off the utility's books, its ADR is written down by *double* the amount of retired pole investment, as illustrated below. Under group depreciation accounting, this affords the utility the opportunity to build in substantial additional cost recovery for earlier-replaced poles, as shown in Appendix 1 below. If a utility's actual costs of removal are lower than those reflected in the future negative net salvage ratios, or the number of poles retired are fewer than projected, the utility has the opportunity to build in excess recovery for earlier replaced poles.[93]

In sum, under the current regulatory ecosystem, pole owners have opportunity to regularly adjust their pole depreciation rates to reflect changes in the average total service life, average remaining life, and pole retirement experience of their pole plant (or to seek other means of increasing depreciation reserves) related to pole replacements (including those in connection with projected increases in broadband attachments). Regulated electric utilities may experience some regulatory lag in obtaining approval for their revised depreciation rates (or other allowances); however, regulatory lag operates in both directions, and utilities benefit from revenue growth during the lag period, including from increased pole attachment rentals.

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[92] *See, e.g.*, Ameren Illinois FERC Form No. 1 (2018), p. 337, pdf page 228, Account No. 364 (reporting Net Salvage Percentage of (150)); SDGE FERC Form No. 1 (2021), p. 337, Account No. 364 (reporting Net Salvage Percentage of (100)).

[93] For example, as explained earlier, the utility's pole group retirement accounting adjustments include both a debit (reversal) entry to the original gross pole plant investment (for the original cost on placing the plant in service) and a debit (reversal) entry to the contra asset ADR account for historical cost on retirement from service. The latter would include any remaining undepreciated amounts of gross pole investment. If, as is not uncommon, a utility is using a statistical vintage-based retirement analysis that assumes the oldest vintage plant with the lowest original installed costs is the cohort of poles being replaced earliest and it is that lower cost basis that is debited against the gross investment plant account, the utility's analysis and accounting entries may not be reflective of the poles being replaced in the field if a mix of poles of varying ages are being replaced (such as due to hardening requirements). This mismatch can cause an understatement of net retirement-related adjustments to the plant account and an overstatement of the remaining depreciable plant balance used in recurring rates.

This paper has focused on electric utilities given their primary ownership and control of the pole networks to which most new broadband attachments take place, and given their need and mandate to upgrade and harden their pole plant to meet separate regulatory and operational requirements related to resiliency. That said, a few comments are worth noting in regard to telephone utility pole owners.

Telephone pole owners were historically subject to similar regulatory oversight of their regulatory depreciation under rate-of-return regulation, but are today mostly deregulated, and hence afforded even greater discretion than electric distributors to set depreciation accrual rates and write downs pertaining to retired plant as they see fit. Telephone pole owners engaged in substantial write downs of their ADR relative to gross pole plant investment following the Commission's 2017 decision allowing price cap carriers to switch from USoA to GAAP accounting.[94] These accounting changes further enhance telephone pole owners' recovery through the recurring rate formula of capital costs associated with early pole replacement.

F. Recurring Rates, Through Depreciation Allowances and Other Capital Recovery Mechanisms and Points of Leverage for the Utility, Provide Substantial Recovery for Pole Replacement Costs.

The recurring rate formula multiplies three major components: (1) a utility's average embedded net bare cost of a pole; (2) a "carrying charge" factor used to annualize the carrying costs associated with each unit of net bare pole investment, consisting of five cost elements covering both operating (administrative and general maintenance) and capital-related expenses (depreciation, tax, and return); and (3) a space allocator factor used to allocate to each attacher an appropriate share of the fully allocated annual cost derived by the first two factors.[95]

[94] *See Part 32 USoA Order*, 32 FCC Rcd 1735, ¶ 12.

[95] These three basic components apply to both the Commission's cable and telecom formula, the only difference being the formulation of the space allocation factor, *i.e.*, the cable formula's usable space factor ("USF") allocation approach is derived on the basis of usable space, whereas the telecom formula' USF is

Sources of capital recovery for the utility are interwoven through each of these three components and have been increasing over time. *See* Appendix 1. Given the forces at play as described in Appendix 1, the trend toward higher recurring rates will continue as utilities continue to invest increased capital in pole hardening and resiliency programs that are still in their early stages.

Appendix 1, using an illustrative recurring rate formula calculation, maps utilities' various capital recovery mechanisms and points of leverage to the pertinent component of the formula. While the example is illustrative, the figures shown are within the range of values underlying recurring rates being charged to third-party attachers across the country today. Several elements within the recurring rate provide utilities with enhanced opportunities to recover pole replacement costs. These include (1) the utility group depreciation accounting practices described earlier; (2) the underlying mechanics of the fully allocated formula methodology; and (3) the formula's reliance on historic presumptions about pole height, usable space, and the relationship between pole and non-pole investment booked to Pole Account 364.

While the capital recovery vehicles are multiple and interwoven through each of the three major components of the formula, the first component—the net bare cost of a pole—lies at the core of the formula's capital recovery of pole replacements, and its growth over time has been steadily driving up recurring rates.

As shown in Figure VIII.D.1 in the following section, which looks at a representative set of utilities across each major region of the country, there has been a tremendous growth in Account 364, in both absolute terms and as compared to the growth in the standard utility cost indices for

derived on the basis of usable space, unusable space, and the number of attachers. Following changes to the Commission's rules in 2011 and 2015, the formulaic differences in the USF converge to the same rate.

new pole construction. At the same time Account 364 pole investment has been growing, the associated accumulated depreciation reserve ("ADR") for poles has been growing at a much slower rate, if not declining. The major reason that utilities consistently cite for this phenomenon is the growing rate of utility-driven pole replacement programs.

Historically, utilities' ADR for poles largely kept pace with their Gross Pole Investment, leading to a relatively stable net book investment in poles and stable recurring rates in the vicinity of an average $7 nationwide.[96] With the growing incidence of pole replacement and the associated early retirement of poles vis-à-vis expected service lives, that stable relationship has disappeared, leading to growth in utilities' gross pole investment far outstripping the growth in their ADR. The resultant decline in the ADR as a percentage of Gross Pole investment, along with flat to declining pole counts, has produced ever-increasing net book values and commensurately higher recurring rates, for the various reasons described in Appendix 1.

The magnitude of capital cost recovery afforded to the pole owner in the recurring rate has accordingly been increasing in recent years, in large measure precisely because of and in connection with utility-driven pole replacement programs. These programs are the direct outgrowth of efforts underway nationwide to harden and modernize electric distribution networks for better resiliency in the face of environmental disasters, customer demand for network reliability, and to support utility smart-grid applications. These programs, fully sanctioned (if not encouraged) by state regulatory commissions as prudent rate base investments,[97] are among the

[96] *See* FCC, *Connecting America: The National Broadband Plan* at 110-11 (Mar. 17, 2010) (Recommendation 6.1 & Exhibit 6-A), https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf ("FCC National Broadband Plan").

[97] *See, e.g., In re: Review of 2019-2021 Storm Hardening Plan*, Fla. Power & Light Co., No. 20180144-EI, 2019 WL 3431140, at *11–13 (Fla. Pub. Serv. Comm'n July 29, 2019) (approving FP&L pole hardening plan, including feeder hardening efforts to install intermediate poles and replace existing poles with higher class poles in order to increase pole wind rating).

key forces driving up capital costs for poles recoverable in recurring rates, both as part of the "net bare cost per pole" and in the capital carrying charge component of the rate formula, as explained below.

The per foot rental rate paid by cable/broadband operators has increased substantially over the past decade, both in absolute terms and in comparison to standard utility cost indices for new construction. In its 2011 Broadband Report, the Commission reported an average recurring pole rental of approximately $7 per foot per year for cable operators and $10 per foot per year for competitive telecommunications providers.[98] Today, recurring rates between two and three times those levels are not uncommon.[99]

The same phenomenon holds true for telephone pole owners. Largely due to accounting artifacts that arise in connection with historic joint pole cost-sharing agreements between electric and telephone utilities, combined with telephone carriers' shift from USoA to GAAP accounting pursuant to a 2017 Commission ruling,[100] described above, rental rates computed under the Commission's recurring rate formula for telephone utilities are also increasing dramatically, in large measure as a result of utility-driven pole replacement programs at levels likely in excess of the telephone utility's actual cost burden.

Notably, the marked rise in average recurring rental rates paid by communications companies nationwide is inextricably related to the questions raised in paragraph 31 of the

[98] *See* FCC National Broadband Plan, at 110, Exhibit 6-A.
[99] *See e.g.*, *Petition of Niagara Mohawk Power Corporation d/b/a National Grid to Modify Pole Attachment Rates*, P.S.C. No 220, Case No.: 22-E-0125, Revised Tariff Leaf: 195, Attachment 1, filed Feb. 28, 2022; *In re the Application of Duke Energy Ohio, Inc. to Amend Its Pole Attachment Tariff*, Pub. Util. Comm'n of Ohio Case No. 22-164-EL-ATA, filed Mar. 4, 2022. These tariff filings show utility calculated recurring rates of $16.75 and $17.05, respectively. Based on issues identified in a Public Utility Commission of Ohio staff report, Duke modified its pole rate to $12.42. *See id.*, Modification of Pole Attachment Rate Calculation by Duke Energy Ohio, Inc., filed May 3, 2022.
[100] *See Part 32 USoA Order*, 32 FCC Rcd 1735, ¶ 12.

FNPRM. As described in Appendix 1, much if not most of the upward pressures on the recurring rate can be tied—directly or indirectly—to capital recovery in some way related to utility-driven pole replacement programs in combination with a host of other interrelated factors.

Utilities have argued that the Commission's recurring rate formula, by allowing utilities to recover from each individual attacher that attacher's respective proportionate allocation portion of the utility's total utility pole investment costs,[101] would be insufficient to fully compensate utilities for the cost of pole replacements because utilities can ultimately only recover a portion of those costs from attachers, with the remaining costs of replacement ultimately falling on utility ratepayers. This argument reflects a common misunderstanding of how the recurring rate formula operates. The argument presupposes incorrectly that the formula either does not assign, or that it under assigns, the costs of unusable (*i.e.*, common) space to the attacher. Such a misunderstanding confuses the type of allocator used to assign total facility costs (*i.e.*, an occupancy-based one) with the underlying facility costs being assigned (*i.e.*, the total costs of the facility). By allocating the attacher's fully allocated share of the costs of *the entire* pole in proportion to a reasonable allocation of usable space occupied, the recurring rate formula assures that the pole owner is fully compensated for the costs directly and indirectly attributable to the communications attacher. It simply does so in a manner most closely aligned in the true economic sense with how the costs of pole attachments are actually incurred, in proportion to the direct occupancy of the attachment.

The recurring rate formula also applies to all attachers, in cumulative fashion, *i.e.*, each attacher pays its proportionate share of the entire costs of the pole. Additionally, to avoid a subsidy from attachers to the utility, the utility is imputed, at a minimum, a share of costs based on its *own*

[101] *I.e.*, a share of total utility pole costs assigned based on the attacher's relative occupancy of the pole (in the case of the cable formula), or (in the case of the telecom formula) indirectly through application of cost factors aligning that rate with the cable rate.

direct occupancy; given the utility's superior rights of access to the pole, under economic principles, it should be allocated costs based on a ratio somewhat higher than direct. Taking into account the totality of attachments on a given pole (from 3 at the low end up to 5 at the upper under FCC presumptive values), with one of the attachers typically being a joint telephone utility, the recurring rate affords the utility recovery opportunities consistent with, if not *more* than, its appropriate pro rata share of the pole cost given its own relatively high use of the pole, which is approximately twelvefold that of a communications attacher.[102]

VII. NCTA'S PROPOSAL TO HAVE NEW ATTACHERS BE RESPONSIBLE FOR THE REMAINING NET BOOK VALUE OF REPLACED POLES WOULD PROVIDE SUFFICIENT CAPITAL RECOVERY.

The preceding section also demonstrates, from an objective economic standpoint, why the proposal for attachers to reimburse pole owners for pole replacements through a non-recurring charge, equal to the NBV of a replaced pole, would provide assurance the utility will be made whole for the early retirement and lost time value of money. This approach would align the cost recovery from attacher to the same set of depreciation parameters reported by the utility and used in the setting of depreciation allowances for poles as a group. Indeed, this approach results in a surplus to the utility above and beyond recovery of its costs, because it adds this non-recurring charge on top of the capital recovery for pole replacement that is already built into recurring

[102] This includes the separations space which the Commission has described as "usable and is used by the electric utilities." *In re Amendment of Rules and Policies Governing Pole Attachments*, Report and Order, 15 FCC Rcd 6453, 6467-68 ¶ 22 (2000), *aff'd sub nom. Southern Co. Servs., Inc. v. FCC*, 313 F.3d 574 (D.C. Cir. 2002). Indeed, the utility is the only entity which can place attachments in this space, and the utility's own direct use is about 12 feet, compared to cable's one foot. Applying the same FCC space factor used to allocate costs to cable, the utility should be allocating to itself a minimum of roughly 70-80% of the cost of a standard 40-foot joint-use pole. Similarly, because under their joint ownership agreements, joint telephone owners are generally allowed to occupy two to four feet, there would be another roughly 20% allocated to the telephone utility.

rates.[103] Given the opportunities for recovery of pole replacement costs afforded utilities under the Commission's two-part pricing structure, this approach would leave no "additional costs [that] would need to be allocated to the new and/or existing attachers to ensure that utilities are compensated for the costs of attachments to their poles."[104]

The *FNPRM* understandably focuses on whether the utility would be made whole for early replacement, given utilities' previous objections to the NBV proposal put forward by NCTA in 2020. Utilities' counter to the use of average NBV was that the actual service lives of poles generally exceed their depreciation lives, such that utilities would be "prevented from fully realizing the value of their infrastructure asset when a new attachment request requires the early retirement of an otherwise serviceable pole [such that] there is little incentive for them to approve the request." This objection does not pass economic muster.

This objection to the NBV approach, taken to its logical conclusion, would suggest that utilities are over-recovering their investment in pole plant by continuing to depreciate older plant in service that has already been fully depreciated.[105] Assuming utilities are acting rationally, they should not have to "over recover" in order to be properly incentivized to approve a pole replacement request. Rather, it should be sufficient incentive to be made somewhat more than whole—as occurs today, as discussed in the preceding section, through a combination of depreciation allowances (in both recurring rates and ratepayer rates) and other avenues for

[103] In addition to providing opportunities for utilities to recover both a non-recurring pole replacement charge and the regular recovery of their pole replacement costs through the recurring rate, the NCTA proposal would also allow the utility additional avenue of recovery for replacement-specific idiosyncratic costs, such as added pole height or strength.

[104] *See FNPRM* ¶ 30.

[105] The Commission is well familiar with this phenomenon in connection with ILECs, whose net book value for poles as a group (under USOA accounting) were often negative. The Commission responded with an alternative rate formula methodology that did not allow the ILEC to earn any further return on its over-depreciated plant.

enhanced recovery built into the recurring rate, and in addition to receive the immediate betterment value of the upgraded plant. Indeed, given the rise in recurring rates over the past decade, there is much less potential risk that the Commission's adoption of policies promoting cost-sharing for pole replacements will create structural disincentives for pole owners to invest in their pole networks. (Provided, of course, that utilities respond rationally to economic incentives, and do not face external incentives to exert anti-competitive, holdup leverage over broadband attachers, such as in the case of pole owners who are themselves competitors in the broadband market).

The arguments raised by Xcel Energy in response to the NBV proposal cited by the *FNPRM*, which take issue with any rule change that involves assumptions about the relationship between depreciation lives and actual service lives,[106] are a red herring. Nothing in the NBV proposal—or in the alternative recurring rate proposal on which the *FNPRM* seeks comment—is inconsistent with the economic realities that may exist at the level of the *individual* pole, such as the ones asserted by Xcel Energy as fact, *i.e.*, that "the actual service life of a pole is based entirely on the pole's *condition*—regardless of its age or its depreciated value."[107]

This argument improperly conflates the life expectancy of any given individual pole, or with a particular vintage cohort of poles, with those for the utility's pole assets as a group. It is the latter that is relevant, as it is used in determining depreciation allowances affording the capital recovery of utility poles in service for ratemaking purposes. Accordingly, it is the latter that is relevant to the key economic and legal concerns regarding wholeness to the pole owner.[108]

[106] *See FNPRM* ¶ 28 & n.78; *id.* ¶ 31 & n.97.
[107] *FNPRM* ¶ 28 n.78 (quoting Comments of Xcel Energy Services Inc. at 5, WC Docket No. 17-84 (Sept. 2, 2020)).
[108] In fact, given today's aggressive distribution plant hardening and modernization programs underway nationwide, the actual service life of any given individual pole, even absent an attachment request that drives a pole replacement, is less likely to be "based entirely on the pole's *condition*." *Id.* (emphasis in original). Factors that drive utility-driven pole replacements, such as location within a high wildfire or flood zone, also come into play along with the condition of the pole.

Concerns about variation in individual pole longevity, at best, raise questions concerning the distributional equity of the non-recurring pole attachment fees as it relates to the recovery of any given individual pole or cohort of poles. But those questions are distinct from the matter of whether utilities are adequately compensated for pole replacements under either the NBV approach originally proposed by NCTA or the recurring rate approach on which the *FNPRM* seeks comment.

The fact that studies and surveys may show actual pole service lives exceeding their depreciation service lives, as cited in the comments of some utilities opposed to the 2020 NCTA Petition,[109] also does not impact the ability of the utility to be made whole using group accounting methods for poles. To the contrary, it demonstrates that (if actual pole service lives exceeding depreciation service lives cited by Xcel are in fact occurring) utilities have the opportunity to enjoy depreciation allowances that allow them to recover more than 100% of their pole investment, to the extent depreciation accrual rates apply on a group basis equally to all surviving plant in service. At a minimum, utilities' ability to utilize depreciation lives shorter than total service lives for tax purposes (under accelerated depreciation provisions of the tax code) and regulatory depreciation purposes (under the SL-RL method) allows them to recover the cost of their average pole plant in service more quickly. And since depreciation is a non-cash expense, this gives utilities the ability to build up cash reserves to fund the replacement of their pole plant on a more accelerated basis as well. Use of depreciation lives shorter than the average total service lives of poles accelerate and increase the utility's capital recovery of its pole asset group as a whole, and do not take into consideration any additional value to the utility of the use of individual pole assets that extend beyond the average group life for depreciation purposes. It is logically inconsistent for utilities to then take the position that, for purposes of pole replacements, the NBV approach provides

[109] *See id.* ¶ 28 n.77; *see also id.* ¶ 30 n.96.

insufficient recovery because it fails to recognize the value to the utility of individual poles that remain in place "well beyond average service life."[110] For the reasons explained in this paper and in Kravtin 2020, the NCTA proposal to allow utilities to recover the remaining NBV of replaced poles from new attachers in nonrecurring make-ready charges, while also paying recurring rates, provides the utility with much more than sufficient capital recovery.

VIII. UTILITY CLAIMS OF NEGATIVE IMPACT OF THE NCTA PROPOSAL ON THEIR CUSTOMERS ARE NOT SUPPORTED, AND FAIL TO CONSIDER THE MORE THAN OFFSETTING GAINS OF MORE EFFICIENT DELIVERY OF BROADBAND THEIR CUSTOMERS WOULD ENJOY.

A key line of objection that utilities have raised to potential rule changes that would implement cost-sharing for pole replacements (in particular, the NCTA proposal put forward in 2020) has been that such proposals will require the pole owner's ratepayers to bear additional costs. Utilities advanced similar objections in connection with the Commission's reforms to its recurring telecommunications rate formula in 2011, as well as similar reform proposals in states that regulate pole attachment costs.

The objection that the NCTA proposal would have a harmful impact to ratepayers is not one that is supported. In the first instance, the objection itself does not align with publicly available information regarding utilities' investments and costs. But even if there were evidence that cost-sharing proposals for pole replacements would affect a significant, measurable impact on ratepayers, an appropriate economic social welfare analysis would weigh any such impact on the average ratepayer (usually a retail electric customer) against the positive impacts on broadband customers, understanding that these populations are largely overlapping.

[110] *See id.* ¶ 28 n.80 (Initial Comments of the Electric Utilities in Opposition to NCTA's Petition for Expedited Declaratory Ruling at 22, WC Docket No. 17-84 (Sept. 2, 2020)).

A. High Pole Replacement Charges Are an Inefficient Means to Defray Electricity Costs.

One might consider high charges for pole replacements a useful method to defray the rising costs of delivering electric distribution services, particularly in jurisdictions where the cost of electric service is increasing as a result of pole hardening programs (many of which are underway throughout the nation based upon state regulators' determinations that increased investments in this area are in the public interest). However, treating broadband attachments as a source of funding for such investments invites the very cost reallocation problems that lead to economic inefficiency. Efficient prices promote the highest and best use of resources. A market participant with the power to charge prices significantly in excess of marginal costs is not entitled to recover "losses" when regulatory changes cut off or mitigate its opportunities to charge monopoly rent.[111] As articulated in Kravtin 2020, "[e]fficient pricing properly balances the goal of promoting investment in broadband infrastructure 'with the historical role that pole rental rates have played in supporting … pole infrastructure,' and allows broadband deployment to occur" where there is an economic business case to do so.[112]

Efficient pricing (and the gains from such pricing) preclude third-parties, such as broadband providers, underwriting costs that are properly borne by the electric ratepayer (or the greater public at large through general taxation) in the course of providing a reliable, resilient pole network for purposes of the utility's core electric distribution service, and that would still occur in the third-party's absence. Shorter, older and/or non-compliant poles that fail to meet current utility service guidelines are candidates for replacement irrespective of a new attacher's request, and the cost of those replacements (except for the temporal cost of shifting the timing to an earlier date) is

[111] *See Ala. Power Co. v. FCC*, 311 F.3d 1357, 1369-70 (11th Cir. 2002).
[112] *See* Kravtin 2020 at 41 (quoting *2015 Order on Reconsideration*, 30 FCC Rcd at 13734-35 ¶ 9).

rightly borne by the electric ratepayer for whom the network was built and is being maintained to serve. Since its inception, the utility's core electric service has been, and necessarily remains, the principal driver of its capital budgeting decisions and investment in its pole network infrastructure. Utilities' planning for the appropriate amount of pole plant of the height, type and class they deem appropriate is ultimately based on their own operational needs (and private liability risk) and in response to regulatory mandates for service quality and network resiliency.

B. Assigning the Primary Responsibility for Pole Replacement Costs to Utility Ratepayers Enhances Societal Economic Gains; Conversely, the Assignment to Attachers Causes Deadweight Losses Akin to an Inefficient Tax.

From an economic and policy perspective, the bulk of pole replacement cost responsibility appropriately rests with its primary cost driver—the provision of the utility's core electric distribution service. The shifting of that responsibility beyond the costs caused by the attacher (for which the NCTA Net Book Value approach already proposes a recovery mechanism) onto broadband attachers operates just like an inefficient tax on broadband service, suppressing the large positive externalities of increased broadband adoption by the consuming public (which includes the utility's ratepayers). The public interest is decidedly harmed in this instance by the distorting effects of the pricing inefficiencies imposed by excessive pole replacement costs.

As explained in Kravtin 2020, the only difference between high pole replacement charges and an inefficient tax imposed on an industry is that the utility, and not the government, reaps the resulting cash levy.[113] This can have particularly troublesome effects on competition given that many utilities are themselves potential entrants into the broadband market (either directly or through affiliates or partners) and therefore have the ability to levy 'taxes' on a potential competitor. Following fundamental principles of economics well-recognized in the public

[113] *See* Kravtin 2020 at 40.

regulatory and economic literature, the ultimate or inevitable market outcome of inefficient tax-like effects from excessive charges levied by utilities on broadband providers is less investment by those broadband providers, and less availability and affordability of the service to consumers. This is because inefficient taxes levied on a vital input introduce market distortions into both the supply and demand sides of both the intermediate (pole) input and final downstream (broadband) product market that reduce consumer welfare and create deadweight losses.[114] Such an outcome decidedly harms consumers including the utility's own ratepayers and must be taken into account in a proper economic assessment of ratepayer harm.

In addition, further compounding the situation, the tax-like burden of high pole replacement charges is highly discriminatory in nature as it does not impact the utility's own or affiliate broadband operations in the same manner as it does third-party attachers, since the flow of monies are kept internal within the broader operations of the utility. Pole owners with combined utility/broadband operations have both opportunity and incentive to adopt a strategy of excessive pole charges that erects and compounds barriers to entry facing third-party broadband competitors so as to afford their own current or future broadband operations a competitive advantage. While such a strategy may provide a source of cash for the utility side of the ledger, this is not in the best interests of competition, which inures to the direct benefit of the utility's ratepayers who, as consumers of broadband, are among the key stakeholders to benefit from adoption of cost-sharing arrangements for pole replacements. These include several important multiplier effects of broadband on economic and social wellbeing that would likely materialize as suggested by the strong empirical evidence cited in Kravtin 2020.[115] So even if ratepayers were to face non-trivial

[114] *See* Walter Nicholson & Christopher M. Snyder, *Microeconomic Theory: Basic Principles and Extensions* at 442-46 (11th ed., Cengage Learning 2012) (explaining deadweight loss effects of taxes); *id.* at 508 (explaining deadweight loss, and allocational and distributional effects of monopoly).
[115] *See* Kravtin 2020 at 25-26 nn.39-43.

impacts from reforms to the Commission's rules around cost-sharing for pole replacements, that impact would need to be weighed against those corresponding benefits to competition and to retail subscribers.

Social welfare analysis takes into account both gains and losses associated with any particular action. In the context of pole replacement costs, that analysis would examine any claimed negative impact on the average electric customer in comparison to the positive impacts on the broadband customer side—an analysis that is particularly appropriate given that the two populations are largely overlapping.

C. Negative Impacts on Utility Ratepayers Are Neither Conceptually nor Factually Supported.

While publicly reported data on pole attachment charges paid by third-party attachers is limited, as shown below, the available reported data shows that any potential impact on utility ratepayers from adopting cost-sharing proposals for pole replacement costs would be minimal in relation to the potential positive gains to broadband customers. FERC accounting rules do not require utilities to report pole attachment charges paid by third-party attachers—either in the aggregate or as broken down into non-recurring or recurring charges. Nor are there specific FERC accounting guidelines directing how the various components of nonrecurring charges are to be treated. Notwithstanding the lack of FERC reporting guidelines, data provided in the FERC Form 1 on total rental income received from others for use of utility property more generally can be used to assess the validity of utility claims there would be significant negative impacts on utility ratepayers from the proposed rule change regarding pole replacement costs.

As shown in Table VIII.C.1 below for a representative set of utilities from different regions across the country, total payments received by utilities from others pertaining to the latter's use of

electric property *in their entirety* (as publicly reported in the FERC Form 1 in Account 454,[116] and of which pole charges paid by third-party attachers are just one component) represent, on a per-electric-customer-dollar-hour basis, an exceedingly small portion of electric utility service revenues (of the order of magnitude of ½ of one percent).[117] The category of revenues reported in FERC Account 454 thus provides a reasonable, if not high, proxy for third-party pole charges. As shown in Table VIII.C.1, a one-third reduction of total Account 454 revenues potentially leads to an increase of only around $0.25 per customer per month. This means that conforming replacement cost charges to the Commission's cost-causation framework as contemplated in the NCTA NBV proposal would have little noticeable impact on ratepayers with respect to the availability or affordability for electricity.

[116] *See* 18 C.F.R. pt. 101, Account 454 "Rent from electric property" (noting Account 454 "shall include rents received for the use by others of land, building, and other property devoted to electric operations by the utility," and including "any … interest or return or in reimbursement of taxes, or depreciation on the property.").

[117] *See also, e.g.*, Southern California Edison ("SCE"), *2021 General Rate Case before the Public Service Commission of the State of California*, SCE-02 Volume 7 at 35 (June 12, 2020), https://www.sce.com/regulatory/CPUC-Open-Proceedings (showing 2018 pole attachment rental revenues of $6,206,000). When compared to SCE's 2018 total electric revenues of $12,796,966,537, as reported in SCE's FERC Form 1, pole attachment revenues are less than half of one percent: $6,206,000/$12,796,966,537 = 0.00485. *See* SCE FERC Form No. 1 for year ending 2018 at p. 300, line 27, column b (filed Apr. 17, 2019). *See also* Docket No. DT 12-084, Response to TW-COMCAST-01, Q-TW-COMCAST 006 (N.H. Pub. Serv. Comm'n Sept. 28, 2012) (showing 2008 pole attachment revenues of $1,899,000). When compared to 2008 total electric revenues of $1,173,647,888 as reported in SCE's 2008 FERC Form 1, pole attachment revenues are less than one-fifth of one percent: $1,899,000/$1,173,647,888 = 0.00162.

Table VIII.C.1.

Estimated Impacts of Reductions in Pole Attachment Charges on the Average Utility Customer Based on Publicly Reported FERC Form 1 Data - Year Ending 2021						
FERC Form 1	**Acct 400, Total Revenues p. 300, line 14b**	**Acct 454, "Rent from Electric Property," p. 300, line 19b**	**Avg. Number of Customers p. 301, line 14f**	**Total Acct 454 Rent as % of Total Utility Revenues**	**Total Acct 454 "Rent"/Per Customer/ Per Month**	**One-third Acct 454 Rent/ Per Customer/ Per Month**
Row	**(a)**	**(b)**	**(c)**	**(b) / (a)**	**(b) / (c) / 12**	**((b)x.33) / ((c)/12)**
Utility						
Georgia Power	$8,679,885,017	$23,852,963	2,657,945	0.27%	$0.75	$0.25
PSEG	$4,195,020,234	$11,821,955	2,323,747	0.28%	$0.42	$0.14
APS	$3,714,375,216	$1,430,408	1,317,311	0.04%	$0.09	$0.03
SDG&E	$3,536,222,141	$4,820,177	1,387,773	0.14%	$0.29	$0.10
FPL	$11,919,471,915	$93,098,915	5,214,263	0.78%	$1.49	$0.49
Energy LA	$4,816,014,064	$23,745,343	1,106,519	0.49%	$1.79	$0.60
Oncor	$3,762,691,671	$25,830,088	3,802,319	0.69%	$0.57	$0.19
Ameren IL	$1,641,792,223	$14,990,418	1,228,564	0.91%	$1.02	$0.34
Average				0.45%		$0.27
Median				0.39%		$0.22

Not only is the impact on electric rates very small, the demand for electric distribution service is not price sensitive—it is what economists refer to as 'inelastic' demand. This means that even if the impact of pole attachment revenues per electric subscriber were significant, subscriber demand for electricity would not be negatively impacted. If anything, subscriber demand for electricity could actually increase in connection with greater access to high quality broadband, and an increase in their overall economic welfare.

Utilities' common assertion that cost-sharing for pole replacements will lead to electric rate increases is also unlikely due to other offsetting factors, including (a) the growth in pole attachments and other recurring and non-recurring fees paid by attachers; and (b) the likely growth in customer demand for electricity (including that from increased broadband) allowing fixed costs of the utility to be spread across a larger base.

D. Aggressive Growth Trends in FERC Account 364 for Poles Are Inconsistent with Potential Claims of Negative Impact on Utility Investment in Pole Infrastructure from Reduced Pole Attachment Charges.

Similarly, there is no evidence to suggest that the cable rate, during the more than four decades that it has been in effect (or the Commission's decision to conform the telecommunications rate to the cable rate a decade ago), has led to any dampening of investment in distribution plant by electric utilities.[118]

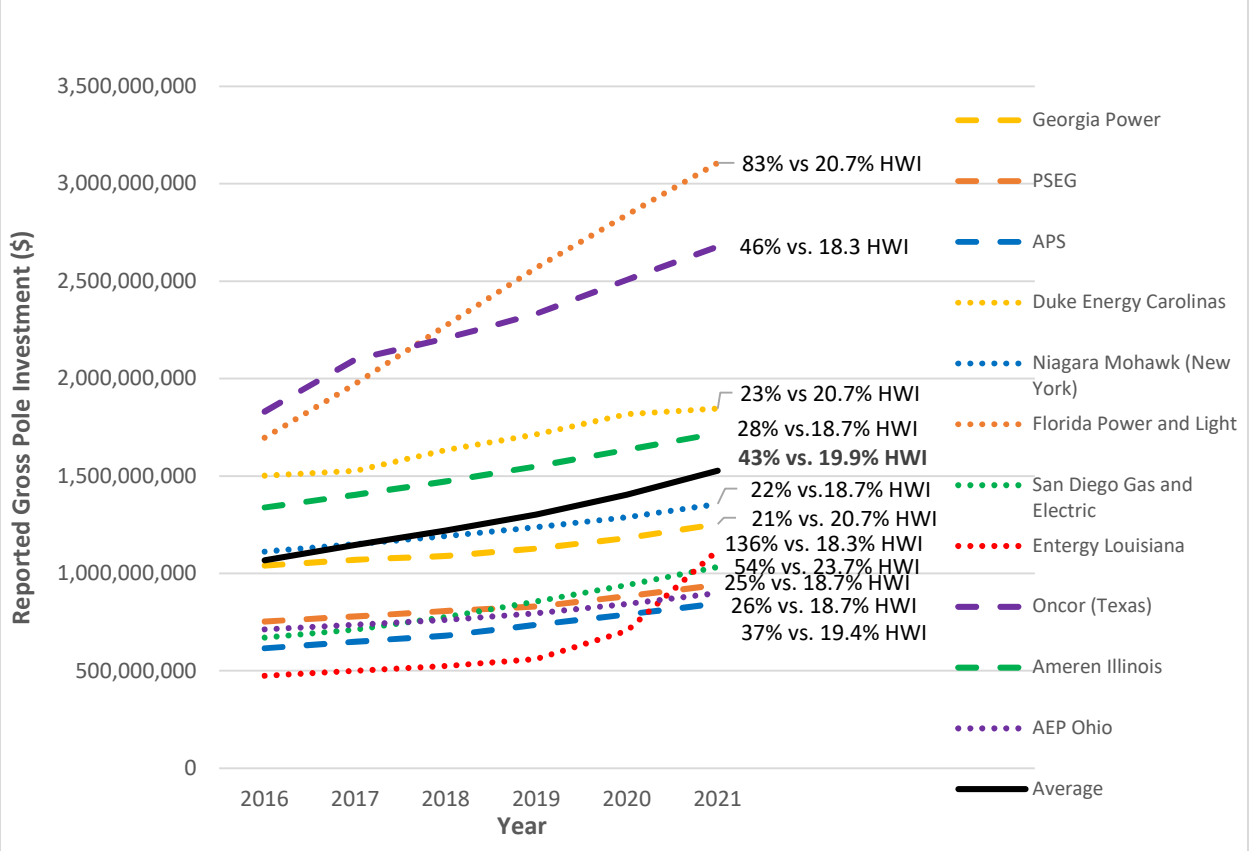
To the contrary, increases in utilities' investment in their pole plant—as reflected in their reported Account 364 gross investment—has been steadily increasing over time, and for some utilities with known aggressive hardening programs, has increased dramatically (*see, e.g.*, Florida Power and Light, Entergy Louisiana, and San Diego Gas and Electric). The advent of utility network hardening programs, with resultant increases in utility Account 364 gross investment, is a growing nationwide trend.

As shown in Figure VIII.D.1 below, the steady increases in the Account 364 gross pole investment for all utilities equals or far exceeds the increase in standard utility cost indices for new pole plant construction, suggesting that investment is far outpacing increases in construction costs. This fact is quite remarkable given that utilities' reported Account 364 gross pole plant balances represent not only new construction, but comprise the entire historic embedded base of all utility pole plant in service, including poles of all vintages including older poles with a very low original cost basis.

[118] Similar ratepayer impact arguments were raised at that time. *See 2011 Pole Attachment Order*, 26 FCC Rcd at 5303 ¶ 146 & n.438.

Figure VIII.D.1

Growth in FERC Account 364 - Gross Pole Investment vs. Utility Cost Index for New Pole Construction for the Period 2016 - 2021



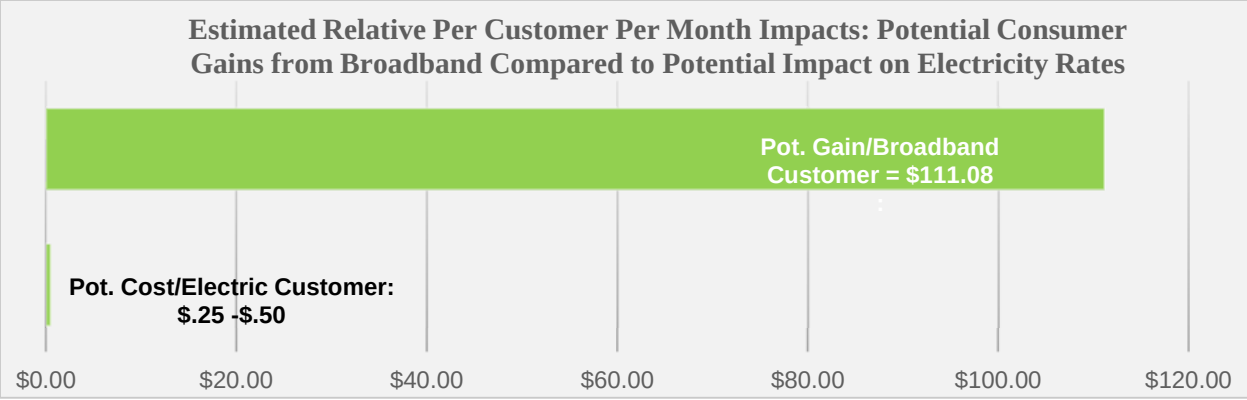
This data further undercuts claims that cost-sharing reforms for pole replacements would lead to increased electric service rates. First, given the extremely modest ratio of pole replacement charges relative to total electricity revenues shown in Table VIII.D.1 above, there is no logical reason why a reduction in those charges would have a significant if even noticeable impact on the utility's cost of service. Second, as explained above, the immediate revenue reduction to pole owners from reduced non-recurring charges for pole replacements could be offset by increases in recurring pole attachment fees. But assuming for sake of argument that reductions in the revenues that pole owners realize from pole replacement charges were made up dollar for dollar in higher

electric bills, as shown in Table VIII.D.1 above, a reduction in those pole revenues would place minimal, if any, upward pressure on utility rates.

E. Any Very Small Potential Negative Impacts from the Proposed Pole Replacement Reforms on the Electric Side Are Counterbalanced by Quite Substantial Gains to be Realized on the Broadband Side.

While any potential increase on the electric side from reforms to the Commission's pole replacement cost allocation rules would be extremely small, the potential gain in consumer value that would inure on the broadband side of the equation from lower pole rates, on an average per subscriber basis, would be substantial. As identified by Lopez and Kravtin in 2021, per-consumer gains associated with expanded access to high quality broadband as measured by consumer willingness-to-pay is estimated at $111.08 per customer (for current high grades of service).[119] In order of magnitude, this is roughly 300 to 400 times the potential per customer increase on the electric side as shown in Table VIII.D.1 above. The clear beneficial gains to net social welfare that could accrue from a reduction of pole attachment charges expressed on an average per customer basis (broadband vs. electric) is depicted below.

Figure VIII.E.1



[119] *See* Lopez & Kravtin, *Advancing Pole Attachment Policies* at 6, 19.

In sum and as a general economic proposition, there is no good purpose to be served by the current practice of make-ready charges for replacement poles well in excess of efficient levels. Allowing pole owners to recover costs from attachers in excess of economically efficient, just and reasonable levels produces detrimental impacts on broadband deployment and affordability, with little to no real offsetting benefit to the utility or its ratepayers. Utilities' ratepayers stand to benefit much more as customers of broadband than they may face in terms of a very small potential increase in what they pay for electricity.

** REDACTED -- FOR PUBLIC DISCLOSURE **

Appendix 1

RECURRING RATE CALCULATION WITH NARRATIVE EXPLANATION OF CAPITAL RECOVERY MECHANISMS					
Line	**Formula Input/ Calculation**	**Illustrative Formula Input Value**	**Depreciation Allowances and Other Sources of Capital Recovery of Pole Replacements**	**Utility Leverage Opportunities for Additional/ Excess Capital Recovery of Pole Replacements**	**Source/Notes:**
1	**Gross Investment in Pole Plant**	$675,000,000	The costs of all poles replaced by the utility, which are booked to Account 364 and included in the Gross Investment formula value.	Utility may include "non-unitized" investment not yet classified into units (i.e., pole counts), which can cause an overstatement of the per unit Net Book Value of Bare Pole Investment to which carry charges (incl. depreciation and rate of return (ROR)) apply. Make-ready payments from attachers should be credited against this account, but utilities may not maintain records at the level of detail to confirm credits.	Gross Investment is total amount reported in FERC Form 1 for Acct. 364 (Poles, Towers, and Fixtures).
2	**- Accumulated depreciation reserve (ADR) for poles**	$275,000,000	The ADR is a contra fixed asset account to which the annual depreciation accruals for poles are booked. It is an offset to gross pole investment to determine the NBV for poles. In addition to the accumulated accretions from each year's crediting to the provision, the ADR also reflects the running total of any reversals or effective write-downs the utility is allowed to make to fully account for costs pertaining to pole retirements (and hence highly correlated with pole replacement). The ADR is debited (reduced) for both estimated future costs of removal and the full historical cost of the retired poles, inclusive of any remaining undepreciated book amounts associated with poles retired earlier than the estimated life for depreciation purposes.	Utilities can increase write-downs of the ADR for poles in conjunction with pole replacement by assigning larger negative future net salvage ratios (FSS%) to Account 364. Utilities enjoy substantial leeway in setting their FSS% and write-downs to ADR. As reversals to ADR for poles have grown in connection with pole replacement programs, more utilities have been using ADR balances from their Fixed Asset Accounting Records for Account 364 instead of the proration method, but are not routinely required to share the underlying accounting data with attachers.	From Internal Utility Fixed Asset Accounting Records for Acct 364 or Prorated from Distribution Plant. Internal Records will reflect reversals (write downs) of ADR to reflect current and future estimates of negative net salvage costs for replaced poles.

Line	Formula Input/ Calculation	Illustrative Formula Input Value	Depreciation Allowances and Other Sources of Capital Recovery of Pole Replacements	Utility Leverage Opportunities for Additional/ Excess Capital Recovery of Pole Replacements	Source/Notes:
3	**- Accumulated deferred income taxes (ADIT) for poles**	$70,000,000	ADIT is a tax liability account to record timing-related differences between the tax basis of the utility's fixed assets and their respective regulatory book valuation. This arises from the utility's ability to claim higher depreciation expense for tax purposes (in the early years of a new asset's life) as compared with regulatory depreciation (which is applied consistently across the asset's life using a straight- line method of depreciation, based on average total service or remaining life of the pole group. Because ADIT provides a source of capital to the utility, it is subtracted from gross pole investment (unless a state regulatory authority includes ADIT as a zero-cost component of the utility's capital structure.) The ADIT reserve provides, through tax benefits, a source of zero cost capital to fund gross pole investment (including pole replacement). Because the tax benefits of accelerated depreciation accrue in the early years of utility asset lives, the earlier replacement of older pole plant reduces the average age of utility plant, thereby increasing the realized tax benefit to the utility..	Utility may opt to exclude "excess" ADIT created by the reduction in corporate tax from 35% to 21% under the TCJA 2017. These "excess" amounts (per GAAP) were moved out of designated ADIT accounts at year-end 2017 into Reg. Liability Acct. 254 awaiting their amortized return to ratepayers. Exclusion of EADIT amounts reduces the amount of the ADIT offset to gross pole investment, which increases the Net Book Value of Poles to which annual carry charges (incl. depreciation) apply. A handful of states (e.g., OH, CT) have formally directed utilities to include EADIT amounts created under TCJA 2017 carried in Acct. 254 in their recurring pole rate calculations in the same manner as required for utility ratemaking purposes. However, because the Commission has not required the inclusion of EADIT in recurring rate calculations, many utilities have not done so, the effect of which is an excess of capital recovery built into recurring rates.	Prorated from Total Utility or Electric Plant Accts 190, 218,282, 283. Per GAAP accounting, unamortized EADIT balances were moved out of the standard ADIT accounts and booked as a Regulatory Liability in FERC Acct. 254. EADIT balances booked to Acct. 254 are reduced in accordance with an amortization schedule based on the average life of total utility assets "protected" under the normalization rules to which the ADIT derived using the "ARAM" method as provided in the TCJA 2017.
4	**= Net Book Value (NBV) of Poles**	330,000,000			Ln 1- Ln 2- Ln 3
5	**x [1- Appurtenance Factor (AF)%]**	.85		Utility is able to choose *the lower of* the two options afforded under Commission rules. Utilities may not provide underlying investment data, or claim the data is not maintained at the level of detail required to differentiate pole from non-pole investment booked to Acct. 364. Investment in non-pole investment booked to Acct. 364 is increasing relative to historic levels in conjunction with the hardening of cross arms as part of utility resiliency programs. Even where detailed CPR records are provided, newer composite/metal poles prevalent in hardening programs are commonly "fully dressed" with appurtenances, so that investment in appurtenances is not readily identified and understating the amount of appurtenance investment deducted from the NBV of Poles.	Actual Percentage. of Appurtenance Investment to Total Gross Plant Investment booked to Acct. 364 from Internal Utility CPR Records or FCC Rebuttable Presumption of 15%. .
6	**= Net Bare Pole Investment**	$280,500,000			Ln 4 x (1-AF%)

Line	Formula Input/ Calculation	Illustrative Formula Input Value	Depreciation Allowances and Other Sources of Capital Recovery of Pole Replacements	Utility Leverage Opportunities for Additional/ Excess Capital Recovery of Pole Replacements	Source/Notes:
7	**/ Total Number of Sole Owned Equivalent Poles**	475,000	Because the pole formula derives cost on a per unit basis, replacement poles will have a larger impact on the net per unit pole cost than a pole addition because they increase gross pole investment without a corresponding increase in units. In a growing number of instances, utility pole counts show as declining, which utilities attribute to increased spans between hardened poles. Decreasing pole counts result in recurring rates that increase more than proportionately in connection with utility-driven pole replacements costs, since gross pole investment and depreciation allowances are spread over a smaller number of poles.	Utilities may opt to exclude from the pole count certain categories of poles from the count (e.g., stub, push brace, drop lift, non-wood, non-unitized, mixed use, SCADA, etc.) and/or undercount the number of sole pole equivalents for jointly owned poles or privately owned poles. Utilities are not routinely required to make detailed supporting data available to attachers, providing the utility discretion over the pole count, which can lead to an undercounting of poles, either by exclusion or under-proportionate inclusion in the case of joint or privately owned poles. Commission rules require the utility to include joint owned (JO) poles in their pole count. However, the method applied (using a sole owned pole equivalency ratio historically based on contractual cost sharing agreements with telephone utilities) may no longer reflect the utility's current cost burden. This is particularly prevalent as part of pole replacement programs driven by utility hardening needs, where the utility typically pays the full cost to replace the pole, regardless of whether the telephone utility provides reimbursement. Any resulting undercount of jointly owned poles relative to their actual cost burden creates an overstated NBV per Pole to which carrying charges (incl. depreciation and ROR) apply.	Per Utility Internal Records
8	**= Net Book Value/Pole**	**$590.53**			Ln 6 /Ln 7
9	**x Carrying Charge Factor (CCF)**	**37.28%**			Sum of 9a – 9e
9a	**Admin & General Expense**	7.10%			Sum of FERC Accounts 900-935, expressed as a percentage of total utility net plant in service
9b	**Maintenance Expense**	9.05%			FERC Account 593, expressed as a percentage of net plant investment in distribution accts 364+365+369

Line	Formula Input/ Calculation	Illustrative Formula Input Value	Depreciation Allowances and Other Sources of Capital Recovery of Pole Replacements	Utility Leverage Opportunities for Additional/ Excess Capital Recovery of Pole Replacements	Source/Notes:
9c	**Depreciation Expense**	5.41% x (675,000,000/ 400,000,000) = 9.13%	Depreciation expense is a tax deductible, non-cash expense to the utility for the express purpose of providing the utility a source of capital recovery amortized over the useful life of the asset of the full costs pertaining to the installation and retirement the fixed asset consisting of: the original cost (OC) of the asset (i.e., the "life" cost) plus the cost of removal (COR) net of gross salvage (GS). Under the mass group accounting applied to poles, the utility's depreciation expense is tied to the average service life of the utility's fixed pole asset as a group. As such, it is designed to provide full capital recovery for pole plant retired earlier than, equal to, or later than the estimated life. Under standard regulatory methods, the Depreciable Base (OC - ADR +COR- GS) for poles is recovered over the estimated total average service life (ASL) of the asset under the Straight-Line Total Life (SL-TL) Method, or more commonly, recovered over the estimated average remaining life of the asset under the Straight-Line Remaining Life (SL-RL) Method. See Section VI, Table 6.1 illustrating the SL-RL Method. The full return of the utility's capital occurs automatically and self-correcting under the commonly used SL-RL method where the annual accrual is based on the recovery of the depreciable base is over the remaining life of the asset group reflective of the utility's current retirement experience for poles such as an increase in poles retiring earlier. Under the Total Service Life method, the utility is able to use additional periodic amortizations to its regulatory depreciation expense accruals to correct any demonstrated significant imbalances as may arise over time as changes occur in the utility's pole retirement pattern.	Utilities have significant discretion in selecting and revising the depreciation parameters used to develop the depreciation rate for the pole fixed asset group including estimated average service life, estimated average remaining life, survivor/mortality curves, cost of removal (COR), and gross salvage (GS). Many utilities do not break down between COR and GS, but rather determine a single Net Salvage Rate: (COR- GS) as a % of Gross Investment (i.e., Original Cost). The Net Salvage Rate is based on expected future conditions, and is also referred to as Future Net Salvage (FNS%). Because of the uncertainty and subjectivity applied in the development of the FNS% component of the depreciation accrual rate, utilities have the incentive to overestimate future negative net salvage ratios. Doing so results in a higher NBV per Pole to which carrying charges (including depreciation and ROR apply). Similarly, for utilities using SL-RL method, the shorter the estimated remaining life parameter, the larger the calculated accrual rate used to calculate the depreciation expense.	Most current regulatory deprecation accrual rate for Acct. 364 as reported in most current state decision, or in FERC at p. 336-337. The depreciation rate applies to gross investment. So, in calculating the depreciation rate applicable to the NBV of a pole, the depreciation rate must be multiplied by the ratio of gross to net pole investment for Acct. 364.
9d	**Tax Expense**	2.25%			Sum of FERC Accts. 408.1, 409.1, 410.1,411.4 (411.1), expressed as a percentage of total utility net plant in service
9e	**Rate of Return (ROR)**	9.75%	The ROR provides a return on the utility's invested capital or rate base, including all plant in service, including replaced poles.	Under prevailing capital market conditions, the Commission's default ROR of 9.75% is often higher than current approved state RORs, typically in the 6.5% to 9% range; utilities are accordingly incentivized to apply the higher default rate. Where utilities are able to apply the higher default rate, an excess of capital recovery is built into recurring rates.	Most current state authorized rate of return as reported in most current state decision or surveillance report that calculate a required rate of return. Where there is no state prescribed return, the Commission's default rate of 9.75% is applied.

Line	Formula Input/ Calculation	Illustrative Formula Input Value	Depreciation Allowances and Other Sources of Capital Recovery of Pole Replacements	Utility Leverage Opportunities for Additional/ Excess Capital Recovery of Pole Replacements	Source/Notes:
10	**X Space Allocation Factor (SAF)** =			Utilities able to choose between the FCC presumptive values or actual values based on their CPR records of pole height, and their own construction guidelines for above ground clearances and below grade support. Utilities are not routinely required to make detailed supporting data available to attachers, making it difficult for an attacher to validate a utility's choice of usable and non-usable space assumptions. Average utility pole heights have been increasing, and standard joint pole heights are now 40 to 45 feet, particularly for utilities with pole replacement programs. Pole replacements typically replace shorter poles with taller poles, such that for utilities with pole replacement programs, actual pole heights exceed the 37.5 foot presumption. By using the presumptive pole height rather than the actual taller average pole height, the utility allocates a higher percentage of costs to the attacher. Even where a utility agrees its current average pole height is greater than 37.5 ft, it may attribute the added height to idiosyncratic clearance requirements (in excess of national standards) and not make the corresponding upward adjustment to the usable space used in the recurring rate calculation.	Rebuttable Presumptions: Total Pole Height (TPH): 37.5 feet Usable Space (US): 13.5 feet Unusable Space (UNS): 24 feet, consisting of: 18 ft above grade clearance 6 ft below ground support
10a	**Cable**	7.4%			1/US
10b	**Telecom SAF: x Cost Factor (CF)**	7.4%			(1+(UNS/AE x 2/3))/TH x CF For Urban: A.E. = 5, CF = .66 For Rural: A.E. = 3, CF = 44 CF Interpolated in between so that SAF x CF equilibrates to the cable SAF for any number of A.E. The base telecom formula includes carry charges for all five carry charge elements.

Line	Formula Input/ Calculation	Illustrative Formula Input Value	Depreciation Allowances and Other Sources of Capital Recovery of Pole Replacements	Utility Leverage Opportunities for Additional/ Excess Capital Recovery of Pole Replacements	Source/Notes:
10c	**Alternative Lower Bound Telecom SAF: Urban – 5 A.E.**	11.2%			1+(UNS/A.E. x 2/3))/TH The alternative telecom formula includes carry charges for only the two operating CC elements.
10d	**Alternative Lower Bound Telecom SAF: Rural – 3 A.E.**	16.89%			1+(UNS/A.E. x .67))/TH
11	**Maximum Annual Pole Attachment Rate ($/ Foot)**				Ln 8 x Ln 9 x Ln 10
11a	**Cable**	**$16.29 = $**590.53 x 37.28% x 7.4%			Ln 8 x Ln 9 x Ln 10a
11b	**Telecom**	**$16.29 =** $590.53 x 37.28% x 7.4%		Under Commission rules, the utility chooses the higher of the two Telecom formulas, in this example, the "full" Telecom formula since it produces a higher recurring rate as compared to the cost causative alternative formula which excludes the capital expense carry charges found by the Commission in its 2011 Order as costs the utility would incur in the absence of attachers. The higher rate in the "full' Telecom rate affords the utility capital cost recovery in excess of the incremental "but for" costs of pole attachment.	Ln 8 x Ln 9 x Ln 10b
11c	**Alternative Lower Bound Telecom: Urban – 5 A.E.**	**$10.68 =** $590.53 x 16.15% x 11.2%			Ln 8 x (Ln 9a + Ln 9b) x Ln 10c
11d	**Alternative Lower Bound Telecom: Rural – 3 A.E.**	**$16.11** $590.53 x 16.15% x 16.89%			Ln 8 x (Ln 9a + Ln 9b) x Ln 10d

EXHIBIT 2

ExteNet Appendix Exh. V

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

ExteNet Systems, Inc. Plaintiff, vs. City of Rochester, New York Defendant.	)	Civil Action No.

DECLARATION OF PATRICIA D. KRAVTIN IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT

I, Patricia Kravtin, declare and state as follows:

1. I am the Principal and owner of Patricia D. Kravtin Economic Consulting, a private practice consulting company based in Utah specializing in the provision of the analysis of communications and energy regulation and markets since 2000.

2. I was engaged by ExteNet Systems, Inc. ("ExteNet") to apply my experience and expertise as an expert witness in the above captioned case. The matters stated below are true of my own personal knowledge.

3. Attached hereto as Exhibit 1 is a copy of the expert report, and exhibits thereto, which I prepared for this case (the "Expert Report"). My Expert Report sets forth my opinions and identifies my expert qualifications related to my testimony in this case.

4. The Expert Report contains a complete statement of all my opinions in this matter and the basis and reasons for them.

5. The Expert Report contains or identifies the facts and data considered by me in forming my opinions in this matter.

6. The Expert Report includes any exhibits that will be used to summarize or support my opinions in this matter.

7. The Expert Report includes my qualifications as an expert witness in this matter.

8. The Expert Report includes a list of all the cases in which I testified as an expert at trial or by deposition during the four years preceding the date of the Expert Report.

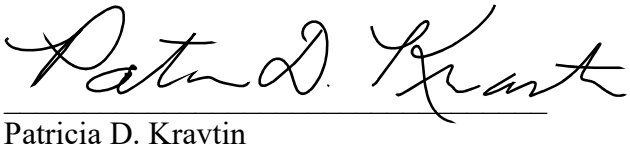
9. The Expert Report contains a statement of the compensation to be paid for my testimony in this case.

10. I have personal knowledge of and am competent to testify as to each matter stated in the Expert Report.

11. I hereby verify and reaffirm the expert opinions, as well as the supporting bases, reasons and data, contained in my Expert Report and adopt them as my testimony for purposes of Plaintiff's Motion for Summary Judgment.

12. If called upon to testify at trial as to the facts and opinions set forth in the Expert Report, I could and would competently do so.

I DECLARE UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.



Patricia D. Kravtin

Executed on October 28, 2021

Kravtin Exhibit 1

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

ExteNet Systems, Inc. Plaintiff,	)	
vs.	)	Civil Action No. 6:20-cv-7129
City of Rochester, New York Defendant.	)	

EXPERT REPORT

OF

PATRICIA D. KRAVTIN

August 12, 2021

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List of Tables and Exhibits

I. EXPERIENCE AND QUALIFICATIONS

1. My name is Patricia D. Kravtin. I am principal and owner of Patricia D. Kravtin Economic Consulting, a private practice specializing in the analysis of communications and energy regulation and markets. My business address is 2100 Park Avenue, Unit 682316, Park City, Utah 84068.

2. I received a B.A. with Distinction in Economics from the George Washington University. I studied in the Ph.D. program in Economics under a National Science Foundation Fellowship at the Massachusetts Institute of Technology (M.I.T.), completing all course requirements for the Ph.D. degree and passing oral and written examinations in my chosen fields of study: government regulation of industry, industrial organization, and urban and regional economics. My professional background includes a wide range of consulting experiences in regulated industries. Between 1982 and 2000, I was a consultant at the national economic research and consulting firm of Economics and Technology, Inc. (ETI) in that firm's regulatory consulting group, where I held positions of increasing responsibility, including Senior Vice President/Senior Economist. Upon leaving ETI in September 2000, I began my own consulting practice specializing in telecommunications, cable, and energy regulation and markets.

3. During the forty years of my professional career, I have been actively involved in the field of public utility economics, policy, and regulation. I have worked extensively in the area of telecommunications economics and regulatory policy, focusing on such issues as industry structure, competition and market analysis, cost allocation, capital recovery, utility infrastructure, cost and demand studies, total factor productivity, and deployment of advanced broadband technologies. I have conducted numerous studies and authored a number of studies and papers pertaining to these issues among others.

4. I have testified or served as an expert on telecommunications and energy issues in proceedings before more than thirty state regulatory commissions, and also before a number of state legislative committees. I have also served as an expert in proceedings before the Federal Communications Commission ("FCC"), the Federal Energy Regulatory Commission, the Canadian Radio-television and Telecommunications Commission, and the Guam Public Utilities Commission. I have also served as advisor to a number of state regulatory agencies.

5. I have been qualified as an expert witness in antitrust litigation and various other telecommunications matters including those pursuant to the Telecommunications Act of 1996

and relating to pole, conduit, and right of ways before the following state and federal courts: the United States District Court: District of Maryland, Eastern District of New York, Northern District of New York Southern District of California, and Eastern District of Tennessee; the Chancery Court for Davidson County, Tennessee at Nashville; the Circuit Court of the Thirteenth Judicial Circuit in and for Hillsborough County, Florida; the General Court of Justice Superior Court Division, State of North Carolina, County of Rutherford and County of Rowan; and the Superior Court of the State of Washington for the County of Pacific. A detailed resume summarizing my training, previous experience, and prior testimony and reports is provided in Appendix A to this report.

6. I am being compensated for the time I spend on this matter at my standard rate of $485 per hour. I will also be reimbursed for any travel and miscellaneous out-of-pocket expenses incurred in connection with this litigation, I have been retained as an independent expert, and as such, my payment is not dependent on the outcome of this litigation.

II. ASSIGNMENT

7. I have been asked by counsel for ExteNet Systems, Inc. ("ExteNet") to apply my experience and expertise on subjects relating to this case to the review and analysis of the various fees charged to ExteNet, and other telecommunications services providers, by the City of Rochester ("City") under the City's Telecommunication Code pertaining to the installation of ExteNet's and others' facilities needed to provide telecommunications services, including facilities installed on City structures or poles, or in the public rights of way ("ROW"). As part of this assignment, I have been asked to render an opinion as to whether the various fees charged ExteNet, and other telecommunications services providers, by the City reflect the reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in ROW in the City.

8. In reaching my opinions, I have relied on my education, training, research, and experience in economic analysis, and my prior experience in the areas of telecommunications and utility regulation outlined above and further detailed in Appendix A to this report. I have reviewed or relied upon various data and information in forming my opinions, including materials provided by the City in response to discovery and in the deposition questioning of City witnesses, along with other publicly available documents and case pleadings. A listing of the data and information I reviewed or relied upon in forming my opinions is provided in Appendix

B. to this Report.

9. I respectively reserve the right to update my report and supplement or amend my opinions in response to any additional information provided by the City or that may become available.

III. SUMMARY OF OPINIONS

10. Based on my review and analysis of information available to me as described above, and the application of my extensive economic and regulatory experience and expertise on subjects relating to this matter, I reach the following opinions concerning the various fees charged ExteNet, and other telecommunications services providers, by the City for telecommunications facilities installed on City-owned facilities and in the public ROW:

a. The City has not demonstrated its fees are objectively determined consistent with well-established economic and cost-accounting principles, the overarching criteria for objectivity being the capability of the cost analysis to be replicated, verified, and independently corroborated.

b. To date, the evidence and documentation produced by the City would not allow me or any other cost expert to calculate the City's reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in public ROW in the City, or from which I could independently replicate and verify that the City's assertion that its costs are so great as to justify fees substantially higher than the presumptively reasonable amounts defined by the FCC.

c. What the City has produced and claims to represent its supporting ROW cost analysis is, at best, an ad hoc compilation of disparate, unsupported, inconsistent, unverified, and non-replicable numbers presented on two excel spreadsheets (the "City Cost Spreadsheet").[1]

d. Based on the testimony of the City's designated witness, the costs identified in the City Cost Spreadsheet are based on informal information from unidentified City employees, provided without clearly-defined, coherent, principled cost allocation guidelines and seemingly arbitrarily allocated between the "underground" and "non-

[1] *See generally* City of Rochester, *ROW Costs Spreadsheets*, COR000011 ("*City Cost Spreadsheet*" or "COR000011")

underground" fee categories.

e. The City has not demonstrated that its fees are limited to recovery of direct and actual costs caused by one or more telecommunications provider's deployment and not otherwise already recovered by the City in non-recurring, permitting fees charged by the City or other reimbursements or in-kind provisions of service.

f. The vast preponderance of costs identified in the City Cost Spreadsheet would exist regardless of the existence of ExteNet and other telecommunications providers in the public ROW.

g. Of the small subset of costs identified in the City Cost Spreadsheet that could possibly meet the standard of actual, direct cost, with one possible exception (i.e., invoicing work by the finance department), the costs are more than recovered in the City's one-time permitting fee of $2,000 per existing pole ($2,500 per replacement pole) levied on telecommunications providers.

h. Given that the fees charged ExteNet and other telecommunications providers by the City for installations on City-owned facilities and in the public ROW fail to even come close to satisfying economically principled cost identification and allocation standards, ExteNet should be subject to fees no higher than the FCC's presumptive levels for small wireless facilities and significantly lower recurring fees for the installation of wireline facilities in the ROW.

i. Even the presumptively reasonable fee levels set by the FCC for small wireless facilities are themselves much more than compensatory to the City compared to the City's actual, objectively determined economic costs caused by one or more telecommunications providers' deployment.

IV. CITY OF ROCHESTER RIGHT OF WAY FEES

A. Summary of Fees Charged by the City for Access to City ROW

ExteNet is subject to a myriad of annual recurring and non-recurring fees by the City applicable to new and existing underground and aerial installations.

11. To my understanding, ExteNet, as a provider of telecommunications services, is subject to myriad fees by the City as a condition of access to City-owned poles and the public ROW. The City's fee structure takes the form of an intricate mix of annual recurring fees and non-recurring fees on both wireless and wireline facilities. The fees also vary for both underground

and aerial installations during the first and subsequent years following installation, and for underground installations, the fees differ based on whether the initial installation involved open trenching or directional boring. For aerial installations, there are effectively separate fees for wireless facilities and fiber optic facilities, and separate fees apply for attachments to pole and for "strand-mounted" wireless equipment that is installed between poles. The myriad annual recurring fees to which ExteNet is subject are set forth in the City Code Article IV. Fees and Compensation §106.15 General B(1) and (B)(2) for underground and aerial installations, respectively, and also in a separate "Telecommunications Facility Fee Schedule" document (that at times appears to conflict with the Telecommunications Code). *See generally* ROCHESTER, N.Y., MUNICIPAL CODE ch. 106, art. IV, § 106-15 ("TELECOMMUNICATIONS CODE"); *see also* City of Rochester, *Telecommunications Facility Fee Schedule*, https://www.cityofrochester.gov/WorkArea/DownloadAsset.aspx?id=21474840795 ("*Telecommunications Fee Schedule*").

12. For underground telecommunications facilities installations in the first year of installation (*i.e.* new facilities) involving open trenching, a flat, fixed fee of $10,000 applies to installations up to 2,500 linear feet of telecommunications facilities per contiguous site[2] (or multiple conduits up to five inches total in diameter), with the following per linear foot fees applied to installations in excess of the 2,500 linear foot threshold: $1.50 per linear foot for installations between 2,500 and 12,500 linear feet, and $0.75 per linear foot for installation in excess of 12,500 linear feet. For installations in the first year involving directional boring, a fee of $500 for each site of excavation applies, along with the per linear foot fees applied to open trenching installations. TELECOMMUNICATIONS CODE § 106-15(B)(1)(a); *Telecommunications Fee Schedule* ¶ 3.

13. For underground installations in all years after the first year post-installation for open trenching, as well as for all installation in existing underground facilities (*i.e.* installation within an existing underground conduit), a flat, fixed annual recurring fee of $5,000 applies to

[2] While City Code clearly states the $10,000 open trenching fee charged in the first year applies "per contiguous site," the City's designated witness in a Rule 30(b)(6) deposition, Mr. Tobias, presented a different understanding. According to Mr. Tobias, the fee would be applied "not for each site [if] it's an installation of up to 2500 feet;" further expanding "since the number's below 2,500 feet, the number would simply be that singular number of 10,000." Also, according to Mr. Tobias, in the case of a "single mobile wireless provider…it will only be charged once." *See* Deposition of Louie J. Tobias, Cellco Partnership d/b/a Verizon Wireless, 6:19-cv-06583-EAW-MWP, 408-409, Feb. 19, 2021 (Cellco depositions span multiple dates including Feb. 9, 2021 and Feb. 10, 2021) ("Tobias Dep., Verizon").

installations up to 2,500 linear feet, with the following per linear foot fees applied to installations in excess of the 2,500 linear foot threshold: $1.00 per linear foot for installations between 2,500 and 12,500 linear feet, and $0.50 per linear foot for installation in excess of 12,500 linear feet. TELECOMMUNICATIONS CODE § 106-15(B)(1)(a), (b); *Telecommunications Fee Schedule* ¶ 2.

14. For underground installations involving directional boring, in the first year, a fee of $500 for each site of excavation applies, plus linear per foot fees of $1.50 for telecommunications facilities from 2,500 to 12,500 linear feet and $0.75 per linear feet thereafter. After the first year, the fees are $5,000 for up to 2,500 linear feet, $1.00 per linear foot for 2,500 to 12,000 linear feet, and $0.50 per linear foot thereafter. TELECOMMUNICATIONS CODE § 106-15(B)(1)(c); *Telecommunications Fee Schedule* ¶ 4.

15. For aerial installation of fiber or other telecommunications facilities and accessories, providers must pay the following fees in the first year: $10,000 for up to 2,500 linear feet; $1.50 per foot for 2,500 to 12,500 linear feet; and $0.75 per foot beyond 12,500 linear feet. Annually thereafter, providers must pay fees of $5,000 for up to 2,500 linear feet, $1.00 per foot for 2,500 to 12,5000 linear feet and $0.50 for all linear feet beyond 12,500. Telecommunications Code § 106-15(B)(2); *Telecommunications Fee Schedule* ¶ 2-3.

16. Providers are also required to pay annual recurring fees per pole attachment for small wireless facilities (although the City's Code does not explicitly refer to small wireless facilities it is my understanding that was the City's intent). For each standard City-owned pole, or standard pole purchased and replaced by the provider, the fee is $1,500 per pole. The fee is $1000 per pole for "smart poles" installed and replaced by the provider. Where a pole is replaced by the provider, the new pole then becomes the property of the City, further reducing the City's costs on the replaced pole. Neither the Telecommunications Code nor the City's Telecommunications Facility Fee Schedule specify a fee for smart poles installed by the City. Rather these fees are set forth in a master license agreement to which providers must agree to for access to the ROW. TELECOMMUNICATIONS CODE § 106-15(B)(4); *Telecommunications Fee Schedule* ¶ 5.

17. In addition to the recurring fees described above, it is my understanding ExteNet is also subject to one-time permit fees for work within the City public ROW. This includes permit fees of $2,000 per existing pole and $2,500 per replacement pole. *See* City of Rochester, *Permit Fees for Work Within the City Public Right-of-Way*, 3 ¶ 11, https://www.cityofrochester.gov/WorkArea/DownloadAsset.aspx?id=21474840798 ("*Permit Fee*

Schedule"). Providers are further subject to a host of other one-time upfront or non-recurring fees or payments to the City as set forth in numerous provisions in the City Code sections 106 and 104 including:

a. §106-15 (E): "the actual costs, including, but not limited to the legal and engineering fees, of any expert consultant the City may reasonably require for review of applications;" TELECOMMUNICATIONS CODE § 106-15(E).

b. §106-15(F): "other applicable fees, including but not limited to permit fees, registration costs, or other costs established;" TELECOMMUNICATIONS CODE § 106-15(F).

c. §106-15, §106-16: "in the City's sole discretion," alternative payments to the City in the form of in-kind telecommunications services or facilities; TELECOMMUNICATIONS CODE § 106-15(I); *id.* § 106-16(A).

d. §106-32: "This chapter is not intended to be the exclusive means of regulating the installation and operation of facilities in the right-of-way, and nothing herein is intended to waive any other applicable City requirements, including but not limited to building permit requirements, stormwater runoff; requirements, business license requirements, and undergrounding regulations;" TELECOMMUNICATIONS CODE art. V, § 106-32.

e. §104-13: right-of-way opening or pavement cuts; ROCHESTER, N.Y., MUNICIPAL CODE ch. 104, art. I, § 104-13 ("RIGHT-OF-WAY CODE").

f. §104-20: extended maintenance fees for excavations in newly reconstructed or newly resurfaced pavements; RIGHT-OF-WAY CODE § 104-20.

g. §104-57(H): fees for excavation in the ROW; ROCHESTER, N.Y., MUNICIPAL CODE ch. 104, art. III, § 104-57(H) ("FEE CODE").

h. §104-57(B): annual maintenance fee for all work other than excavation related; FEE CODE § 104-57(B).

i. Re-inspection fees per visit. *Permit Fee Schedule* at 3 ¶ 16.

B. Standards and Guidelines Applicable to City Fees Pursuant to Section 253 of the Communications Act, as Set Forth in the FCC's 2018 Broadband Deployment Order

18. Citing its commitment "to help ensure the United States wins the global race to 5G to the benefit of all Americans," in September 2018, the FCC released a landmark declaratory ruling in which it clarified the standards applicable to state and local governments in their regulation of

telecommunications providers under Sections 253[3] and 332(c)(7)[4] of the Communications Act.[5] The FCC explained that the standards of the Act were designed to "remove regulatory barriers that would unlawfully inhibit the deployment of infrastructure necessary to support these new services," including, but not limited to more highly densified networks using small wireless facility deployments.[6]

19. One of the issues directly addressed by the FCC in the *Broadband Deployment Order* was the application of Section 253 of the Act[7] to local government fees for occupation of the public ROW. The FCC found that by proscribing the fees that state and local governments can permissibly charge providers under Section 253 of the Communications Act to amounts supported by economic principles as described below, the FCC's actions stand to "eliminate around $2-billion in unnecessary costs, which would stimulate around $2.4-billion of additional buildouts"[8] and achieve a host of other public interest objectives, as well as limit the likelihood of litigation.[9]

20. In the *Broadband Deployment Order*, the FCC held that under Section 253, a local government's fees for use of the public ROW must be cost based. Specifically, the FCC held that local fees must satisfy a two-prong economic standard: (1) the fees are a reasonable approximation of the state or local government's actual and direct costs that are specifically related to and caused by the deployment of telecommunications facilities in the public ROW; and

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[3] 47 U.S.C. § 253.

[4] 47 U.S.C. § 332(c)(7).

[5] *See In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment; Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, Declaratory Ruling and Third Report and Order, 33 FCC Rcd. 9088, ¶¶ 1-7 (2018) ("*Broadband Deployment Order*"), *aff'd in relevant part*, *City of Portland v. U.S.*, 969 F.3d 1020 (9th Cir. 2020), *cert. denied*, No. 20-1354, 2021 WL 2637868 (U.S. June 28, 2021).

[6] *Broadband Deployment Order* ¶ 1, 3; *see also id.* ¶¶ 4-11.

[7] 47 U.S.C. § 253.

[8] *Broadband Deployment Order* ¶ 7.

[9] *Id.* ¶ 80. To be clear, my discussion of what the FCC stated and how I interpret the FCC's statements consistent with established economic and regulatory cost accounting and financial standards is not an interpretation of the legal standard set by the statute or explicated by the FCC. Rather, I am articulating how the FCC's discussion is properly understood in the context of accounting, finance, and economics given my expertise and experience, particularly in applying cost-based standards articulated by the FCC and other regulatory bodies.

(2) only *objectively reasonable* costs are factored into those fees.[10] As elaborated on below, by tying its discussion to an "objectively" determined economic metric, the FCC's discussion takes on a very specific meaning and context and builds upon a well-established body of economic and regulatory cost allocation literature, including the FCC's own prior rulings.

21. As discussed further below, the objectively determined economic cost standard articulated by the FCC is inextricably tied to the economic principle of cost causation. Adherence to that principle dictates a definition of costs proscribed to the actual, and direct costs incurred by the locality, with a strong, demonstrable causal connection to a provider's deployment in the ROW. Language repeated throughout the FCC's Order makes clear that was the FCC's understanding and intention.

The FCC's Limitation of Fees to the Recovery of the Direct, Actual Costs Caused by Telecommunications Deployment Align with the Economic Principles of Cost Causation and Efficient, Socially Beneficial Pricing

22. In articulating its two-prong test, *i.e.*, demonstration that the imposed fee be a "*reasonable approximation of cost that itself is objectively reasonable,"*[11] the FCC provided very specific guidance as to the definition of costs it intended be used. Namely, the FCC firmly established in its *Broadband Deployment Order* that costs permissibly recoverable through fees charged by state and local authorities were to be defined as, and recovery limited to, the actual, direct costs incurred by the local authority that were caused by the deployment of telecommunications facilities:

a. At ¶ 55: "We interpret Section 253(c)'s "fair and reasonable compensation provision to refer to fees that represent a reasonable approximation of *actual and direct costs* . . . where the costs being passed on are themselves objectively reasonable" (emphasis added);

b. At ¶ 56 "localities do not impose an unreasonable barrier to entry when they merely require providers to bear the *direct* and reasonable costs caused by their decision to enter the market" (emphasis added);

[10] *Id*. ¶¶ 50, n.131, 55-56, 75-76. The FCC also held that Section 253 imposed a third condition prohibiting non-discrimination in fees charged "similarly-situated competitors in similar situations." *Id.* ¶ 50.

[11] *Id*. ¶ 79, 79 n.233.

c. At ¶ 75 "local governments incur a variety of *direct and actual costs* in connection with Small Wireless Facilities . . . ." (emphasis added); and

d. At ¶ 50, note 131: "By costs, we mean those *costs specifically related to and caused by deployment*. These include, for instance, the costs of processing applications or permits, maintaining the ROW, and maintaining a structure within the ROW," (citing *Puerto Rico Tel. Co. Municipality of Guayanill*a, 354 F. Supp. 2d 107, 114 (D.P.R. 2005), *aff'd*, 450 F.3d 9 (1st Cir. 2006) (stating "fees charged by a municipality need to be *related to the degree of actual use of the public rights-of way"* to constitute fair and reasonable compensation under Section 253(c)" (emphasis added)).

23. The FCC's action to limit cost recovery in ROW fees to the *direct and actual costs specifically caused by the deployment* is consistent with the fundamental economic principles of cost causation that similarly have as their objective the goals of maximizing market entry, effective competition, and the availability of services. As well-established in the economic literature, these performance goals are associated with the ideal competitive market outcome, where there are numerous buyers and sellers, no one of which large enough to influence prices. Under these conditions, no seller would be able to extract monopoly rents (*i.e.*, producer surplus or profit over and above the direct and actual costs of providing the service) or in any other way limit access to essential inputs (in this case, City-owned facilities and ROW) under the control of the supplier that are needed by another firm to provide its service. Prices would be bid down to the marginal costs of production.

24. While economists may disagree on many things, there is perhaps one central tenet of economics upon which there is solid agreement. That is the notion that socially desirable performance attributes associated with a competitive market are best achieved when prices are set at efficient levels close to marginal (or incremental) costs, i.e., costs that would not exist "but for" the presence of the new entrants.[12] Rates, or in this case fees, that recover the marginal costs of production (but not more) are economically efficient in that they best achieve allocative and productive efficiencies in both intermediate (input) and final service markets (in this case the market for telecommunications services). Moreover, and key from a public policy perspective,

[12] *See, e.g.*, Paul A. Samuelson, *Economics: Tenth Edition* 462-63 (McGraw-Hill Book Co., 1976); Bridger M. Mitchell, *Costs and Subsidies in Telecommunications*, *in* THE CHANGING NATURE OF TELECOMMUNICATIONS INFRASTRUCTURE 159 (1995); *Alabama Power Co. v. FCC*, 311 F. 3d 1357, 1369-70 (11th Cir. 2002).

rates or fees set based on marginal costs are subsidy free.

25. The economic concept of marginal cost is thus directly tied to the economic principle of cost causation. Under the cost causation principle, costs are assigned to the entities deemed causally responsible—*i.e.*, the entities "but for" whose existence or action *a cost could have been avoided*. In accordance with this principle, the entity or activity causing the cost to be incurred is charged a price to reflect only those costs *directly caused* by or very strongly linked to its presence.

26. The divergence between the high ROW fees currently demanded by the City from ExteNet and other telecommunications providers and those that would result from more efficient, marginal cost fees is not just a theoretical problem. As the FCC correctly recognized, the City's fees carry serious real-world consequences. There are significant harms not only to ExteNet and other providers but to the consuming public and overall societal welfare when the costs of access to City facilities, a critical input to service deployment, substantially deviate from socially optimal and efficient levels as defined in accordance with established, objective economic principles. On the demand side, these harms include substantial foregone consumer value welfare losses that derive from the benefits of a high-speed quality broadband telecommunications connectivity, and on the supply side, lower rates of investment in telecommunications, slower deployment of infrastructure, and the delayed roll out of higher quality service offerings. Such harms would be exacerbated if additional cities apply the same rational as the City of Rochester to calculate their own fees.

27. In the real-world context, the FCC's limitation of permissible fees charged telecommunications providers to recovery of the *direct and actual costs specifically related to and caused by deployment* is clearly designed to preclude local and state governments such as Rochester from allocating to ROW fees a wide array of *the costs of public City functions that would exist for the City even in the absence of the telecommunications provider* merely because telecommunications facilities exist in the public ROW. Yet, as described below, the vast preponderance of costs allocated to providers in the City Cost Spreadsheet (which spreadsheets appear to have been created *ex post facto* to justify the City's high fees) fall into the category of costs that would exist for the City even in the absence of the telecommunications provider. Roads, sidewalks, and bridges are generally transportation infrastructure, and capital and operating expenses incurred by the City relating to their construction and maintenance are

triggered by the City function to provide for the vehicular and pedestrian transportation of its residents and businesses and for which the City receives considerable state and federal reimbursement. The City is already incurring, and would continue to incur the capital and operating costs related to the construction and maintenance of roads, sidewalks, and bridges absent the presence of telecommunications facilities in the ROW.

28. The FCC's two-pronged standard makes it clear that ROW fees *cannot* be a vehicle for cities to recoup capital and operating costs incurred by the City to provide for transportation within the city, e.g. street paving and other roadway improvements, necessary to enable the safe and efficient movement of people and commerce within the City and for which the public city function of transportation is the cost driver --not the marginal presence of telecommunications providers.

29. Similarly, the FCC's articulation of the limitation of permissible fees to the "*direct and actual costs specifically related to the deployment*" appears clearly designed to preclude local governments from allocating to ROW fees the costs incurred by the local government related to other ROW occupants,[13] especially the water, gas, and electric utilities that are ubiquitous throughout the City and whose activities and amount of facilities in the ROW typically dwarfs those of telecommunications providers, such as ExteNet. As with the public city functions, the costs incurred by the City related to the incumbent utilities are *costs that would exist for the City even in the absence of the telecommunications provider* and are not appropriately shifted onto telecommunications providers from an economic perspective, as articulated by the FCC. Yet, the City does not appear to have identified the portion of costs incurred by the City caused by other occupants of the ROW, including the large, ubiquitous utilities.[14]

30. Aside from the inappropriateness from a cost allocation standpoint of assigning costs to telecommunications providers that are directly attributable to, and hence properly directly assignable to, incumbent utilities, there is the further matter of whether the City is even subjecting incumbent utilities to the same fees as applied to telecommunications providers (or

[13] Mr. Tobias refers to multiple providers in the City's ROW, including what he refers to as "legacy providers." *See* Deposition of Louie J. Tobias, Crown Caste Fiber LLC v. City of Rochester, et al., 6:20-cv-06866-EAW-MWP, 145 Apr. 30, 2021 ("Tobias Dep., Crown Castle"); *see also* Deposition of Louie J. Tobias, ExteNet Systems Inc., v. City of Rochester, 6:20-cv-7129-EAW-MWP, 43-46, June 3, 2021 ("Tobias Dep., ExteNet").

[14] *See* Tobias Dep., ExteNet at 60-61.

any).[15]

The FCC Has Substantial Experience in Applying Fundamental Economic Cost Causation Principles That Informs The FCC's Discussion Of Costs In The Broadband Deployment Order

31. Regulators, including the FCC over the years, have developed economic cost allocation tools for translating the theoretical marginal cost standard into practical, implementable regulatory cost allocation practices; building on a rich body of public utility regulation literature, and those prior actions by the FCC helps inform what the FCC intended in the *Broadband Deployment Order*. The most prominent of these tools is the concept described above as the economic principle of "cost causation." As well articulated by the FCC:

> That is to say, prices based on cost causation principles enable an allocation or mix of goods to be produced that buyers desire and are willing to pay for and so are socially efficient and enable an efficient firm to recover its costs.[16] [I]f a customer is causally responsible for the incurrence of a cost, then that customer—the cost causer—pays a rate that covers this cost.[17]

32. For example, the principle of cost causation has played a key role in the FCC's implementation of Section 224 of the Pole Attachment Act of 1978,[18] which gives the FCC authority to regulate the fees that utility pole owners may charge telecommunications providers and cable operators to attach to utility poles. In applying the cost causation standard to other terms and conditions of access, such as make-ready work relating to rearrangement or replacement of facilities, Section 224(i) establishes that a third-party attacher to a pole "shall not be required to bear any of the costs" in connection with an activity "sought by any other entity (including the owner of such pole, duct, conduit, or right-of-way)." 47 U.S.C. § 224(i). I view the FCC's well developed cost causation principles in the pole attachment context of Section 224 as highly informative in understanding the costs that the FCC intended for cities to be able to

[15] *See* Tobias Dep., ExteNet at 58-60, 200-201 (stating that he does not know if other utilities in the rights-of-way pay fees under the City Code section 106 for pole attachments and other work in the right-of-way).

[16] *See Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, Report and Order; Order on Reconsideration, 26 FCC Rcd 5240 ¶ 143 n.425 (2011) ("*2011 Pole Attachment Order*")

[17] *See id*.

[18] 47 U.S.C. § 224.

recover in their ROW fees.[19]

33. As applied in the Section 224 pole attachments context, but also applicable here in the context of access to City poles and ROW, the cost causation principle requires identification of costs having a strong, direct causal linkage to the third party's actual use of the facility in question, to be distinguished from those costs whose principal driver is the provision of the facility owner's core service. In the Section 224 context, those core services are most typically an electric utility's distribution service. In the context discussed by the FCC in the *Broadband Deployment Order*, it is the City's public city functions, such as transportation and public safety.

34. Under the principle of cost causation applied over the years by the FCC in the pole attachment context, any costs that are necessary and unavoidable in the provision of the core electric service have been found to be properly borne by the utility or its ratepayers. This process recognizes the fundamental point that the utility's network was primarily built and maintained to provide the core utility service, and the cost structure of that service is in many respects separate and distinct from the utility's role as a pole attachment space provider. Rates that allow the core utility service activities to shift onto pole attachment activities an inefficiently high proportionate share of cost responsibility will produce detrimental, market distorting impacts in the downstream broadband and electricity retail markets.

35. In its *Broadband Deployment Order*, the FCC applies these same concepts to the fees cities may charge for access to City-owned facilities and the public ROW both by establishing presumptive fees at levels the FCC found to be commensurate with the likely direct and actual costs incurred by state and local governments (albeit acknowledged by the FCC in many cases to be likely in excess of) and while allowing for the possibility of fees in rare occasions above those levels, further conditioning those fees on the municipality's satisfaction of a two-pronged standard linked to the same objective economic cost causation principles.

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[19] These concepts have also been relied on by the FCC in other regulatory contexts, including its Part 64 rules governing the allocation of costs between regulated and non-regulated activities of the utility. These rules were specifically designed to prevent the cross-subsidization of non-regulated activities, but have general applicability, and have been frequently applied to a wide range of regulatory cost applications. Pursuant to the Part 64 rules, carriers are instructed to assign costs directly to the originator or cost causing unit whenever possible. Carriers are further instructed to allocate indirect costs or common costs that cannot be directly assigned "based upon an indirect, cost causative linkage to another cost category . . . for which a direct assignment or allocation is available." 47 C.F.R. § 64.901(b)(3)(ii). These well-established cost allocation guidelines as applied by the Commission are designed to produce efficient, subsidy-free rates. To this end, they expressly prohibit the inclusion of costs directly attributable to another such entity or activity.

The FCC's Presumptively Reasonable Fee Levels For Small Wireless Facilities.

36. In the *Broadband Deployment Order*, the FCC provided specific guidance for applying the cost-based requirement to the level of fees (recurring and non-recurring) for small wireless facilities in the ROW presumed to be lawful under Section 253. Specifically, the FCC held that the levels it defined "do not constitute an effective prohibition under Section 253(a) or Section 332(c)(7), and are presumed to be 'fair and reasonable compensation' under Section 253(c).'"[20] Citing its review of the Commission's over four-decade old pole attachment rental formula used to set just and reasonable recurring pole attachment rental rates "as well as small cell legislation in twenty states, local legislation from certain municipalities in states that have not passed small call legislation, and comments in the record," the FCC established the following set of presumptively reasonable amounts for local fees imposed on small wireless facilities: (a) $500 for non-recurring fees, including a single up-front application that includes up to five Small Wireless Facilities, with an additional $100 for each Small Wireless Facility beyond five, or $1,000 for non-recurring fees for a new pole (i.e., not a collocation) intended to support one or more Small Wireless Facilities; and (b) $270 per Small Wireless Facility per year for all recurring fees, including any possible ROW access fee or fee for attachment to municipally-owned structures in the ROW.[21]

37. The FCC found fees set at this level, or below, not only met the legal test set forth in Section 253 but also would best promote the vitally important public interest objective of facilitating the deployment of critical infrastructure.[22] The FCC did allow for the possibility that state and local authorities could charge fees above these levels, but set a very high economic bar that state and local authorities must satisfy to justify charging fees higher than the presumptive values by showing that it met the cost-based standards discussed above.

The FCC's Presumptively Reasonable Fees Apply Except in "Only Very Limited Circumstances"

38. Based on its review of an extensive record including information "on the many small cell bills passed to date," the FCC stated its expectation and belief that "there should be only very limited circumstances in which localities can charge higher fees consistent with the requirements

[20] *Broadband Deployment Order* ¶ 78-79.

[21] *Id*. ¶ 79.

[22] *Id*. ¶ 78.

of Section 253."[23] The FCC's consideration of the very limited possibility of permissible fees higher than its presumptive levels was in a specific context of local variation in *costs,*[24] such that is clear from a plain reading of the Order that the FCC was not opening the door for localities to charge fees based on non-cost based criteria (*e.g.*, revenue enhancement to the City, value or benefit to the provider) or the inclusion of a wide array of costs related to public City functions (*e.g.*, the costs of road improvements or general city functions that may be related to the ROW) that did not strictly adhere to its two-prong objectively reasonable economic cost standard.[25]

39. Moreover, even in recognizing the possibility of local variation in costs, the FCC diminished such variation's economic relevance by observing that fees similar to its presumptive fee levels are being charged across "a diversity of population densities and costs of living" and also that its fees were higher than those charged in the majority of applicable state legislation.[26] In the case of the City of Rochester, there is no *a priori* economic reason to expect the actual economic costs the City incurs in connection with deployment on City facilities and in its ROW would be higher than average, and the City has made no such showing that I am aware of.

40. Further, the FCC expressly noted its expectation that its presumptive fee limits were *in excess of* fair and reasonable compensation to cities and towns in many situations.[27]

The FCC's Presumptively Reasonable Fees Take in Account the Densification and Proliferation of Telecommunications Facilities, Extraterritorial Impacts, and Other Dynamic Public Interest Considerations

41. In tying both its presumptive fees and two-pronged standard for permissible rates to economic cost causation principles, the FCC appropriately took into account a variety of public interest considerations. Among the most salient of these considerations were the densification and proliferation of facilities needed to provide service today, the effects of ROW fees on providers beyond the immediate locality, and the very significant positive externalities associated with access to high-speed high-quality service.

42. In regard to the densification and deployment of facilities, the FCC appropriately

[23] *Broadband Deployment Order* ¶ 79.

[24] *Id.* ¶ 80.

[25] *Id.* ¶ 73.

[26] *Id.* ¶ 79 n.233.

[27] *Id.*

recognized the impediments to entry and investment associated with inefficiently high fees (*i.e.*, those in excess of the direct and actual costs specifically caused by deployment). Notably, the FCC recognized that the impediments to deployment and provision of service due to local governments' ownership and control of essential facilities needed to provide service are substantially larger today than in the past owing to changes in technology since the passage of the Telecommunications Act of 1996. As explicitly noted by the FCC:

> The many-fold increase in Small Wireless Facilities will magnify per-facility fees charged to providers. Per facility fees that once may have been tolerable when providers built macro towers several miles apart now act as effective prohibitions when multiplied by the each of the many Small Wireless Facilities to be deployed. Thus, a per-facility fee may affect a prohibition on 5G service or the densification needed to continue 4G service even if that same per-facility fee did not effectively prohibit previous generations of wireless service.[28]

43. In taking into consideration the impacts of "changing technology and its interactions with regulations created for a previous generation of service" in its findings, the FCC's determination of presumptive fees and the high bar for fees in excess of those levels reflects an economically appropriate understanding on the part of the FCC of the very dynamic nature of the telecommunications industry.

44. Another factor related to the densification and proliferation of facilities needed to provide service today also taken into account by the FCC is the extraterritorial impact of those fees. By extraterritorial impact, I am referring to what the FCC describes as "the *cumulative* effect of future similar municipal [fee ordinances]" across a broad geographic area when evaluating the effect of particular fee in the context of Section 253(a)." Similar to the densification and proliferation of facilities, the extraterritorial impact of excessive fees on the prohibition of service reflects the FCC's consideration of dynamic factors influencing the degree to which fees result in an effective prohibition of service from an economic and public policy perspective. But in this context, it is a geographically dynamic perspective on the provider's ability to provide service that the FCC has considered.

45. As well explained by the FCC:

> [T]he record reveals that fees above a reasonable approximation of cost,

[28] *Broadband Deployment Order* ¶ 48.

> even when they may not be perceived as excessive or likely to prohibit service in isolation, will have the effect of prohibiting wireless service when the aggregate effects are considered, particularly given the nature and volume of anticipated Small Wireless Facility Deployment . . . . In some cases, the fees in a particular jurisdiction will lead to reduced or entirely foregone deployment of Small Wireless Facilities in the near term for that jurisdiction. In other cases, where it is essential for a provider to deploy in a given area, the fees charged in that geographic area can deprive providers of capital needed to deploy elsewhere, and lead to reduced or foregone near-term deployment of Small Wireless Facilities in other geographic areas. In both of those scenarios the bottom-line outcome on national development of 5G networks is the same – diminished deployment.[29]

46. The FCC's reasoning is economically sound, both from a theoretical and real-world viewpoint.

47. Another dynamic consideration front and central to the FCC's actions in the *Broadband Deployment Order* is the recognition of the growing importance to overall societal welfare of high-speed high-quality telecommunications and broadband, and conversely the substantial and ever-growing harm to the public interest of delayed or foregone deployment. In the twenty-five years since the passage of the Telecommunications Act of 1996 (which enacted Section 253), access to high quality telecommunications and broadband service has become an increasingly integral component of our lives, and essential in providing our citizenry with access to education, health, commerce, government, and public safety, and the means to earn a livelihood. The FCC's discussion of local government fees is further supported by the adverse impacts on consumers and the public interest

48. By establishing fees dramatically higher than those established by the FCC as fair and reasonable compensation for small wireless facilities and dramatically higher than justified by the City's direct, actual costs caused by telecommunications providers, the City imperils the economic and social well-being of its households and businesses, and is a poster child for the "outlier conduct" by state and local jurisdictions cited by the FCC as "materially impeding that deployment [of 5G and other next-gen infrastructure.]"[30]

When the FCC held that fees must be based on actual direct, reasonable costs objectively

[29] *Broadband Deployment Order* ¶ 65.

[30] *Broadband Deployment Order* ¶ 25.

determined, it did so with an understanding that economic and cost-accounting principles provide criteria that the local government must meet.

49. By tying its discussion of the costs that local governments may recover to *objectively* determined costs, the FCC made clear the importance that local governments be held to a meaningful compliance with the FCC's cost directives. Given its decades of experience in the design and implementation of cost-based regulation, the FCC's repeated use of the word "objective" drives home the point that costs assigned without clear adherence to some underlying economic philosophy or criteria and well-documented support could be arbitrary and lend themselves to results-oriented manipulations. Otherwise, as recognized by the FCC in other regulatory contexts, there would be no assurance that the costs determined by the study process would be reasonable, given the natural self-interests of the firm or organization (City government in this context).

50. Moreover, there is a substantive distinction between actual costs from a budgetary accounting perspective and actual costs from an objective economic cost allocation perspective. The latter requires demonstrated, non-arbitrary cost causative linkages related to the *cause or origin of the cost* - not merely the expenditure of funds on activities that in some generic sense is related to a cost center. This is a critical distinction, particularly in light of what appears to be the City's argument in this case. In the case of the direct and actual reasonable costs attributable to a telecommunications provider in connection with its use of City facilities and ROW, as explained above, this requires a showing that "but for" the provider's use of the public ROW, the cost would not exist for the City—not merely that the cost exists in some connection with the City facility or ROW and the telecommunications provider has a presence on the facility or in the ROW.

51. The following are a list of key criteria based on established economic and regulatory cost accounting principles that a local government must meet to demonstrate that its fees satisfy a standard of direct and actual costs *objectively* determined. In addition to being established economic and cost accounting principles, these principles have been relied on by the FCC over the course of the past several decades in its regulation of telecommunications and cable pole

attachment rates,[31] and are inherent to a showing that costs assigned to telecommunications providers are objectively determined.

52. **First**, the costs and inputs that underlie a local government claim that its fees are supported by direct, reasonable costs *must be capable of being replicated and verified, supported by sources that are well documented, and capable of independent validation*. Anything less would nullify the requirement that the fees be limited to direct, actual, reasonable costs objectively determined. Broad brush estimates based on little more than personal beliefs and back of the envelope calculations, with no consistent methodology or objectively verifiable data to support them would be no better than accepting the local government saying "trust us." Moreover, actual, verifiable, and documented costs is not an unreasonable standard for local governments to be required to meet. Their annual budget process, alone, demonstrates they are capable of tracking their costs consistent with such replication and validation criteria, and they regularly do.[32]

53. **Second**, objectively determined actual costs will be developed in a transparent and consistent manner across cost activities or departments, readily explained and understood. Objectivity in cost analysis is achieved through the application of systematic, consistently-applied cost logic and the application of clearly understood and agreed upon definitions of cost and rules by which those costs are assigned or allocated among cost activity centers. While the FCC did not establish or require localities "use any specific accounting method to document costs they may incur," in recognition "that direct and actual costs may vary by location, scope, and extent of providers' planned deployment," as discussed above, it did require localities to adhere to criteria inherent to an objective identification of those costs.[33] While some discretion and flexibility in the cost methodology and process is inevitable and practically necessary, when the cost allocation methodology and process is inherently ad hoc and discretion-based, there is a vacuum that lends itself to internal inconsistencies, the fallback to individual subjective

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[31] *See*, *e.g.*, *2011 Pole Attachment Order*. ⁋ 190, 190 n.583; *In the Matter of Amendment of Rules and Policies Governing Pole Attachments*, Report and Order, 15 FCC Rcd 6453, ¶ 92 (2000); *see also Capital Cities Cable, Inc. v. Mountain States Telephone & Telegraph Co.*, 56 RR 2d 393, ¶ 22 (1984).

[32] *See generally City of Rochester 2020-2021 Budget* (2020), https://www.cityofrochester.gov/WorkArea/DownloadAsset.aspx?id=21474846286 (the City submitted this document in discovery as COR000012-000622).

[33] *See Broadband Deployment Order* ¶¶ 75-76.

judgments, and the ability to manipulate the data to achieve desired results.

54. **Third**, there can be no excess or double recovery of costs through the recovery of costs already covered through other fees, reimbursements, or the in-kind provision of services. More specifically this would exclude: (a) costs included in a recurring annual fee being otherwise recovered in another type of recurring fee or in one-time, direct user fees or in-kind services; (b) costs associated with aerial facilities being assigned to underground facilities and vice versa; (c) the costs reflecting those activities self-provisioned by the telecommunications provider or incurred by the provider pursuant to City ordinance requirements and/or ROW Use Agreements; and (d) the costs for which the City receives other payments or reimbursements (e.g., federal/state funding or grants) that directly offset costs sought by City.

55. While the FCC did not prescribe specific rules as to the recovery of costs as between different types of fees (e.g., as between recurring fees for access to the ROW and attachment to facilities), it did bind localities to the recovery of no more than actual total costs incurred by the locality and to the criteria inherent to an objective approximation of those costs. This would exclude excess or double recovery, consistent with prior FCC rulings.[34]

56. **Fourth**, there can be no recovery of costs beyond those causally related in an objective economic sense to actual direct costs incurred by the City (in this case, those caused by ExteNet's occupancy and actual use of the City ROW), which are costs that would not exist for the City "but for" the attacher's occupancy in the City ROW. In addition to excluding costs causally related to public city functions of the City or incumbent utilities as described earlier, true economic cost drivers, objectively determined, would specifically *not* include alleged "benefits" or "value" to the telecommunications provider. Nor would true economic cost drivers include general fund revenue enhancement or "profits" for the City as facility owner.[35]

57. As will be shown in the next section of this Report, the City's exorbitantly high fees, which are only loosely supported by ad hoc, ex post facto-created worksheets do not come close

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[34] *See*, *e.g.*, *In the Matter of Amendment of Rules and Policies Governing the Attachment of Cable Television Hardware to Utility Poles*, Report and Order, 2 FCC Rcd. 4387, ¶ 74 (Jul. 23, 1987); *id.* ⁋ 38 ("We are concerned, however, that there may be a double recovery by some utilities for amounts paid for such expenses as application processing, inspections, and certain make-ready work.").

[35] A description of costs that would not meet the standard of fair, direct and reasonable causally related costs properly recoverable in fees charged telecommunications providers, specifically identified by the FCC in its 2018 Order, would be "excessive and arbitrary consulting fees or other costs . . . that are not a function of the provider's 'use' of the public ROW." *See Broadband Deployment Order* ¶ 76.

to meeting the criteria and principles enumerated above.

C. The City's Fees Are Not A Reasonable Approximation of The City's Objectively Reasonable Costs Caused By Telecommunications Facilities Deployment, in Accordance with Established Economic Principles

The City has not demonstrated its fees are objectively determined.

58. As described above, there are several hallmark criteria well established in the field of economic and regulatory cost allocation for demonstrating the *objectivity* of costs. To recap, these criteria include: transparency in the cost allocation process applicable to all underlying inputs and assumptions used in the process; the capability to replicate and verify the cost derivation process and final results of the process; and the ability to independently validate data sources and other supporting documentation for their reasonableness, authenticity, and internal consistency. By these basic, economic and commonsense criteria, the City's ROW cost development is the polar opposite of objectivity.

59. In my over forty years of experience in regulatory cost study and cost allocation development, rarely have I seen such an undocumented, unsupported, non-transparent, and internally inconsistent compilation of cost figures as presented in the City Cost Spreadsheet[36] provided in this litigation. And certainly, never in the context where the applicable standard to be met, along with the public interest rationale for the standard, are so clearly set forth as they are in the FCC's *Broadband Deployment Order*, as the earlier sections of my Report explain.

60. What the City has produced and claims to represent as its supporting ROW cost analysis is, at best, an ad hoc compilation of disparate, unsupported, inconsistent, unverified, and non-replicable numbers presented on two tabs of in the City Cost Spreadsheet: the first labelled "Input Data (ug)," and the second labelled "Input Data."[37] Even the creator and sponsor of the City's cost analysis, City Director of Telecommunications, Mr. Louie Tobias, could not well articulate the definition of costs assigned to the two spreadsheets over the course of multiple depositions by different counsel, or what the two types of distinct costs he was trying to

[36] *See generally City Cost Spreadsheet* (This document is referred to frequently throughout each deposition. In Tobias Dep., ExteNet, it is referred to as COR 000011 or Exhibit 5, in Tobias Dep., Verizon, it is referred to as Exhibits 9, 10 or 14, and in Tobias Dep. Crown Castle, as Exhibit 3.)

[37] *Id.*

approximate actually represent.[38]

61. From what I can best discern, the City Cost Spreadsheet tab labeled "Input Data" is intended to capture staffing related costs loosely associated with the installation of small wireless facilities (sometimes called small cells) in Mr. Tobias' judgement, whereas the City Cost Spreadsheet tab labeled "Input Data (ug)" is intended to capture a combination of staffing related costs and capital expenditures loosely associated with "the things that were not necessarily [small cell]" in Mr. Tobias' judgement.[39] The costs reflected in the "Input Data" City Cost Spreadsheet tab intended to apply to a mix of fiber backhaul facilities associated with aerial installations, underground installations, as well as existing telecommunications facilities already in the ground.[40] That said, by his own admission, Mr. Tobias did not expect his department personnel to be able to distinguish with any particular degree of accuracy the actual cost incurrence associated with the two designated "input data" categories.[41] This lack of a coherent definition of the two cost categories or consistent criteria for City personnel to apply to the allocation or association of their time spent as between the two created a large void to be filled by Tobias's subjective judgement.

62. All that Mr. Tobias appears to believe is important is that the sum of costs that he

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[38] I understand that the City's Fees are being challenged in three separate lawsuits, one by Verizon, one by Crown Castle, and the case by ExteNet. I have been provided copies of the deposition transcripts of Mr. Tobias' deposition in each of the three cases, all addressing the same City fees and the same spreadsheets purporting to identify the City's costs. *See* Tobias Dep., Verizon at 306:6-307:7 ("Q: I see there are two tabs. One says, 'input data UG' and the other says 'input data.' Is input data UG a reflection of our Exhibit 10 that relates to what I call the backhaul? A: I believe that to be the case. Q: What does underground stand for? A: I just used UG as underground. Q: Does anything on this –tab of this spreadsheet reflected as UG relate to cost analysis with respect to aerial installations or does it only relate to underground? A: Well, I have to look at that just to make sure. When I used the word UG, underground, it was to recognize the things that were not necessarily small cell. So there are – I would say that more than likely, the answer to that is yes. It probably should have been labelled "input data non-small cell" but I think I put UG because it was just easier.")

[39] *See* Tobias Dep., ExteNet at 90:5-93:9, 135:23-136:4.

[40] *See* Tobias Dep., ExteNet at 93:5-9 (stating "if you're going to ask me whether or not a portion of underground activities are not included in Input Data and vice versa, I'll say that there's some bleed-over in the two. They're not exact, no").

[41] *See* Tobias Dep., Crown Castle at 153:12-154:10 ("A: Well, I did not say to my surveyors, Tell me, you know, how much time you spend on small cells and how much time you spend on non-small cells. I said, Tell me what you're out there doing and, and you know, what does that entail. And so there—you know, I'm doing poles. I'm—you know, I'm doing sextant readings, dada, dada, dada. I spend X number of hours doings stuff that is not associated with that. And so—I think I said this a little earlier. If you're looking for an exact decimal point to the, you know fifth significant digit of that surveyor's time which goes to the small cell, which goes to the –you know the per foot fee, that level of detail in not included on either of these charts."); Tobias Dep., ExteNet at 131:4-132:20, 137:1-23, 138:11-140:8 (stating employees did not document their time).

assigned to either the "small cell" (Input Data) or "non-small cell" (Input Data (ug)) spreadsheet tabs totaled up to 100% of the assigned costs.[42] The simple mathematical check that the sum of the two parts equaled the whole, however, has no inherent economic meaning on its own if (1) the totality of costs being assigned was not objectively reasonable or (2) the apportionment of the total costs between cost categories was not objectively reasonable. An objective analysis would require all three, with the latter two having the most substantive economic meaning.

63. Mr. Tobias' deposition responses gave repeated indicators that the City Cost Spreadsheet reflects a lack of detail and diligence.[43] The lack of objective discipline in the cost allocation process is perhaps best exemplified by the lack of criteria Mr. Tobias provided departmental staff he relied on for his input data as the basis for attributing costs between the two types of costs (UG, and for Mr. Tobias' lack of a better term, "non-UG"), each supposedly designed—notably after the fact[44]— to support the City's pre-existing two-tier rate fee structure, *i.e.*, fee per linear foot of ROW and fee per pole, respectively.[45]

64. Similarly, Mr. Tobias did not appear to take the relevant frame of the cost data into account,[46] in adherence with another fundamental principle of objectivity, the matching principle

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[42] *See* Tobias Dep., Verizon at 312:8-18 ("Q: What does Column W on the input data sheet reflect? There's no heading there. A: Yeah, let me make sure that I—that reflects the time –I want to validate this because I want to make sure. If you add Column F that is on the input data UG sheet to Column F that is on the input data small cell sheet, you will get the total of Column W. Column W is the amount of time that was given that particular activity, and then it was split. If they are identical activities performed, it is split between the two tabs. If you add those tabs together, you're going to get to Column W."), *see also id.* at 313:3-314:15.

[43] *See*, *e.g.*, Tobias Dep, Crown Castle at 153; *see also* Tobias Dep., Extenet at 130:3-132:20 (stating that the City did not engage in of detailed analysis, drawing comparison to quantum physics), 156:5-157:9 (offering to send the "City's budget" in response to a questions regarding the calculation of certain data), 173:7-14 (noting that one data point was merely a "conservative estimate" by Mr. Tobias based on "ask[ing] other folks . . . which of these relate to telecom?"), 178:1-180:17 (responding to a question regarding whether the city had specific data it used to calculate the amount of a cost related to telecom stating merely that "[w]e have – we have data that supports that"), 183:4-184:22 (again Mr. Tobias responds to questions about whether the City used specific data to determine the amount that some cost is attributable to telecommunications by stating "Okay, I don't know how many different ways I can answer that. And – and we've already established that there isn't an exact accounting, okay?" further, Mr. Tobias analogized the City's cost analysis to the "Heisenberg uncertainty principle" stating that "[y]ou can know one thing and not the other, or you can know the other thing and not know one.")

[44] *See* Tobias Dep., Verizon at 143:13-144:11.

[45] *See* Tobias Dep., Verizon at 313:17-314:20; *see also* Tobias Dep., ExteNet at 176:15-177:5 (despite stating that the Assistant City Engineer would be the best person to speak to about the cost of construction projects attributable to telecommunications, Mr. Tobias notes that he ultimately made the decision anyway).

[46] *See* Tobias Dep., Crown Castle at 100:14-101:9 ("Q: I want to talk a little bit about the time periods that you were using or that you were asking for information about. Do you recall whether you had a specific set of time periods that you would ask individual departments for? So their cost data, where you asking for one year of cost data, two years, three years, some additional time? A: I do know that we got data going back to, like, 2009 from some departments. We got –other departments gave us, you know, the last two or three years. …..So I think it was a

-- further compounding the non-objectivity of the City's cost approximations. The matching principle requires the matching of units, costs, and time frame for the particular cost object being measured. Without matching, the measured cost object lacks any coherent economic meaning. While an important principle to follow in all cost analysis, the diligent application of the matching principle is especially critical when the costs in question are intended to be expressed on a per unit basis, and further, as is the case here, used to justify the charging of *per unit fees further differentiated as between first year and subsequent year cost.*

65. No such diligence was evident in the City's analysis. To the contrary, costs captured on the *City Cost Spreadsheet* reflect a mismash of existing installations (of which the "Input Data" spreadsheet tab notes only 88 to date), installations in the permitting stage, and a projected future number of 1800 installations covering a multi-year span of past, present, and future.[47] Mr. Tobias describes what he did as a "snapshot in time."[48] The term he used is an oxymoron in this context; the term "snapshot," as used in the analytic sense, refers to data frozen at a particular given moment in time. Accordingly, the per unit costs that Mr. Tobias derived on the basis of his amalgamation of costs and time frames simply makes no objective economic sense (or common sense for that matter).

66. In addition to the significance of matching units, costs, and time frame for purposes of developing economically meaningful estimates of recurring costs as described above, there is another fatal problem in terms of cost objectivity that arises due to Mr. Tobias' failure to properly take the time frame into account. Without proper tracking or matching of the time frame of the alleged cost incurrence, it is impossible to objectively separate and account for ongoing recurring costs attributable to a telecommunications deployment that are properly recoverable in recurring fees from one-time non-recurring costs associated with a telecommunications deployment at the front-end that are properly recoverable in *non-recurring*

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function of what those departments had available to them that they supplied to us."); *see also* Tobias Dep., ExteNet, at 83:2-89:2 (noting the lack of clarity regarding the year of the data was accumulated or the cost document was created).

[47] *See* Tobias Dep., Verizon at 256:1-257:22 ("Q: So when you performed your cost analysis, did you do anything to account there would be certain activities that would occur in the first year but not subsequent years? A: But what we also understand is that the analysis that you have in our Exhibits 9 and 10 is a snapshot in time deals with installations that already exist, installations that are going through the process that have been permitted are now being built out, installations that are going to occur in the future when people are making application, and that is a rolling scenario that there will be facilities in three phases at any given time.").

[48] *See* Tobias Dep., Verizon at 257:10-14.

permit/applications fees (which are also being charged telecom providers by the City). Where both recurring and non-recurring fees are charged, as is the case here, the failure to properly track costs according to the timing of their incurrence (e.g., first year around the time of installation versus subsequent years) [49] creates the opportunity, indeed the inevitability, of double recovery of the same set of costs in recurring fees that were already recovered in existing non-recurring fees. As discussed further below, the City's failure to systematically distinguish between time frame and its nexus to the underlying nature of the cost (i.e., recurring versus non-recurring), is a significant failure in the City's analysis because the vast preponderance of actual direct costs incurred by the City that were caused by telecommunications deployment are *non-recurring in nature* and accordingly *already recovered* through the City's substantial one-time permit application fees (which also are not justified by the City's costs).

67. In plain language, the City cannot accurately assume that the costs it incurs one time, at the initial application and installation stage, are an appropriate basis for recurring annual fees nor can it recover them both in one-time application fees and in recurring annual fees. Yet, that is what it has done. In other words, the City has taken the one-time costs associated with initial installation, recovered, if not over-recovered them, in application fees and then re-imposed the same costs as if the same level of costs would be incurred every year thereafter, even though Mr. Tobias acknowledges that once the facilities are deployed there is radically less cost to the City. [50]

68. Another critical failure in objectivity is the lack of any supporting documentation for either the total departmental costs being assigned to telecommunications installations or the specific allocation percentages of staffing used to apportion these costs as between the two spreadsheet tab categories of UG and non-UG. The same holds true for the percentages of capital assigned to telecommunications installations in the UG spreadsheet tab. Mr. Tobias readily admitted in deposition that he did not keep the records necessary to substantiate, document, verify, or explain what the costs actually incurred by the City in connection with the small cell aerial and associated fiber backhaul installations or underground installations that the City Cost

[49] *See* Tobias Dep., Verizon at 259:14-260:10 ("Q: Perhaps we should address the question I asked by department, because I think it may vary. The question is, what percentage of those activities are first year versus subsequent year activities? A: I don't have a number for that. I would have to go through and pull that. What I will stipulate is that the first-year activities are going to be significantly more—will be the lion's share, more than half, as compared to the out-year activities. But to put a number on it, I'd have to actually sit down and do the calculation. Q: But that's not something you did for purposes of this analysis already, correct? A. Not to my recollection.").

[50] *See* Tobias Dep., ExteNet at 208:10-210:9.

Spreadsheet purport to measure.[51] According to Mr. Tobias, the input data he relied upon was primarily, if not totally, based on undocumented telephone conversations he allegedly had with various departmental heads and allegedly "dozens"[52] of other unidentified City personnel across the various City departments for which he kept no records.[53]

69. Finally, although I will not go into every way in which the City Cost Spreadsheets are inaccurate, it is also important to note that the spreadsheets include unsupportable and flawed assumptions in their calculations. For example, the spreadsheets assign the same level of salary and overhead cost to every single employee. Thus, even if the collection of data had been objective, additional errors are embedded in the numbers and outcomes.

The City has failed to demonstrate its fees are limited to recovery of direct and actual costs related to telecommunications deployment.

70. For the City's fees to be specifically related to and caused by the deployment of facilities used to provide telecommunications services in public ROW, they must be limited to the *marginal or incremental* costs incurred by the City that *but for" the presence of the telecomunications providers in the City ROW would otherwise not exist.*

71. It is not sufficient demonstration of an objectively-reasonable actual direct or incremental cost to the City that telecommunications providers simply have a physical presence in the ROW where City public activities and functions occur for some portion of those costs to be assigned to them. Nor does Mr. Tobias' subjective opinion that there is some undefined additional amount

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[51] *See* Tobias Dep., ExteNet at 72:4-76:8.

[52] *See* Tobias Dep., Verizon, at 19:19-22.

[53] *See* Tobias Dep., Crown Castle, at 156:7-157:1 ("Q: And how did you collect and memorialize those conversations? Did you take notes? A: I did. But it – yeah. The answer is yeah, I took notes. Q: Did you save those notes? A: No, It's—you know, do I have, just today, I probably scribbled down all kinds of things on the back of a pad. At some point in time it will go in a document, and maybe it will last a few months. And then when I clean my office, it will get thrown away. So, you know, yes and – yes, I took notes. And do I still have the –you know, the pads? Maybe I have some of them. But, you know, once I entered in into digital format, I didn't necessarily keep that stuff."); *see also* Tobias Dep., Verizon, at 126:13-127:11 (" Q: Okay. Did you keep notes of these interviews or records of these interviews and the information provided? A: I will say that there's somewhere that maybe I wrote on a piece of paper or in a a pad or on an earlier version of the spreadsheet that may I got that said, hey da, da, da, da, da. But did I – if you come to my office, you will see that I have much more paper than I need. Q: Okay. A: So once I actually memorialize some issue, once someone told me, okay, on any given day I made five visits to that, I didn't you know, I may have written it on a piece of paper. But you know, that might have been Version 4 of a document that may have ended up with 54 versions or some ridiculous number like that."), 143, 197; *see also* Tobias Dep., ExteNet at 73:5-75:23.

of "stress" on the City facilities or on the ROW that he believes is attributable to the presence of telecommunications facilities satisfy the definition of an actual, incremental cost by objective economic and regulatory accounting principles.[54]

72. Mr. Tobias' use of the term "incremental" in his deposition is at odds with the accepted economic and regulatory definition. When asked about the term, Mr. Tobias responded in the context of his providing cost data at a disaggregated, elemental or specific level, i.e., for "individual departments and individuals working in those departments and individual functions within those departments;" he further elaborates this having "meant that I was showing you a break down, so maybe I used the wrong word, but a specific break down instead of a summary."[55] His subjective definition of incremental costs in place of the objective well-established definition of incremental cost is reflective of the subjectivity in the City ROW analysis from the very earliest stages of Mr. Tobias' outreach to City personnel for their help in identifying costs he could assign to telecom providers in support of the City's fee levels.

73. Mr. Tobias also appears to assert a definition of an "objectively reasonable" actual cost that is inherently subjective, and apparently would include any actual or projected cost number that does not in his subjective opinion "seem[] outrageous"[56] for the particular duty being performed. Mr. Tobias further asserts that the application of his "common sense reasonable smell test"[57] supporting his assertion that something is an objectively reasonable cost, again without making any connection between his "smell test" as applied to the departmental expenditures provided by the people he reached out to, and the well-established definition of incremental costs applied in economic and regulatory cost accounting literature.[58]

74. In the absence of any well documented, supporting departmental data demonstrating actual *direct* cost relationships, the departmental-based ROW costs assigned by Mr. Tobias to telecommunications providers in his "UG" and "non-UG" spreadsheet tabs, and as further elaborated upon in his deposition answers, at best might be considered *indirect or common costs* incurred by the City in regard to the multiple users (the most predominant use being the City's

[54] *See* Tobias Dep., Verizon at 363:16-22, 36515-367:6; *see also* Tobias Dep., ExteNet at 208:20-210:10.

[55] *See* Tobias Dep., Verizon at 122:24-123:4, 124:6-9; *see also* Tobias Dep., ExteNet at 95:18-96:9.

[56] See Tobias Dep., Verizon at 327:13-17, 389:25-390:13.

[57] *Id*. at 327:24-328:2.

[58] *See id.* at 327:8-328:2.

public functions) of the ROW, such as might be included in a fully allocated type cost methodology. However, a fully allocated cost standard, by definition and design, is not limited to "but for" costs caused by an entity or activity, but includes a wide range of costs that may have some plausible association or linkage to the entity or activity but that would exist for the City even in the absence of the provider (or in this case category of providers).

75. The fully allocated cost standard would appear to more closely describe the approach taken by Mr. Tobias, based on his recognition that the department level budget costs apportioned to small cell and fiber backhaul included in his spreadsheets would exist even in the absence of any such deployment.[59] (Although even the fully allocated standard would require adherence to the objectivity principles described above, which the City has not done, as Mr. Tobias' approach is inherently subjective in nature.) But a fully allocated cost methodology is an entirely different cost standard than a standard asking whether the City's fees are limited to direct "*costs specifically related to and caused by*" telecommunications facilities.

76. Mr. Tobias' departmental cost assignments, as memorialized in the City Cost Spreadsheet, appear to be based solely on what is equivalent to anecdotal evidence gleaned through his undocumented interviews with unidentified departmental personnel, which he admittedly did not keep track of.[60] The City provides no concrete supporting data demonstrating the direct cost relationships alleged in the spreadsheet allocations of labor and capital expenditures for the various City Departments. Mr. Tobias' allocations to telecommunications, as between the "UG" and "non-UG" cost spreadsheet categories, are inherently subjective.

77. From his deposition testimony, it appears Mr. Tobias's process was designed in such a way as to encourage departmental employees to identify all costs incurred by the City that in some generic or all-encompassing way might relate to the ROW in the aggregate, not necessarily tied to their actual time spent on either small cell facilities or wireline installations. In fact, he describes what he did as "exactly the opposite" of tying actual time spent to specific telecommunications installations.[61] The lack of clarity on these core costing concepts resulted in

[59] *See* Tobias Dep., Verizon at 130, 133; *see* Tobias Dep., ExteNet at 97:18-99:18.

[60] *See* Tobias Dep., Verizon. at 136; *see also* Tobias Dep., ExteNet at 174:18-175:2, 175:17-24.

[61] *See* Tobias Dep., Verizon at 124; *see also* Tobias Dep., Crown Castle at 89 ("Q: You left it to the discretion of the individual department head to sort of respond and say, These are the costs that we have in our department? A: I asked them to be as comprehensive as they possibly, could yes."); *see also* Tobias Dep., ExteNet at 67:14-76:24

allocations of staffing input for the various departments that could not possibly provide an objectively reasonably approximation to the actual, direct costs incurred by the City as a result of the use of the ROW by telecommunications providers.

78. Indeed, the earliest requests to City departmental personnel for staffing input on behalf of Mr. Tobias and his team of Department of Environmental Services ("DES") staff were exceedingly vague, lacking any objective definition of the costs to be considered, let alone the actual direct costs incurred by the City in relation to telecommunications providers' use of the ROW.[62] The request was sufficiently vague that it appeared to engender a significant amount of confusion among the departmental employees ostensibly responsible for the source data that Mr. Tobias relied on in creation of the City Cost Spreadsheet as to costs to be included and the time frame of the data.[63] Moreover, the emphasis appeared more on the stated purpose of the "exercise," that being "to justify our costs incurred for telecommunications rental fees as prescribed in the new ordinance – so we are trying to capture ALL our costs as expensed/budgeted."[64] As the earlier email correspondence with departmental personnel demonstrate,[65] the origin of the costs included in Mr. Tobias' City Cost Spreadsheet relate to total budgeted departmental costs to be incurred by the City in the course of providing public City services that have some undefined relationship to the ROW.

79. There is a critical economic distinction between the costs incurred by the City in direct relation to telecommunications providers' use of the ROW, and the costs incurred by the various City departments in relation to the various activities or uses of the ROW associated with primary public functions provided by the City to its citizens in its role as local governmental authority (or use by legacy incumbent utilities). Yet, the City Cost Spreadsheet fails to consider this distinction in the departmental expenditure numbers used to populate the spreadsheets.

(explaining the analysis the City performed in determining the costs associated with telecommunications equipment in the ROW. In sum, the analysis amounted to informal meetings with unidentifiable City staff.).

[62] *See*, *e.g.*, COR000694, COR0000704 (back and forth e-mail correspondence showing the lack of direction or clear guidance regarding the information DES was seeking).

[63] *See*, *e.g.*, COR 000694 ("I guess my biggest question then is what we are considering our costs when talking ROW. Some examples are provided below where I am not clear on what would count. Our engineering division designs Capital projects for main renewal. The capital cost is obviously in the ROW, Is the operating cost to pay the engineers who did the design counted? Meter reads drive on the ROW to collect meter reads, but the meters are not in the ROW –much like refuse, so would that area count?").

[64] *See id.* (emphasis added).

[65] *See id.*

80. In a modern civilized society, governmental authorities provide a number of important functions to the general public. These governmental functions encompass a wide range of "public" or "social" goods, services, and infrastructure including public transportation, water, sewer, and sanitation; public health, safety and welfare; crime prevention and law enforcement; fire prevention and control; emergency response and medical care; public education and library, civics/ general government and fiscal administration, economic development, recreational and cultural, environmental and natural resource conservation and beautification, and the like. These wide-ranging governmental functions play an important and highly valued role in the quality of life of its citizens – one that all citizens collectively derive benefit. It is a well-established tenet of economics that the costs of such public goods and services are most efficiently and equitably financed through the system of general tax revenues the government has been granted powers to collect.

81. Many if not most of these city departmental functions or public goods are provided on, around, or in some direct or indirect way make use of the public ROW. The City's analysis ignores the economic reality that the overwhelming predominant users or uses of ROW are those associated with public sector entities or the provision of city functions and activities. The second largest users are incumbent electric, gas, water and sewer utilities.

82. In its City Cost Spreadsheet, the City does not appear to have made any attempt to identify and distinguish the costs directly attributable to telecommunications providers from those directly attributable to the primary public functions or uses of the ROW. This includes ROW-related expenditures for the most significant of such uses, namely transportation—and not surprisingly for which the largest amount of related total departmental expenditures is assigned to telecommunications providers in the City ROW analysis taking into account both labor related and capital related expenditures. Of the total $5,285,908 in total UG expenditures assigned to telecommunications providers, half ($2,630,734) is attributable to the capital expenses[66] that, from a cost-causal perspective, are directly linked to the public city function of transportation—in other words, they are costs that would exist in the absence of telecom providers in the ROW.

83. By the objective criteria described earlier in this report, the City has not demonstrated any of the alleged recurring departmental costs assigned to telecommunications providers in the

[66] *See* COR000011, Input Data (ug) at M166.

City Cost Spreadsheet would actually be avoided in the absence of telecommunications provider facilities in its ROW, a point Mr. Tobias concedes on numerous occasions.[67] While the percentage of total City budget costs assigned by Mr. Tobias to telecommunications providers may be relatively small, the absolute dollar amount and impact on telecommunications providers is substantial.

84. As further detailed, and summarized in Tables 1A and 1B below, the City Cost Spreadsheet identifies the following distinct City departments (or grouping of departments) for which Mr. Tobias has made apportionments of alleged department-level function expenditures of labor—and capital in the case of the "UG" category—to telecommunications providers: Architectural/ Engineering Permits; Construction; Street Lighting; Maps/Surveying; Street Design; Executive Direction/Admin/Teleco/Special Projects; Operations; Equipment; Water; Hazard/Emergency Response/Fire/Police/Dispatch; and Administration consisting of IT, Finance and Law.

85. While the costs identified in the spreadsheets may be costs incurred by these respective departments that likely, in some way, relate to a cost-generating activity in, on, or around the ROW, contrary to Mr. Tobias's subjective belief, for all but a limited exception, this does not make a portion of those costs properly classified from a cost allocation perspective as an actual, direct recurring cost specifically related to and caused by deployment by telecommunications providers in the ROW.[68]

86. Given their public city function, in the absence of well-supported documentation linking the assigned department level function expenditure to a specific cause by telecommunications providers in the ROW, which neither Mr. Tobias nor the City has been able to provide, there is no objective basis in accordance with accepted economic and regulatory costing principles to assume that any measurable amount of recurring costs for these City departments (again with a limited exception) would be avoided in the absence of telecommunications providers in the ROW.

87. As the follow discussion shows, Mr. Tobias' deposition testimony provides further anecdotal support for why costs for these departmental categories are properly classified, from an

[67] *See*, *e.g.*, Tobias Dep., Verizon at 283:22-284:284:2; *see also* Tobias Dep., ExteNet at 97:18-99:18.

[68] Also, as noted above, the City Cost Spreadsheets also contain fundamental other errors in addition to the allocation issues.

economic perspective, as costs directly attributable to the various city functions for which purpose they are incurred—not to telecommunications providers:

88. Engineering Permits; Construction; Street Lighting; Maps/Surveying; Street Design: The potential primary nexus between the recurring expenses for these four departments and telecommunications providers involve the functions of ongoing periodic inspections, monitoring, and oversight of the ROW. Yet, to my knowledge, the City has not provided documentation of an actual incident of where an ongoing inspection activity, or a re-inspection after the initial installation process, occurred in connection with a specific pole attachment or backhaul facility.[69] The situations cited by Mr. Tobias where telecommunications facilities are periodically "checked on" were not in an economic sense caused by the telecommunications facility, but arose in situations where the City crews were in the area in connection with their work in relation to public city functions, for example, "checking to make sure that the streetlight is operational;" or doing a "check after particular difficult storms ,weather events, and things of that sort" by "folks that are out there . . . regardless;"[70] or in connection with a downed pole caused by a motor vehicle accident.[71]

89. The common economic theme here is the direct, incremental cost-causal linkage between the departmental staffing costs and the underlying public city function. Other than the functions of ongoing periodic inspections, monitoring, and oversight of the ROW, the other costs incurred by these departments that have been apportioned to telecommunications providers in the City Cost Spreadsheet do not have even a potential direct recurring cost nexus to small cells or wireline facilities. For example, in the case of Street Lighting, the other identified functions for which assignments of costs were made to telecommunications providers of repair, replacement and emergency response and system design, are entirely cost driven (again, under the applicable incremental cost standard, not a fully allocated one) by the public city functions of transportation and public safety not the presence of telecom providers in the ROW. Mr. Tobias acknowledged that in many safety-related incidents involving poles (e.g., a car running into a pole, a weather event impacting a pole, or some other reasons a pole becomes damaged) "whether or not there's . . . a small cell attachment, on the pole, the City would potentially have to deploy . . . potentially

[69] *See*, *e.g.*, Tobias Dep., Verizon, at 104:12-105.:12; *see also* Tobias Dep., ExteNet at 170:12-19.

[70] *See* Tobias Dep. Verizon, at 102:14-103:14.

[71] *See* Tobias Dep. Verizon, at 97; *see also* Tobias Dep., ExteNet at 140:9-142:18.

the fire department, the electric street department, and the light department to address the situation."[72] The same is true for the maps/surveying and street design department functions; their ongoing costs are entirely cost driven by the public city functions of transportation, with the possible exception of street design costs specifically identified as relating to utility coordination, which if documented, may be directly attributable to the incumbent legacy utilities present in the ROW, but in any event, not to competitive telecommunications providers with relatively minor presence in the ROW as compared with the ubiquitous legacy utilities.

90. That is not to say that the City does not incur actual, direct *non-recurring costs* associated with these department level functions that could be objectively identified. But any such economically valid costs incurred in connection with non-recurring activities or functions provided at the time of installation, or in the period immediately preceding or following, are properly included in the one-time, upfront permit and application fees in accordance with objective economic and cost accounting principles of cost causation and matching.[73] As described below, many of the identified cost functions for these departments have been identified by the City as non-recurring in nature and already recovered in the City's upfront permit and application fees and should not be included in any calculation of recurring fees.[74]

91. Operations/Equipment/Water: The recurring expenses for these three departments that have been apportioned to telecommunications providers involve the functions of ROW maintenance and construction. While these departments clearly have significant activity going on in, on, and around the ROW, that does not equate to an economically cost causal relationship with the presence of telecommunications provider facilities. Maintenance and construction upgrades in the ROW are performed and entirely cost driven by the core city governmental responsibilities to maintain and construct vital public ROW facilities for its citizenry public city function of transportation, and not the presence of telecommunications providers in the ROW. The City has provided no well supported document that would identify any measurable incremental costs directly attributable to the deployment of facilities by telecommunications

[72] Tobias Dep., Verizon at 221:9-16; *see also* Tobias Dep., ExteNet at 140:9-142:18.

[73] As noted above, the City has not demonstrated that its one-time application fees, which are also above the FCC presumptive level, are justified by the City's reasonable, actual and direct costs.

[74] *See* Comments of City of Rochester, WC Docket No. 17-84; WT Docket No. 17-79, (filed Sept. 18, 2018), https://ecfsapi.fcc.gov/file/10918434917028/DOC091818-09182018151537.pdf, ("Rochester Letter to FCC").

providers. Moreover, these are functional cost areas that the telecommunications provider would likely be responsible for as part of its own construction and equipment related installation activities and self-incur those costs, in which case it would be objectively unreasonable for the City to apportion its own costs.[75]

92. With respect to the stake-out function identified for the water department as a function with costs apportioned to telecommunications providers in addition to basic maintenance and construction activities, Mr. Tobias buttressed the fact that the City could not document any measurable incremental cost to the City with his acknowledgment that that the stake-out activity "would happen whether or not there was small cell attachments or not."[76]

93. Hazard/Emergency Response/Fire/Police/Dispatch: By reasonable, objective economic standards, these types of costs (i.e., those relating to firefighters, police, and emergency dispatch personnel) have no reasonable cost causative linkages to the costs incurred by the City caused by the deployment of telecommunications providers in the ROW. Rather, they are costs relating strictly or predominantly to the City's own direct use of ROW in providing basic public city functions and/or activities relating to public health and safety. While there may be the possibility, as with other departmental functions serving a vitally important public city function, there could be very limited expenses causally linked to deployment by telecommunications providers, those would be rare and incident-driven. As noted earlier, Mr. Tobias acknowledged that in many safety-related incidents involving poles (e.g., a car running into a pole, a weather event impacting a pole, or some other reasons a pole becomes damaged) "whether or not there's …a small cell attachment, on the pole, the City would potentially have to deploy . . . potentially the fire department, the electric street department, and the light department to address the

[75] *See*, *e.g.*, TELECOMMUNICATIONS CODE § 106-14 (requiring permitees to cure all violations of applicable laws before renewing the Master Licensing Agreement required by the City); *see also* City of Rochester, N.Y., Municipal Code, ch. 104, art. I, §§ 104-16(B) ("The City Engineer may perform or cause to be performed such restoration at the expense of the permittee, with an additional 15% for administrative costs and 10% for inspection costs, on five days' written notice served by ordinary mail, or without notice if an emergency situation exists."); *see also* Right-of-Way Agreement between City of Rochester and ExteNet Systems, Inc., ¶¶ 10 (executed on Nov. 5, 2015) (requiring providers to be "responsible for any damage to City [ROWs] due to [their] installation, maintenance, repair or removal of [their] facilities in ROW, and [must] repair, replace, and restore according to current standard and specifications, any such damage *at [their] sole expense.* Furthermore, "[s]ubject to the additional requirements of Chapter 104-16, if Provider does not repair the site to its original condition, then the City shall have the option . . . to perform or cause to be performed such reasonable and necessary work . . . and to charge Provider for the actual cost incurred by the City . . . at the City's standard rates plus 15%.").

[76] *See* Tobias Dep., Verizon, at 28-2843:22-284:2.

situation."[77]

94. In order to apportion any costs to telecommunications providers would require the City to identify the specific unit costs associated with those specific incidents or events, e.g., the time spent in connection with the dispatch of safety patrol or traffic detail assigned to construction sites or downed poles involving work specifically caused by telecommunications provider occupancy - as opposed to generic fire/police and emergency response activities located in, around, or near the ROW in service of the public. Demonstration would also be required to show the City had not otherwise directly billed the telecommunications provider for the deployed services.

95. In this regard, Mr. Tobias testified that he does not know how many times the city departments would actually have to deploy resources to address a pole with a telecommunications deployment on it.[78] Nor did Mr. Tobias know if certain key departments such as Police and Fire can directly bill telecommunications providers for any work performed that were specifically caused by a telecommunications facility.[79]

96. Administration (Executive Direction/Admin/Teleco/Special Projects): This set of department functions, by definition of its functional task areas, is categorized as indirect or common costs of operation not directly attributable to any particular cost center or object, but shared among the various cost centers of the organization. The City provides no detail as to the specific tasks being performed by the apportioned labor, or documentation to support these overhead personnel costs, including close to half of two employees' total labor hours would be avoided "but for" the presence of telecommunications. In any event, it is more plausible that any actual, direct costs that could reasonably and objectively be casually linked to these administrative staff functions would be of a non-recurring nature incurred at the time of permitting and installation, such as delineated in the City's 2018 Comments.[80]

97. Finance: Notwithstanding the lack of supporting documentation required to demonstrate an objectively determined, actual cost causal linkage, this is the one City departmental for which a direct cost causal linkage of a recurring (as opposed to non-recurring) cost could potentially be

[77] *See id.* at 221:9-16; *see also* Tobias Dep., ExteNet at 140:9-142:23.

[78] *See* Tobias Dep., Verizon, at 219:6-221:24.

[79] *See* Tobias Deposition, Verizon, at 213-215; *see also* Tobias Dep., ExteNet at 181:1-183:1.

[80] *See* Rochester Letter to FCC, supra note 74.

demonstrated for certain department level functions than the others. That would be the Finance Department's ongoing functions of accounting and invoicing. These are two functions for which a "but for" recurring cost could be more objectively approximated using an approach such as utilized in the City Cost Spreadsheet, i.e., determining a full-time equivalent ("FTE") direct labor hour estimate of the time spend tracking billing units and invoicing telecommunications providers and multiplying that by the applicable average wage of that labor. That is not to say that the numbers included in the City Cost Spreadsheet for this department are accurate. As explained above, they suffer significant problems.

98. Capital Related Expenditures (including Architecture & Engineering, Maintenance & Repair Equipment Lighting, GIS Upgrade, ROW Maintenance): As a general economic proposition, the City would not reasonably be expected to incur any objectively direct, out of pocket actual capital related expenditures in relation to a telecommunications provider's presence in its ROW that the City would not otherwise seek total reimbursement for. Cities routinely seek such capital contributions from private entities where those entities are causally responsible for the City's outlay of capital, as is fiscally responsible. It is clear that the types of major capital projects included in this set of expenditures, encompassing major road, bridge, ramp, street lighting and GIS upgrades, are incurred by the City in order to provide basic City functions, and have no direct causal connection to telecommunications providers' presence in the ROW. As such, no portion of those expenditures should be apportioned to telecommunications providers.

99. Moreover, as noted earlier, the inclusion of these capital expenditures has a substantial inflating effect on the results of Mr. Tobias's UG analysis. The costs associated with this set of capital expenditures represent $4.3 million of the total $5.3 million in total UG costs apportioned to telecommunications providers.[81] Of the $4.3-million, over half ($2.6-million) is associated with one category of expenditures, namely the A&E category, which even Mr. Tobias acknowledges for the most part, both as a general proposition and in connection with a specific curved ramp project, "the City would undertake and the costs associated with irrespective of whether small cell facilities or other telecom facilities exist at all in the City."[82] He goes on to

[81] *See* City Cost Spreadsheet COR000011.

[82] *See* Tobias Dep., Verizon, at 401:20-402:4, 403:9-15.

allege that some of the capital projects, such as those "that talk about utility stakeouts, the ones that talk about dig-safe requests, the ones that talk about GIS capability upgrades" are driven "by the increased number of telecom providers in the right-of-way," but he fails to make any valid objective cost causal connection.[83] The extent to which a project might "talk about" an activity that might somehow involve a telecommunications facility in the ROW has nothing to do with whether there is a cost causal linkage between the telecommunications provider's presence and the incurrence of the cost by the City. To demonstrate the telecommunications provider was the true cost driver of the capital expenditure would require evidence that demonstrates that "but for" the telecommunications facilities, the City would not have incurred the capital expenditure. And if truly a "but for" cost, it would also raise the question as to why the City would incur such a large capital expenditure and not seek direct reimbursement of the capital outlay.

100. As summarized in Tables 1A and 1 B below, the City Cost Spreadsheet analysis provides no supporting documentation or evidence such as would be necessary to demonstrate any direct, recurring cost causal linkages to telecommunications providers for most of the City's departmental costs assigned in the City Cost Spreadsheet to telecommunications providers – other than for the one exception for Finance as described above. While there is a plausible measurable direct cost linkage for an apportionment of costs for a few other of the department-level functions, specifically the labor related expenditures for the identified functions under Architecture & Engineering/Permits, Construction, Street Lighting (in the case of Small Cell), and Admin, Teleco, Special Proj, and Administration (incorporating IT, Finance, and Law), these are cost-causally aligned with one-time incremental cost generating activities occurring at the time of installation or in the periods closely preceding or following, and therefore, those costs are already captured in the non-recurring "application" or permitting fees charged by the City as recognized in the Rochester letter to the FCC.[84] Those department level functions clearly fall within the "comprehensive services and activities" identified in the Mayor's letter to the FCC as being recovered in the City's non-recurring permit fee of $2,000 per City Code 104- Article II:

> We looked at the comprehensive services required for each application, including clerical time for accepting and processing an application, engineering review of the application, plans and drawings, site inspections as described above,

[83] *See* Tobias Dep., ExteNet at 41:12-45:15.

[84] *See* Rochester Letter to FCC *supra* note 74.

attendance at public meetings, pre-construction meetings with contractors, review of as built documents, and follow up inspections of installed facilities, and concluded that actual costs to the City are approximately $2,000.[85]

[85] *Id*. at 3.

Table 1A – Comparison of City Assigned Costs and Objective Actual Direct Recurring Costs for "Underground" Installations

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost
I. "Staffing Inputs" Expenditures Assigned to Telecommunications Providers				
Architectural/ Engineering Permits	Enforcement/ Inspections	Non-Recurring Cost at Time of Permit Application/ Install	$27,919	$0
Construction	Network Operations/ Inspection	Non-Recurring Cost at Time of Permit Application/Install	$25,211	$0
Street Lighting	Inspection/ Procurement/ Oversight/ Replacement	None Objectively Demonstrated	$17,181	$0
Maps/ Surveying	Survey/ Inspection	None Objectively Demonstrated	$46,036	$0
Street Design	Review, Approval/ Inspection/ Design/Utilities	None Objectively Demonstrated	$176,654	$0
Exec. Direction Admin./Teleco/ Special Proj.	Operational Oversight, GIS, Maintenance/ Comm. Rel.	Non-Recurring Cost at Time of Permit Application/ Install	$116,081	$0
Operations	ROW Maint./Upgrades DRE & IRE	None Objectively Demonstrated	$228,801	$0
Equipment	ROW Maint. & Construction/ Equipment Service	None Objectively Demonstrated	$31,718	$0
Water	Stakeout, ROW Maintenance & Construction	None Objectively Demonstrated	$193,835	$0
Hazard/Emergency Fire/Police/ Dispatch	Safety, Dispatch, Emergency Response	None Objectively Demonstrated	$25,375	$0
Sub-total Staffing			$888,811	$0
II. Administration "Related Indirect Expenditures" Assigned to Telecommunications Providers				
IT	Software Licenses, GIS, System Sup. Data Security & Storage, Rcds Mgt	None Objectively Demonstrated	$54,846	$0
Finance	Accounting/ Invoicing	Possible Recurring Cost	$4,075	$4,075
Law	MLA Compliance/ Legislation	None Objectively Demonstrated	$6,388	$0
Sub-total Admin.			$65,309	$4,075
III. Capital Related Expenditures Assigned to Telecommunications Providers				
Maintenance & Repair/Equip. Lighting		None Objectively Demonstrated	$72,102	$0

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost
GIS Upgrade		None Objectively Demonstrated	$40,179	$0
Professional Services		None Objectively Demonstrated	$7,917	$0
Rental Storage		None Objectively Demonstrated	$3,911	$0
ROW Maintenance Op Div.		None Objectively Demonstrated	$1,199,583	$0
ROW Maintenance ESD		None Objectively Demonstrated	$105,016	$0
ROW Maintenance Water		None Objectively Demonstrated	$272,338	$0
A&E Ongoing		None Objectively Demonstrated	$2,630,734	$0
Sub-total Admin.			$4,331,780	$0
TOTAL EXPENDITURES ASSIGNED			$5,285,908	$4,075
IV. Fiber Backhaul Per Foot Cost Assigned to Telecommunications Provider				
Conduit Feet "Under Management"		431,566.800		
Fiber Feet "Under Management"		431,252.609		
TOTAL FEET "UNDER MGMT."		862,819.409	$6.13/ft ($32,366/mi)	$0.0047/ft[86] ($24.82/mi)

[86] As explained above, the data presented by the City is not objective and is not reliable. This calculation is made assuming we accept for purposes of this discussion the City's data for this category.

Table 1B – Comparison of City Assigned Costs and Objective Actual Direct Recurring Costs for "Aerial" Installations

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost[87]
I. "Staffing Inputs" Expenditures Assigned to Telecommunications Providers				
Architectural/ Engineering Permits	Enforcement/ Inspections	Non-Recurring Cost at Time of Permit Application/ Install	$83,756	$0
Construction	Network Operations/ Inspection	Non-Recurring Cost at Time of Permit Application/ Install	$75,662	$0
Street Lighting	Inspection/ Procurement/ Oversight/ Replacement	Possible Non-Recurring Cost at Time of Application/Install	$76,983	$0
Maps/ Surveying	Survey/ Inspection	None Objectively Demonstrated	$50,661	$0
Street Design	Review, Approval/ Inspection/ Design/Utilities	None Objectively Demonstrated	$122,689	$0
Exec. Direction Admin./Teleco/ Special Proj.	Operational Oversight, GIS, Maintenance/ Comm. Rel.	Non-Recurring Cost at Time of Permit Application/ Install	$190,531	$0
Operations	ROW Maint./Upgrades DRE & IRE	None Objectively Demonstrated	$295,430	$0
Equipment	ROW Maint. & Construction/ Equipment Service	None Objectively Demonstrated	$39,648	$0
Water	Stakeout, ROW Maintenance & Construction	None Objectively Demonstrated	$121,147	$0
Hazard/Emergency Fire/Police/ Dispatch	Safety, Dispatch, Emergency Response	None Objectively Demonstrated	$99,120	$0
Sub-total Staffing			$1,155,627	$0

[87] As explained above, the data presented by the City is not objective and is not reliable. This calculation is made assuming we accept for purposes of this discussion the City's data for this category.

City Department	Activity	Direct Economic Cost Linkage to Telecom Provider	Recurring Cost Assigned by City to Telecom Provider	Objective Actual Direct Recurring Cost[87]
II. Administration "Related Indirect Expenditures" Assigned to Telecommunications Providers				
IT	Software Licenses, GIS, System Sup. Data Security & Storage, Rcds Mgt	None Objectively Demonstrated	$103,967	$0
Finance	Accounting/ Invoicing	Possible Recurring Cost	$16,300	$16,300
Law	MLA Compliance/ Legislation	None Objectively Demonstrated	$38,326	$0
Sub-total Admin.			$158,592	$16,300
TOTAL EXPENDITURES ASSIGNED			$1,314,218	$16,300
III. Per Pole Cost Assigned to Telecommunications Provider				
City Estimated Total Number of New Telecom Installations, 2020-2025		1,800		
City Estimated Average Annual No. of New Telecom Installations		300		
Assigned Cost Per Pole = Total Expenditures / Avg Ann # Install.			$4,381.00	$54.33
Source for City Assigned Costs: COR 000011 "City Cost Spreadsheet, "Input Data" Tab				

The City has failed to demonstrate that costs included for recovery in recurring fees are not non-recurring costs already recovered in one-time permitting fees charged by the City or otherwise reimbursed to the City.

101. As discussed above, while the preponderance of costs included in the City's ROW cost analysis for apportionment to telecommunications providers are not properly considered actual direct recurring costs, a subset of those costs could be reasonably considered as direct costs of a *non-recurring* nature. Moreover, as pointed out above, the City has acknowledged in correspondence to the FCC that the identified department functions potentially classified as direct non-recurring costs are already recovered by the City through the one-time permit fees charged telecommunications providers by the City – fees as shown in Table 2 below.

102. To apportion any of these non-recurring costs to telecommunications providers as recurring costs would produce an excess and double recovery of such costs by the City. In

addition, the recovery of upfront, non-recurring costs through ongoing, recurring rates does not properly match costs with the time frame and manner in which the costs are incurred and violates the objective cost principles underlying the applicable FCC standard – the import of which Mr. Tobias did not appear to appreciate.[88]

V. CONCLUSION

103. The City has not demonstrated that its fees on telecommunications providers reflect the reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in public rights of way in the City.

104. As shown in Table 2 below, the presumptively reasonable fees set by the FCC in its 2018 *Broadband Deployment Order* for small wireless facilities more than fully compensate the City when appropriately compared to the proper economic cost standard of actual, direct costs incurred by the City as a result of telecommunications facilities.

105. Even using the City's inaccurate and deeply flawed cost data, a cost-based fee for wireline facilities based on objective, reliable data would be radically lower than what the City imposes.

[88] *See* Tobias Dep., Verizon at 160:1-166:6

Table 2 – Comparison of City Fees, FCC Presumptive Fees, and Fees Based on Objective Actual, Direct Costs Applicable to Telecommunications Providers

City of Rochester	City Fees	FCC Presumptive Fees	Fees Based on Objective Actual Direct Costs[89]
I. Recurring Fees Applicable to Telecommunications Providers[90/]			
Per Pole:			
Standard Pole	$1,500	$270	$54.33
Smart Pole	$1,000	$270	$54.33
Per Ft Underground (UG) Install/ Aerial Install Fiber/ Install in Existing Facilities			
UG Install w/Open Trenching/Aerial Install Fiber:	Varies from:		
1st Year – Up to first 2,500 Ft	$10,000 to $4.00	n/a	$0.0047/ft ($24.82/mi)
1st Year – 2,500' & Over	$1.50 to $0.75	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – Up to 2,500 Ft	$5,000 to $2.00	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – 2,500' & Over	$1.00 to $0.50	n/a	$0.0047/ft ($24.82/mi)
UG Install w/Directional Boring:	Varies from:	n/a	$0.0047/ft ($24.82/mi)
1st Year – Up to first 2,500 Ft	$500/ site	n/a	$0.0047/ft ($24.82/mi)
1st Year – 2,500' & Over	$500/site + $1.50 to $0.75/ft	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – Up to 2,500 Ft	$5,000 to $2.00	n/a	$0.0047/ft ($24.82/mi)
After 1st Year – 2,500' & Over	$1.00 to $0.50	n/a	$0.0047/ft ($24.82/mi)
UG Install in Existing Facilities:	Varies from:	n/a	$0.0047/ft ($24.82/mi)
Up to first 2,500 Ft	$5,000 to $2.00	n/a	$0.0047/ft ($24.82/mi)
2,500' & Over	$1.00 to $0.50	n/a	$0.0047/ft ($24.82/mi)
Relocated Aerial Installations:	50% UG Install	n/a	$0.0047/ft ($24.82/mi)
II. Non-Recurring Fees Applicable to Telecommunications (Other City Fees May Apply)[91/]			
Permit/Application:			
Up to first 5 Facilities	$2,000	$500	No data
5 Facilities & Over	$2,000	$100	No data
Facilities on New Pole	$2,500	$1,000	No data

[89] As noted above, although the City's cost data is unreliable, these calculations are presented to demonstrate that even using the City's unreliable data, the costs would not justify the City's fees.

[90/] For City Fees, *see* TELECOMMUNICATIONS CODE § 106-15; *see also* City of Rochester, *Telecommunications Fee Schedule*; for FCC fees, *Broadband Deployment Order* ¶ 79; for Objective Cost Based Fees, *see* Kravtin Table 1A, 1B, *infra* at 40, 42.

[91/] For City Fees, *see Permit Fee Schedule at* 3 ¶ 11; for FCC Fees, *see Broadband Deployment Order* ¶ 79.

106. Although the City has not provided objective, reliable data that would allow me or any expert to calculate the City's reasonable actual and direct costs incurred by the City that are specifically related to and caused by the deployment of facilities used to provide telecommunications services in public rights of way, even if we accept the City's data for purposes of discussion, the fees charged by the City exceed the City's reasonable actual and direct costs caused by the deployment of telecommunications facilities.

107. The documents presented by the City and the rationale articulated by its witness in deposition as allegedly supporting the cost basis for the City's fees do not provide transparency in the cost allocation process applicable to all underlying inputs and assumptions used in the process; the capability to replicate and verify the cost derivation process and final results of the process; and the ability to independently validate data sources and other supporting documentation for their reasonableness, authenticity, and internal consistency.

108. In conclusion, for the reasons described in this Report, the City has not demonstrated actual, direct costs, objectively determined, that would warrant charging telecom providers its current fee levels. As Table 2 shows, the City's current fee levels are dramatically higher than the presumptive compensation levels set by the FCC. And the City has not demonstrated that its fees are not dramatically higher than the City's objectively reasonable, actual and direct costs specifically related to and caused by the deployment of facilities used to provide telecommunications services.

Executed on this 12th day of August, 2021, at Park City, Utah.

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Patricia D. Kravtin

Appendix A – Curriculum Vitae

Patricia D. Kravtin

pdkravtin@comcast.net

Summary

Consulting economist with specialization in telecommunications, cable, and energy markets. Extensive knowledge of complex economic, policy and technical issues facing incumbents, new entrants, regulators, investors, and consumers in rapidly changing telecommunications, cable, and energy markets.

Experience

CONSULTING ECONOMIST

2000– Principal and Owner, PDK Economic Consulting, Park City, UT

- Providing expert witness services and full range of economic, policy, and technical advisory services in the fields of telecommunications, cable, and energy.

SENIOR VICE PRESIDENT/SENIOR ECONOMIST

1982–2000 Economics and Technology, Inc., Boston, MA

- Active participant in regulatory proceedings in over thirty state jurisdictions, before the Federal Communications Commission, Federal Energy Regulatory Commission, Canadian Radio-Television and Telecommunications Commission, Ontario Energy Board, and other international regulatory authorities on telecommunications, cable, and energy matters.

- Provided expert witness and technical advisory services in connection with litigation and arbitration proceedings before state and federal regulatory agencies, and before U.S. district court, on behalf of diverse set of pubic and private sector clients (see Record of Prior Testimony).

- Extensive cable television regulation expertise in connection with implementation of the Cable Act of 1992 and the Telecommunications Act of 1996 by the Federal Communications Commission and local franchising authorities.

- Led analysis of wide range of issues related to: rates and rate policies; cost methodologies and allocations; productivity; cost benchmarking; business case studies for entry into cable, telephony, and broadband markets; development of competition; electric industry restructuring; incentive or performance based regulation; universal service; access charges; deployment of advanced services and broadband technologies; access to pole attachments, conduit, and other rights-of-way.

- Served as advisor to state regulatory agencies, assisting in negotiations with utilities, non-partial review of record evidence, deliberations and drafting of final decisions.

- Author of industry reports and papers on topics including market structure, competition, alternative forms of regulation, patterns of investment, telecommunications modernization, and broadband deployment.

- Invited speaker before various national organizations, state legislative committees and participant in industry symposiums.

- Grant Reviewer for the Broadband Technology Opportunities Program (BTOP) administered by National Telecommunications and Information Administration (NTIA), Fall 2009.

RESEARCH/POLICY ANALYST

1978–1980 Various Federal Agencies, Washington, DC

- Prepared economic impact analyses concerning allocation of frequency spectrum (Federal Communications Commission).

- Performed financial and statistical analysis concerning the effect of securities regulations on the acquisition of high-technology firms (Securities and Exchange Commission).

- Prepared analyses and recommendations on national economic policy issues including capital recovery. (U.S. Dept. of Commerce).

Education

1980–1982 Massachusetts Institute of Technology, Boston, MA

- Graduate Study in the Ph.D. program in Economics (Abd). General Examinations passed in fields of Government Regulation of Industry, Industrial Organization, and Urban and Regional Economics.

- National Science Foundation Fellow.

1976–1980 George Washington University, Washington, DC

- B.A. with Distinction in Economics.

- Phi Beta Kappa, Omicron Delta Epsilon in recognition of high scholastic achievement in field of Economics. Recipient of four-year honor scholarship.

Prof. Affiliation

American Economic Association

Reports and Studies (authored and co-authored)

"Pole Policy and the Public Interest: Cost Effective Policy Measures for Achieving Full Broadband Access in the Commonwealth of Kentucky," July 22, 2021, underwritten by Charter Communications and submitted to the Kentucky Public Service Commission in *Regulations Regarding Access and Attachments to Utility Pole and Facilities*; 807 KAR 5:015.

"The Economic Case for a More Cost Causative Approach to Make-ready Charges Associated with Pole Replacement in Unserved/Rural Areas: Long Overdue, But Particularly Critical Now in Light of the Pressing Need to Close the Digital Divide," dated September 2, 2020, underwritten Charter Communications, Inc. and submitted to the Federal Communications Commission in WC Docket No. 17-84.

"An Analysis of Just and Reasonable Pole Attachment Rates for Bandera Electric Cooperative Pursuant to Senate Bill 14," prepared on behalf of Guadalupe Valley Telephone Cooperative, Inc., Preliminary Report dated December 6, 2019.

Report on the Ohio Municipal Electric Association Pole Attachment Rate Study, prepared for the Ohio Cable Telecommunications Association, November 9, 2012.

Report on the Financial Viability of the Proposed Greenfield Overbuild in the City of Lincoln, California, prepared for Starstream Communications, August 12, 2003.

"Assessing SBC/Pacific's Progress in Eliminating Barriers to Entry, The Local Market in California is Not Yet 'Fully and Irreversibly Open," prepared for CALTEL, August 2000.

"Final Report on the Qualifications of Wide Open West-Texas, LLC For a Cable Television Franchise in the City of Dallas," prepared for the City of Dallas, July 31, 2000.

"Final Report on the Qualifications of Western Integrated Networks of Texas Operating L.P. For a Cable Television Franchise in the City of Dallas," prepared for the City of Dallas, July 31, 2000.

"Price Cap Plan for USWC: Establishing Appropriate Price and Service Quality Incentives in Utah" prepared for The Division of Public Utilities, March, 2000.

"Building a Broadband America: The Competitive Keys to the Future of the Internet," prepared for The Competitive Broadband Coalition, May 1999.

"Broken Promises: A Review of Bell Atlantic-Pennsylvania's Performance Under Chapter 30," prepared for AT&T and MCI Telecommunications, June 1998.

"Analysis of Opportunities for Cross Subsidies Between GTA and GTA Cellular," prepared for Guam Cellular and Paging, submitted to the Guam Public Utilities Commission, July 11, 1997.

"Reply to Incumbent LEC Claims to Special Revenue Recovery Mechanisms," submitted in the Matter of Access Charge Reform in CC Docket 96-262, February 14, 1997.

"Assessing Incumbent LEC Claims to Special Revenue Recovery Mechanisms: Revenue opportunities, market assessments, and further empirical analysis of the 'Gap' between embedded and forward-looking costs," FCC CC Docket 96-262, January 29, 1997.

"Analysis of Incumbent LEC Embedded Investment: An Empirical Perspective on the 'Gap' between Historical Costs and Forward-looking TSLRIC," Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, FCC CC 96-98, May 30, 1996.

"Reply to X-Factor Proposals for the FCC Long-Term LEC Price Cap Plan," prepared for the Ad Hoc Telecommunications User Committee, submitted in FCC CC Docket 94-1, March 1, 1996.

"Establishing the X-Factor for the FCC Long-Terms LEC Price Cap Plan," prepared for the Ad Hoc Telecommunications User Committee, submitted in FCC CC Docket 94-1, December 1995.

"The Economic Viability of Stentor's 'Beacon Initiative,' Exploring the Extent of its Financial Dependency upon Revenues from Services in the Utility Segment," prepared for Unitel, submitted before the Canadian Radio-television and Telecommunications Commission, March 1995.

"Fostering a Competitive Local Exchange Market in New Jersey: Blueprint for Development of a Fair Playing Field," prepared for the New Jersey Cable Television Association, January 1995.

"The Enduring Local Bottleneck: Monopoly Power and the Local Exchange Carriers," Feb. 1994.

"A Note on Facilitating Local Exchange Competition," prepared for E.P.G., Nov. 1991.

"Testing for Effective Competition in the Local Exchange," prepared for the E.P.G., October 1991.

"A Public Good/Private Good Framework for Identifying Pots Objectives for the Public Switched Network" prepared for the National Regulatory Research Institute, October 1991.

"Report on the Status of Telecommunications Regulation, Legislation, and modernization in the states of Arkansas, Kansas, Missouri, Nebraska, Oklahoma and Texas," prepared for the Mid-America Cable-TV Association, December 13, 1990.

"The U S Telecommunications Infrastructure and Economic Development," presented at the 18th Annual Telecommunications Policy Research Conference, Airlie, Virginia, October 1990.

"An Analysis of Outside Plant Provisioning and Utilization Practices of US West Communications in the State of Washington," prepared for the Washington Utilities and Transportation Commission, March 1990.

"Sustainability of Competition in Light of New Technologies," presented at the Twentieth Annual Williamsburg Conference of the Institute of Public Utilities, Williamsburg, VA, December 1988.

"Telecommunications Modernization: Who Pays?," prepared for the National Regulatory Research Institute, September 1988.

"Industry Structure and Competition in Telecommunications Markets: An Empirical Analysis," presented at the Seventh International Conference of the International Telecommunications Society at MIT, July 1988.

"Market Structure and Competition in the Michigan Telecommunications Industry," prepared for the Michigan Divestiture Research Fund Board, April 1988.

"Impact of Interstate Switched Access Charges on Information Service Providers - Analysis of Initial Comments," submitted in FCC CC Docket No. 87-215, October 26, 1987.

"An Economic Analysis of the Impact of Interstate Switched Access Charge Treatment on Information Service Providers," submitted in FCC CC Docket No. 87-215, September 24, 1987.

"Regulation and Technological Change: Assessment of the Nature and Extent of Competition from a Natural Industry Structure Perspective and Implications for Regulatory Policy Options," prepared for the State of New York in collaboration with the City of New York, February 1987.

"BOC Market Power and MFJ Restrictions: A Critical Analysis of the 'Competitive Market' Assumption," submitted to the Department of Justice, July 1986.

"Long-Run Regulation of AT&T: A Key Element of a Competitive Telecommunications Policy," *Telematics*, August 1984.

"Economic and Policy Considerations Supporting Continued Regulation of AT&T," submitted in FCC CC Docket No. 83-1147, June 1984.

"Multi-product Transportation Cost Functions," MIT Working Paper, September 1982.

Testimony in trial or deposition in last four years

2020

Before the **Georgia Public Service Commission**, *In Re: Generic Proceeding to Implement House Bill 244*, Docket No. 43453, Pre-filed Direct Testimony submitted October 23, 2020, Rebuttal Testimony submitted November 9, 2020, Cross-examination, November 19, 2020.

Before the **Public Utilities Commission of the State of California,** in *Southern California Edison 2021 General Rate Case (U 338-E), Docket No. A. 19-08-013 (Filed August 30, 2019),* Pre-filed Direct Testimony submitted May 5, 2020.

2019

Before the **Public Utilities Commission of Ohio,** *In the Matter of the Application of the Filing by Ohio Edison Company, The Cleveland Electric Illuminating Company, and the Toledo Edison Company, of a Grid Modernization Plan, of an Application for Approval of a Distribution Platform Modernization Plan, to Implement Matters Relating to the Tax Cuts and Jobs Act of 2017, and for Approval of a Tariff Change,* Case Nos. 16-481-EL-UNC, Case No. 17-2436-EL-UNC, Case No.18-1604-EL-UNC, and Case No. 18-1656-EL-ATA, adopted and accepted into evidence, February 6, 2019.

2018

Before the **Public Utilities Commission of the State of California,** in *California Cable & Telecommunications Association, Complainant v. San Diego Gas & Electric Company (U902E) Defendant, Case No. C.17-11-002 (Filed November 6, 2017),* Pre-filed Direct Testimony submitted November 21, 2018, Rebuttal submitted December 28, 2018, Cross-examination January 8, 2019.

Before the **Public Utilities Commission of Ohio,** *In the Matter of the Application of the Commission's Investigation of the Financial Impact of the Tax Cuts and Jobs Act of 2017 on Regulated Ohio Utility Companies,* Case No. 18-47-AU-COI, filed June 29, 2018.

Before the **Louisiana Public Service Commission**, in *Re: Complaint and Petition for Declaratory Ruling on Proper Formula for the Pole Attachment Rental Rate Under Louisiana Public Service Commission Order Dated September 4, 2014*, Docket No. U-34688, Affidavit submitted March 27, 2018.

Before the **Connecticut Department of Public Utility Control,** in *Re: In the Matter of the Application of The Connecticut Light and Power Company d/b/a Eversource Energy, to Amend its Rate Schedule*, Dkt. No. 17-10-46, Direct Prefiled January 26, 2018.

2017

Before the **North Carolina Public Utility Commission,** in *Blue Ridge Electric Membership Corporation, Complainant v. Charter Communications Properties LLC, Respondent,* Docket No. EC-23, SUB 50, Responsive Pre-filed October 30, 2017; Cross-examination November 8, 2017, December 18, 2017.

Before the **Kentucky Public Service Commission**, *In the Matter of: Electronic Application of Kentucky Power Company for (1) A General Adjustment of its Rates for Electric Service: (2) An Order Approving its 2017 Environmental Compliance Plan; (3) An Order Approving its Tariffs and Riders; (4) An Order Approving Accounting Practices to Establish Regulatory Assets and Liabilities, and (5) An Order Granting All Other Required Approvals and Relief*, Case No. 2017-00179, Direct Testimony submitted on behalf of The Kentucky Cable Telecommunications Association, October 3, 2017.

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Time Warner Cable Southeast LLC, Complainant v. Carteret-Craven Electric Membership Corporation, Respondent,* Docket No. EC-55, SUB 70, Direct Pre-filed May 30, 2017; Rebuttal Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Appendix A

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Time Warner Cable Southeast LLC, Complainant v. Jones-Onslow Electric Membership Corporation, Respondent,* Docket No. EC-43, SUB 88, Direct Pre-filed May 30, 2017; Rebuttal Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Time Warner Cable Southeast LLC, Complainant v. Surry-Yadkin Electric Membership Corporation, Respondent,* Docket No. EC-49, SUB 55, Direct Pre-filed May 30, 2017; Rebuttal Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Before the **North Carolina Public Utility Commission,** in *Re: In the Matter of Union Electric Membership Corporation, Complainant v. Time Warner Cable Southeast LLC, Respondent,* Docket No. EC-39, SUB 44, Responsive Pre-filed June 15, 2017; Cross-examination June 20, 2017.

Appendix **B**

List of Documents Considered in Preparation of Expert Report

Description

- City Responses to Interrogatory Requests
- City Production of Documents documents bates numbered COR000001 through COR000720, and COR 894
- Depositions of Louis J, Tobias and Kamal Crues
- City Telecommunications Code Chapter 106
- City Telecommunications Fee Schedule
- ExteNet's Complaint in this case
- City Answer to ExteNet Complaint
- Economic and Regulatory Literature – Texts, articles, and decisions as cited in footnotes

Duke DR 1-6:

Please provide copies of any and all documents, analysis, summaries, white papers, work papers, spreadsheets (electronic versions with cells intact), including drafts thereof, as well as any underlying supporting materials created by Ms. Kravtin as part of her evaluation of Duke Energy Kentucky's Application or used in the creation of Ms. Kravtin's testimony.

Response: KBCA objects to this request because it is unduly burdensome and disproportionate to the needs of the case. KBCA objects to the extent this request calls for the disclosure of information that is protected from discovery by the attorney-client privilege, the work product doctrine, or any other applicable claim of privilege or legal protection. KBCA further objects to the extent this information is equally available to Duke Energy.

Subject to its objections, KBCA responds that the schedules, tables, and charts in Ms. Kravtin's testimony are provided in full in her testimony at Exhibits 7-8. The publicly available source documents and workpapers upon which she relies are cited in her testimony, and equally available to Duke Energy.

Witness: Patricia Kravtin

Duke DR 1-7:

Please provide copies of any and all documents not created by Ms. Kravtin, including but not limited to, analysis, summaries, cases, reports, and evaluations, that Ms. Kravtin relied upon, referred to, or used in the development of her testimony.

Response: KBCA objects to this request because it is unduly burdensome and disproportionate to the needs of the case. KBCA further objects to the extent this information is equally available to Duke Energy.

Subject to its objections, KBCA responds that the publicly available source documents and workpapers upon which Ms. Kravtin relies are cited in her testimony. KBCA further directs Duke Energy to the Exhibits attached to her testimony. KBCA further identifies Administrative Case No. 251, Order (Sept. 17, 1982) (attached as Exhibit 3 to these responses).

Witness: Patricia Kravtin

EXHIBIT 3

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE ADOPTION OF A STANDARD METHODOLOGY FOR ESTABLISHING RATES FOR CATV POLE ATTACHMENTS	)))	ADMINISTRATIVE CASE NO. 251

PREFACE

The Commission has before it South Central Bell Telephone Company's Petition for Modification, Louisville Gas & Electric Company's Petition to Reconsider, Kentucky Utilities Company's Petition for Rehearing, Kentucky Power Company's Petition for Reconsideration, and Kentucky Cable Television Association's Motion for Rehearing and/or Modification, all timely filed, with respect to the Commission's Order dated August 12, 1982.

This Order incorporates the modifications and points of clarification which the Commission finds appropriate after consideration of the above motions and petitions, and replaces, in its entirety, the Order of August 12, 1982. Appendix "A," attached hereto and made a part hereof, contains the comments of the Commission on the issues so raised.

Having considered all the issues raised by the Motions and Petitions of the parties, the Commission finds that it will not be necessary to have further hearings in this matter.

AMENDED ORDER

On petitions of regulated telephone utilities (Case No. 8040) and regulated electric utilities (Case No. 8090), which were consolidated, the Commission on August 26, 1981, asserted jurisdiction over the rates, terms and conditions for pole attachment space made available to cable television ("CATV") systems by telephone and electric utilities. Tariffs ordered to be filed were rejected by the Commission, which by its Order of October 28, 1981, established this administrative case to determine a standard methodology for calculating rates for pole attachment space.

Hearings were held on February 2, 3, and 4, 1982, for direct testimony. Rebuttal testimony was prefiled, and witnesses subjected to cross-examination on March 18, 1982, with final oral argument on March 25, 1982.

Parties of record were Louisville Gas & Electric Company, South Central Bell Telephone Company, Union Light, Heat and Power Company, Cincinnati Bell, Inc., General Telephone Company of Kentucky, Kentucky Power Company, Continental Telephone Company, Echo Telephone Company (now Allied Telephone Company of Kentucky), Kentucky Utilities Company, Kentucky Cable Television Association, Consumer Protection Division of the Attorney General's Office, Kentucky Association of Electric Cooperatives, and Duo County Telephone Cooperative. Others who submitted information or testimony were Thacker-Grigsby Telephone Company, Foothills Rural

Telephone Cooperative Corporation, Inc., Peoples Rural Telephone Cooperative Corporation, Inc., Ballard Rural Telephone Cooperative Corporation, Inc., and Logan Telephone Cooperative, Inc.

DISCUSSION

In its Order of August 26, 1981, the Commission directed regulated utilities which provide CATV pole attachment services to file tariffs concerning the provision of such service. The tariffs which were filed proposed rates, terms and conditions which varied widely, and in some cases did not afford CATV operators rights equal to those afforded other utility customers. For these and reasons of convenience, the Commission determined that a uniform methodology should be established by which fair, just and reasonable pole attachment rates could be determined.

At the hearings on methodology, it developed that some minimum equitable standards for terms and conditions would be required to assure CATV operators that to the extent possible they would have the same rights as other utility customers. First, as a tariff customer, each qualified CATV operator must have the right to receive service (make pole attachments), just as a telephone or electric customer has the right to receive service. Similarly, the CATV operator must be allowed to remain a customer by observing the usual customer obligations, such as payment of bills and conformance to applicable safety standards.

Objectionable Provisions in Agreements

CATV operators assert that the present practice of some utilities in requiring bonds for satisfactory construction practices and payment of billings imposes restrictions more burdensome than those imposed on other utility customers. However, while the CATV operator will be a utility customer, it must be recognized that it forms a separate classification of customer, with different rights and responsibilities. The imposition of a bonding requirement is not unlike the deposit requirement for other utility customers, except that the CATV operator climbs and works on poles, and makes pole attachments, a situation uniquely different from that of utility customers merely receiving electric or telephone service. For this reason, the Commission does not find it discriminatory to allow a bonding requirement to assure safe and adequate construction and operating practices on the part of the CATV operator, especially during the initial phases of construction and operation. However, the Commission will expect that the size of the bond or other required assurances will be reasonably related to the size and scope of the proposed CATV system, and will be reduced or lifted after the operator has proven itself a reliable utility customer.

The CATV operators complained of the charges imposed by the utilities for periodic inspections of the attachments to the poles, but generally were not dissatisfied with "make-ready"

charges determined by agreement of the parties after a "walk-through" inspection of the proposed CATV system by representatives of the operator and the utility. The Commission recognizes the necessity for periodic inspections of utility plant for safety and other reasons, and Commission regulations (807 KAR 5:006, Section 22) require them, without any provision for additional payment by customers. Of course, when substandard installations are found which are not created by the utility but by the CATV operator, the utility should charge the CATV operator for the cost of correcting them, plus some contribution toward administrative costs and labor and materials costs for making such corrections.

Similarly, since some CATV operators have made attachments to utility poles without prior authorization, and the utility must rely, between inspections, on voluntary reporting by such operators, it is reasonable for the utility to charge a penalty for unauthorized attachments. We will allow tariff provisions which provide for a charge of not greater than twice the amount equal to the rate that would have been due had the installation been made the day after the last previous required inspection. Additionally, tariffs may also provide for "make-ready" charges for unauthorized attachments not to exceed twice the charges which would have been imposed if the attachment had been properly authorized.

CATV operators argue that some utilities have unfairly imposed provisions in their agreements that required the operators to reimburse the utilities for changes made after the initial CATV attachments have been made, when such changes were not required by CATV operations. They cite some instances when, after initially allowing CATV attachment to their poles, the utilities changed the use of the pole and required the CATV operator to pay for the changes.

The Commission agrees that a number of these provisions and charges may have been unfair or unnecessary. When a utility subsequently requires a change in its poles or attachments for reasons unrelated to CATV operations, the CATV operator should be given notice of the changes required (e.g., relocation to another pole), and sufficient time to accomplish the CATV-related change. Normally, 48 hours will be sufficient time for advance notice of a change, unless an emergency requires a shorter period. If the CATV operator is unable or unwilling to meet the utility's time schedule for such changes, the utility may do the work and charge the CATV operator its reasonable costs for performing the change of CATV attachments.

Also, the CATV operators argue that a number of the agreements imposed on them for pole attachments have included "hold harmless clauses" and have required them to maintain insurance coverage against their negligence and that of the utility. The Commission is of the opinion that such requirements generally are

excessive. Except for compelling reasons requiring additional protective provisions, the Commission will approve only tariff provisions which require insurance or a bond (at CATV's option) to protect the utility and the public against claims for liability arising out of the negligence of the CATV operator or the joint negligence of the CATV operator and the utility.

CATV Operators Are Not Joint Users

Considerable argument, and some evidence, was offered on behalf of the CATV operators that they have been treated unfairly by the utilities in not being accorded many of the rights granted each other by the utilities in their joint use arrangements. This issue is resolved by the decision of this Commission to treat CATV operators as customers of the utilities, with concomitant customer rights. CATV operators do not argue that they should be allowed to construct pole line systems of their own to share with the regulated utilities under typical joint use arrangements, and we see no reason why they should. Since they have no poles to "share," they need not be offered terms equivalent to those in prevailing joint use agreements between utilities both of which own and share poles.

Methodology

The CATV operators contend that the FCC methodology should be adopted by this Commission. We do not agree. While the FCC

methodology purports to recover for the utility its incremental cost of providing pole attachment service, it does not provide for the allocation of the utility's full cost of providing such service among all its classifications of customers. This Commission cannot accept a formula which allocates costs so unevenly.

The Commission recognizes, as recommended by the CATV operators and most of the utilities represented at the proceeding, that the formula should be simple and easily applied. Further, the formula should produce a fair, just and reasonable rate, based on the fully allocated costs of the utility in furnishing pole attachment services.

Ideally, the various cost factors needed to apply the formula should be readily available public information, such as that disclosed in the utility's required annual reports to the Commission or other public agencies. When this is not the case, we find that each utility shall file with its proposed tariffs the source and justification for cost factors used in applying the formula to compute its rate to the CATV operator.

The Commission has determined that the methodology shall be (1) the embedded cost of an average bare pole of the utility of the type and size which is or may be used for the provision of CATV attachment (2) multiplied by an annual carrying charge, and (3) this product multiplied by the percentage of usable space used for CATV pole attachments.

Bare Pole Costs

In determining the embedded cost of a bare pole, the Commission finds that poles less than 30 feet or more than 45 feet long are used so infrequently for CATV purposes that they should be excluded from the calculation. Cross arms, anchors, guy wires, grounds and other appurtenances not installed for CATV purposes will be excluded to establish the cost of a bare pole.

South Central Bell used 78 percent of its gross pole accounts as a "bare pole factor" to exclude investment attributable to appurtenances, i.e., cross arms, guys, anchors, etc. CATV's testimony was that 85 percent of pole accounts was an accepted industry standard for bare poles, which standard includes investment in anchors and guy wires and excludes all other appurtenances. General Telephone has also used an 85 percent factor, but has testified that this factor excludes "cross arms, anchors and other fixtures," which appears inconsistent with the testimony of other parties.

Therefore, for telephone utilities the Commission finds that 22 percent of the utility's pole account consists of appurtenances and should be excluded.

For electric utilities, the cost of major appurtenances such as cross arms can be specifically identified in sub-accounts of the Federal Energy Regulatory Commission ("FERC") Form 1, Account 364, and excluded, but lesser appurtenances such as aerial cable clamps, pole top pins, and some ground wires are not segregated

in the basic pole accounts. Kentucky Power offered specific evidence on ground wire costs, for which it adds $12.41 to the pole accounts, and estimated that 8.7 percent of the unsegregated pole accounts represents lesser appurtenances. It was acknowledged generally by CATV operators and the telephone utilities that an exclusion of 15 percent for pole appurtenances would be reasonable, but this percentage did not include the cost of anchors.

Consistent with our finding that 22 percent of the utility's pole account is a reasonable exclusion for telephone utilities, and that the ratio of the cost of anchors to the basic pole accounts should not vary significantly between telephone and electric utilities, the Commission finds that an adjustment of 15 percent subtracted from the sum of the appropriate sub-account of FERC Form 1, Account 364, and a deduction of $12.50 per ground, when such grounds have been included in Account 364, will reasonably approximate the cost of an average bare wooden electric utility pole. Further, when CATV has used the utility's ground wire, the $12.50 should be added into (or back into) the bare pole cost for each such ground.

Each utility must determine its weighted average cost of two-user and three-user poles. For telephone utilities, the average cost of a two-user pole will be assumed to be the weighted average cost of all 30-foot and 35-foot poles, and for a three-user pole, the weighted average cost of 40-foot and 45-foot poles. For electric utilities, the average cost of a two-user

pole will be assumed to be the weighted average cost of 35-foot and 40-foot poles, and for a three-user pole, the weighted average cost of 40-foot and 45-foot poles. Each of these averages must then be multiplied by the bare pole factors stated herein.

Annual Carrying Charge

Having determined that the CATV operator will be considered a customer of the utility, the Commission finds that such customers should be required to pay their equitable share of all the utility's costs in providing service.

CATV operators argue that certain costs of the utility have no relationship to the services provided to them such as directory advertising, insurance and administrative overhead. However, no classification of utility customers can or should be allowed to pick and choose the categories of expense to which it will be subject.

The annual carrying charge should be designed to recover the utility's cost in providing service. Items included in this calculation should represent an equitable share of all operating and maintenance expenses, taxes, and depreciation, and a cost of money return component. The costs included in the annual carrying charge calculation should be identifiable by specific account number as established in the Uniform System of Accounts prescribed by this Commission and utilized by each utility.

There should be included in the "cost of money" factor a reasonable amount representing a return on the utility's investment in the poles. For convenience and certainty of computation, the Commission finds that this return should be equal to the return on investment (or margin) allowed in the utility's last rate case.

We find it reasonable to allow a contribution by CATV toward the common costs of the utility which cannot be directly allocated to any particular classification of customer. However, each utility which includes such a contribution in its rate development must provide justification for the amount of such contribution which it proposes to include.

Usable Space

Parties to this proceeding have generally agreed that "average poles" be used in constructing a methodology. No party has offered to incur the costs involved in measuring, inspecting, and recording each pole which is or may be used by CATV.

Three distinct situations arise with respect to calculation of usable pole space: poles with only telephone and CATV connections, poles with only electric and CATV connections, and poles with all three connections.

In the first case, the Commission concludes that poles 30 and 35 feet long are commonly used, and that an average length for convenience of calculation would be 32.5 feet. Electric and

CATV connections are commonly made on 35-foot and 40-foot poles, and therefore a 37.5-foot average pole will be reasonable for computation of the charge for that pole use. Poles with three users (telephone, electric, and CATV) are commonly 40 feet and 45 feet long, with an average length of 42.5 feet. An equal distribution of the pole population and utilization would produce a composite average pole of 37.5 feet in length. The Commission notes that an average pole length of 37.5 feet was supported by CATV testimony.

All parties have agreed that CATV operators should be responsible for the use of one foot of the usable space on poles.

When a telephone and CATV attachment occupy a single pole the amount of usable space will be calculated as if it were a 32.5-foot pole. It will be assumed that the pole is buried six feet in the ground. There was much testimony concerning the height of the lowest attachment. Neither the 18 feet of CATV nor the 21 feet of some of the utilities appears to be realistic. An 18-foot attachment would not allow for sag in those places where safety requirements demand 18 feet of clearance, and a 21-foot attachment would be unnecessarily high for most installations. CATV should not be penalized for connections that telephone utilities have placed unnecessarily high on their poles, but neither will this Commission assume that any connections are made so low as to produce violations of the National Electric Safety Code ("NESC"). Therefore, for purposes of calculation, the

Commission finds that an average height of the lowest connection on the pole of 20 feet is reasonable, and will allow for adequate clearances for cable spans. The top foot of a pole of this two-user configuration is not normally used.

Assuming the average two-user (telephone and CATV) pole of 32.5 feet in length, less 6 feet buried, 20 feet to the lowest attachment, and a foot of unused space at the top, there would be 5.5 feet of usable pole space. The CATV operator must be responsible for 1 foot. (1/55 or .1818.)

The typical two-user electric and CATV pole is assumed to be an average of 37.5 feet. NESC regulations for poles on which high voltage electrical current is carried require a 40-inch clearance between the lowest electrical conductor and the highest communications conductor. There was some evidence that on occasion the electric utilities have used a small portion of the safety clearance space for electrical appurtenances such as transformers. Similarly, the CATV operators have pointed to occasional use of the top foot of the pole by electrical utilities as an argument that this space should be included in "usable space" for all poles. To take these situations into account, the Commission finds that it is reasonable to assign the top foot of the pole as usable space by the electric utility, while retaining the integrity of the NESC-required 40-inch clearance as non-usable space in situations involving the electric utility.

Assuming the typical two-user electric and CATV pole of an average 37.5 feet in length, less 6 feet buried, 20 feet to the lowest attachment, and 3.33 feet required safety space, there would be 8.17 feet of usable pole space. The CATV customer must be responsible for 1 foot. (1/8.17 or .1224.)

Assuming the typical three-user pole of 42.5 feet in length, less 6 feet buried, 20 feet to the lowest attachment, 3.33 feet required safety space, there would be 13.17 feet of usable pole space. The CATV customer must be responsible for 1 foot. (1/13.17 or .0759.)

In summary, the Commission finds that the use to which a pole is subjected will determine the appropriate factors in computing the rate to be charged the attaching CATV operator.

The telephone utility with a two-user situation (telephone and CATV), should take its weighted average cost of 30-foot and 35-foot poles, multiplied by its bare pole factor of 78 percent, multiplied by its annual carrying charges, and finally multiplied by the appropriate usage factor of .1818 to arrive at an annual pole charge for CATV attachments for such use.

The electric utility with a two-user situation (electric and CATV) should take its weighted average cost of 35-foot and 40-foot poles multiplied by its bare pole factor of 85 percent, adjusted for grounds, multiplied by its annual carrying charges, and finally multiplied by the appropriate usage factor of .1224 to arrive at an annual pole charge for CATV attachments for such use.

Finally, in the case of the three-user pole, the utility should take its weighted average cost of 40-foot and 45-foot poles, multiplied by its bare pole factor [85 percent for electric, adjusted for grounds, and 78 percent for telephone utilities], multiplied by its annual carrying charges, and finally multiplied by the appropriate usage factor of .0759 to arrive at an annual pole charge for CATV attachments for such use.

We are aware that some utilities may not have accurate records of the number of two-user and three-user poles with CATV attachments. Although we require that a two-user and a three-user rate be developed and filed by each affected utility, the Commission will allow a composite billing rate based on relative pole populations when a complete inventory of CATV pole attachments is not presently available. Upon compilation of such inventory records, retroactive billing adjustments should be made to the effective date of the tariffs. We see no reason why special inventories should be made for this purpose, but should be accomplished in conjunction with the periodic inspections of pole plant required by Commission regulations. (807 KAR 5:006, Section 22.) The maximum time limitations for the use of the composite rate will be the same as the time allowed for the applicable plant inspection requirements of the regulation.

Anchor Attachments

Much testimony was offered by CATV operators that anchor costs be included in pole costs. However, since CATV operators

generally have the option of installing their own anchors or utilizing an existing anchor previously installed by the utility, it would be inappropriate to include a charge for anchor usage as a part of the pole attachment costs. When anchors of the utilities are used, the Commission finds that a fully allocated portion of the utility's cost for such anchors should be identified and paid for separately.

The method should be essentially the same as for pole attachments, being (1) the embedded cost of anchors, multiplied by (2) annual carrying charges, multiplied by (3) the appropriate usage factor. When a utility has recorded its embedded cost of anchors, that figure should be used. In the absence of such information, it is reasonable to assume that a utility's cost development of anchors parallels the cost development of poles used by CATV. Therefore, the embedded investment for an anchor should equal the average current investment for a typical anchor, multiplied by the ratio of the average embedded investment for 30- and 45-foot poles to the average current costs for 30- to 45-foot poles. The annual carrying charge factors should be the same as for poles. Finally, as to the usage factor, CATV should be responsible for one-half of the costs for two-user anchors, and one-third of the cost of three-user anchors.

Conduit

Very little attention was paid at the hearing to charges for sharing conduit space. South Central Bell maintained that conduit

space should be charged at a rate based on current costs rather than embedded costs because once wire is placed in conduit, that portion of the conduit is no longer available for any other use by any party. Hence, current conduit costs more nearly reflect the utility's costs for sharing this type of installation.

Although not offered in evidence by any of the parties, the Commission takes official notice that the National Electric Code ("NEC") sets forth the maximum allowable fill percentage for wire placed in the various sizes of conduit, where electrical conductors are involved. When only communications conductors are involved, the telephone utilities should use fill standards appropriate to that industry, with documentation supporting such standards.

Therefore the Commission finds that the appropriate charge for conduit use by CATV operators should be (1) the current cost per duct foot for the type and size of conduit used, divided by (2) the appropriate allowable percentage fill for the size of conduit used, multiplied by (3) the current annual charge factors developed for conduit.

Findings and Order

The Commission, after considering the matter and all evidence of record and being advised, finds that:

(1) The CATV operator, as a user of utility poles for attachment of its cables, is a customer of the regulated utility pole owner;

(2) As a customer of the regulated utility, the CATV operator should be obligated to pay its share of the fully allocated costs of providing service to it;

(3) The rights and obligations of the CATV operator and the regulated utility are as set forth herein;

(4) The method for determining the applicable rates and charges are as set forth herein;

(5) The Commission will allow deviations from the mathematical elements found reasonable herein only when a major discrepancy exists between the contested element and the average characteristics of the utility, and the burden of proof should be upon the party asserting the need for such deviation;

(6) Each utility should file tariffs for CATV pole attachments and charges conforming to the principles and findings in this Order; and

(7) On and after the effective date of the tariffs required herein, all existing pole attachment agreements should be superseded.

IT IS THEREFORE ORDERED that within 45 days of the date of this Order electric and telephone utilities providing or proposing to provide CATV pole attachments shall file with the Commission tariffs in the form prescribed by the Commission's regulations, according to the principles and findings in this Order.

Done at Frankfort, Kentucky, this 17th day of September, 1982.

PUBLIC SERVICE COMMISSION

Chairman

Vice Chairman

Commissioner

ATTEST:

Secretary

APPENDIX "A"
APPENDIX TO AN ORDER OF THE
PUBLIC SERVICE COMMISSION
IN ADMINISTRATIVE CASE NO. 251,
DATED September 17, 1982.

The Commission has reviewed, reconsidered, and has made certain modifications and clarifications to its Order of August 12, 1982, in Administrative Case No. 251.

The Commission's reasons for granting reconsideration, making some modifications, and denying others, are as follows:

A. South Central Bell Telephone Company's Petition for Modification

1. Bell pointed out that it does not have accurate records of the number of two-party and three-party poles which have CATV attachments. The Commission adopted Bell's suggestion that a composite rate based on relative pole populations (of which it does have a record) be allowed until accurate records can be obtained. At that time, billing adjustments are to be made, retroactive to the date of the tariffs.

2. Next, Bell requested clarification as to whether contribution toward common costs of the utility would be allowed as part of the rate computation. The Commission has allowed such contribution when adequate justification is provided.

3. Finally, Bell correctly points out that the National Electric Code conduit fill limitations were incorrectly applied to the telephone utilities, which would result in higher rates to

CATV operators. The Commission has allowed the telephone utilities to use conduit fill standards appropriate to their industry, with supporting documentation. Further, Bell requested the Commission to modify its Order with respect to the annual carrying charges for conduit use so that it merely allows the same types of charges for conduit as for poles. The Commission did so.

B. Louisville Gas & Electric Company's Petition to Reconsider

1. LG&E points out that to limit a CATV operator's indemnification to those cases in which the operator is at fault might unnecessarily increase the expense of the utility's insuring arrangements and might cause additional expense in the defense of joint-fault liability cases. The Commission agreed, and has amended the Order to allow a requirement for insuring against joint-fault liability as well as against the sole negligence of the CATV operator. To go further and require indemnification by the CATV operator also against the sole negligence of the utility would offend the basic premise that the CATV is a customer of the utility.

2. LG&E argues that the CATV operator should in some manner pay more than the announced methodology provides as its share of the cost of the 40-inch safety clearance space required by the NESC where communications lines share pole space with electric conductors.

The Commission finds that the methodology adequately charges the CATV operator with its proportionate part of all bare pole

costs which inlude the cost of the safety space. Requiring an additional direct contribution to the cost of the safety space is no more justifiable than requiring any one party to bear more of the cost of the underground portion of the pole than the others. All portions of the pole not included in "usable space" have been determined to benefit all parties using the pole.

C. Kentucky Utilities' Petition for Rehearing

1. KU argues that the Commission incorrectly provided a deduction of $12.50 per pole from pole plant costs even when, as in its case, no costs had been added to the pole account for grounds. This result was not intended. We have modified the Order to require deduction for ground costs only when they have previously been added to the pole accounts. Further, where CATV has attached to (utilized) the utility's ground wire, the $12.50 should be added into (or back into) the bare pole cost for each such ground.

2. KU objects to the use of simple arithmetic averages of suitable pole lengths as not reflecting the amount of usable space on particular poles, and cites one example (40-foot and 45-foot poles, when there are more 40-foot poles than 45-foot poles). However, KU's evidence shows that the same disparity does not exist with respect to 35-foot and 40-foot poles, upon which the two-user methodology is based. Parties to this proceeding have generally agreed heretofore that "average poles"

be used in constructing a methodology, to avoid the costs involved in physically measuring, inspecting and recording each pole in a system. Further, to recognize "weighted average pole lengths" would require that each utility have a separate usable space factor, destroying the uniformity of the methodology. The logic, if any, in this objection, would require removal of all "averages" in the methodology. Therefore, the Commission found no merit in this objection, and made no changes in the methodology.

3. KU challenges the Commission's statement that "each qualified CATV operator must have the right to receive service." This statement in the Order is based on the essential premise that CATV operators shall be considered customers, and not independently contracting parties. The utility should not be allowed to exclude any qualified operator if space is available, or can be made available by "make-ready" work, for which the operator requiring the work will pay.

D. Kentucky Power Company's Petition for Reconsideration

1. KPCo's first point is the same as KU's first point, addressed in C-1 of this Appendix.

2. Next KPCo asks for confirmation that the 15 percent deduction required of electric utilities from their pole accounts is for all appurtenances charged to such accounts, which was not the sense intended. The discussion of "major appurtenances" and other appurtenances was by way of explanation of the percentage

chosen. KPCo had shown in its testimony that major appurtenances could be identified and removed from their pole accounts. The 15 percent was to provide for minor appurtenances not already segregated, which KPCo estimated to be 8.7 percent, plus an allowance for anchors, likewise not segregated, and for which the Commission allows a specific charge.

We have clarified the Order on this point, and have specified that for electric utilities, the 15 percent should be deducted from the sum of the appropriate sub-accounts of FERC Form 1, Account 364, thereby excluding "major appurtenances."

3. KPCo asks who should bear the cost of changes made necessary by utility operations occurring after the CATV connection has been made. Since CATV operators are to be utility customers, changes occurring because of the utility's system requirements should be borne by the system as a whole, just as the cost of changes arising because of CATV system requirements are borne by CATV.

4. KPCo objects that the Order provides no incentive for the CATV operator to report all attachments. Under the provisions of the August 12, 1982, Order, the maximum penalty would be for two years' charges.

We have modified the Order to allow tariff provisions requiring payment of double the fee that would otherwise be paid, and likewise requiring that the charges imposed for necessary "make-ready" work on poles with unauthorized attachments be

double the amount that would have been due for attachments timely reported and authorized. We find that the usual provisions for termination of service for violation of PSC regulations are not appropriate as a possible penalty in this situation, since the CATV customers might suffer as much as the defaulting operator.

E. Kentucky Cable Television Association's Motion for Rehearing and/or Reconsideration

1(a). The CATV operators asked for clarification, as did KPCo, as to the eletric utility accounts from which 15 percent is deducted to arrive at bare pole costs. This has been done as set forth above in section D-2. REA-borrowing electric utilities not reporting to FERC should follow a parallel methodology. Also, CATV requested clarification of the treatment of grounds, which has been covered in section C-1 of this Appendix.

1(b). CATV's second argument concerns the length of two- and three-party poles upon which average investment is based. This point is addressed in section C-2 of this Appendix. Further, the Commission considered but did not adopt the results of CATV's survey, which was contradicted by other evidence in the record, inluding that of one of CATV's own witnesses.

1(c). CATV's argument that the utilities' estimates of how many two-party and three-party poles have CATV attachments might be biased is disposed of by the addition of a provision that such estimates, when replaced by a physical inventory, are to be corrected by retroactive billing adjustments.

2. CATV argues that the Commission must specify accounts to be used in arriving at annual carrying charges.

We have modified the Order to provide that the Uniform System of Accounts will be utilized. The Commission will review the tariff filings and documentation submitted for adequacy and conformance to the principles set forth in the Order.

3(a). CATV argues that a 20-foot minimum grade clearance is contrary to the evidence; however, the Order is based on averages, i.e., an average grade clearance established for calculation of "usable space." We are aware there are clearance requirements other than 18 foot, but determined that 20 foot would best approximate the overall average in order to meet NESC requirements. CATV's survey, relied on in its Motion, did not report on NESC safety clearances.

3(b). CATV states that the Commission determined that electric utilities do not use any of the 40-inch safety space. That is an incorrect reading of the Order. The Commission "traded-off" the occasional use of a portion of the safety space with the sometime use of the top foot of electric poles by including the entire top foot and excluding the safety space (for purpose of calculations). Also, CATV's assertion that street lights are located in the safety space and produce utility revenues were taken into account. This use is not general, and testimony in the record indicates that it is often not revenue-producing, but an expense, when providing free street lights is a condition of the utilities' franchise with the cities.

3(c). CATV asserts that its survey data should be used to determine "average pole sizes." This is the same argument made by CATV in Item 1(b) of its Petition, and is responded to in this Appendix.

4. CATV argues that the Commission erred in using current costs for conduit investment. We stand by the Order. Once a section of conduit has reached maximum fill, it is not as easily "changed-out" to a larger size as are poles. Conduit is generally installed under city streets and sidewalks, and replacements or additions thereto are quite troublesome and expensive. Therefore, it is more reasonable to charge current costs for conduit than to charge current costs for poles.

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Duke DR 1-8:

Please provide any and all studies, analysis, and presentations that Ms. Kravtin has created or publicly made within the last three years that involve utility regulation, ratemaking, cost of service, or use of riders that are discussed in Ms. Kravtin's testimony.

Response: KBCA objects to this request because it is unduly burdensome and disproportionate to the needs of the case. KBCA further objects to the extent this information is equally available to Duke Energy.

Subject to its objections, KBCA responds that the source documents and workpapers discussed in Ms. Kravtin's testimony are cited in her testimony and are publicly available. As a courtesy, KBCA has attached to these responses a white paper submitted by Ms. Kravtin to the FCC on September 2, 2020. *See* Exhibit 4 to these responses; Kravtin Testimony at 3.

Witness: Patricia Kravtin

EXHIBIT 4

The Economic Case for a More Cost Causative Approach to Make-Ready Charges Associated with Pole Replacement in Unserved/Rural Areas:

Long Overdue, But Particularly Critical Now in Light of the Pressing Need to Close the Digital Divide

By Patricia D. Kravtin*

September 2, 2020

* This report has been underwritten by Charter Communications, Inc. The opinions and viewpoints expressed are those of the author alone.

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Executive Summary

Pole attachments are a necessary and largely unavoidable input to the production of broadband internet services in the United States. Broadband providers face little, and in many cases, no practical alternative to attaching their broadband facilities to the poles of incumbent pole owners, most often the local electric utility. Utility dominance of pole facilities arose as a result of public policies whose goal was to establish the widespread availability of electric and phone service, along with the growth and stability of those industries. Early on, lawmakers and municipal officials recognized the essential nature of electricity and telephone services and enacted policies to encourage utilities to build, own, and maintain ubiquitous pole networks within their service areas. Cable operators and other providers of communications and broadband services were never expected to build parallel pole plant for the delivery of their services. Rather, public policies have historically relied on the use of economic regulation to ensure access to these ubiquitous utility-owned pole facilities by cable operators and other communications companies to provide services to users. And rather than rely on the regulated monopoly model that was deemed necessary in the utility pole attachment context, Congress and the FCC have sought to promote facilities-based competition in the provision of communications services.

Thus, given that poles are, in economic terms, "essential" or "bottleneck" facilities that serve as a critical input to the production of communication services, the goal of pole attachment regulation, historically and continuing today, is to prevent utility pole owners from leveraging their monopoly power over attachers by imposing unjust and unreasonable rates, terms, and conditions on attacher access to utility poles. In this vein, the effective regulation of pole attachment recurring rates and nonrecurring charges is a surrogate for competitive market forces and strives for economically efficient allocations of resources and favorable market entry conditions. Included in that regulatory sphere are the formulation and imposition of non-recurring charges for "make-ready" activities, such as the replacement of utility poles.

However, the make-ready charges of many if not most pole owners subject to the jurisdiction of the Federal Communications Commission ("Commission" or "FCC") under Section 224 of the Communications Act ("Section 224") are typically based on a critical yet flawed assumption: that all of the make-ready activities undertaken and associated costs incurred by the pole owner immediately after a request for a new attachment were in fact *caused* by that request,

rather than by underlying utility operations and needs independent of the new attachment. In particular, when utility poles are replaced as a part of make-ready activities, new attachers are often assessed the fully-loaded costs of the pole replacement, even though that project produced a facility improvement with joint economic value to both the utility *and* the attacher, with the lion's share of that betterment value accruing to the utility. If the attacher assents to the imposition of these charges (typically offered by the utility on a "take it or leave it" basis) in order to obtain pole attachment space, the utility and its core utility service customers receive a new utility pole without any corresponding cost responsibility. As explained in detail below, this prevailing practice is at odds with the economic principles of cost causation, economic efficiency, and social welfare maximization.

In the parlance of social welfare economics, economists define efficiency as an optimal state where it is impossible to improve the economic situation of one party without making another worse off. This is *not* the same as saying that the utility's cash position and account balances should be restored to their pre-request levels by the attacher. Rather, what it means in an economic sense is that the utility should be indifferent between its overall economic position before the request (with its existing facilities) and its overall economic position after the request (with the new facilities), because the attacher has compensated it for all of the replacement costs that did not provide the utility with corresponding economic betterment value. The proper economic calculus, that is, one designed to achieve maximum allocative and productive efficiencies, takes into account the totality of all economic costs and benefits (including cost savings) to the respective parties.

The Commission's rules seek to guide pole owners and attachers towards this efficient state by ensuring that all parties that directly benefit or gain from the modification share proportionately in the cost of that modification, commensurate with that benefit or gain. Thus, both economics and regulation point towards the same outcomes here—efficiency and marginal cost pricing—the outcomes that would occur if the market for pole attachment space was a well-functioning competitive marketplace (which it is not).

The approach to pole replacement make-ready cost allocation outlined in the petition filed in this docket by NCTA – The Internet & Television Association ("NCTA petition") is consistent

with these key economic principles.[1] The NCTA petition recognizes that the replacement of poles is an inevitable or unavoidable cost to the utility that would occur in the normal course of utility operations independent of the existence of the third-party attacher. Every year utilities must replace poles on account of pole failure or destruction, storm hardening, or due to routine capital replacement activities. While long-lived, no pole lasts forever and recent requirements for greater pole resiliency in many instances are hastening the utility's pole replacement plans, such that an increasing number of poles are being replaced before the end of their average service lives.

Consistent with economic theory, then, pole replacements are a long-term fact of life for utilities, and the inevitable need for the replacement of any given pole is a 'but for' consequence of the *pole owner's core utility service* and *not* of a new attacher's request. Those requests merely change the *timing* of the pole's eventual replacement. Thus, the NCTA approach sensibly assigns the costs of that temporal shift to the attacher. These are mainly in the form of the remaining (yet to be depreciated) net book value of the retired pole, plus any proven additional unique incremental costs traceable to the attacher and not the utility's normal course of operations. When properly considered, the attachment request is a deviation from the pole owner's otherwise-applicable pole replacement schedule and practices, and should not be viewed in total isolation from it for purposes of make-ready cost responsibility. The NCTA petition correctly recognizes the appropriate economic frame of reference for determining whether the costs associated with a pole replacement are properly considered avoidable by the utility (and hence an incremental or "but for" cost to the utility attributable to the attacher) must be informed by a dynamic time frame sufficiently long enough to factor in the utility's own replacement program and also the economic gains or utility "betterment" bestowed upon the utility as a consequence of pole replacements.

When viewed from the proper, long-term perspective that utilities themselves take in assessing capital investment decisions, and given that most of the value of a utility pole comes in its usefulness to core *utility* service operations, NCTA's approach avoids cross-subsidies and inefficiencies in make-ready charges. The NCTA approach can also be easily administered. In general, the economic standard for achieving an optimal, economically efficient market outcome—one governed by cost causation principles and the absence of cross-subsidy—is that the utility will

[1] NCTA – The Internet & Television Association, *Petition for Expedited Declaratory Ruling*, FCC WC Docket No. 17-84 (filed Jul. 16, 2020), *available at* https://www.fcc.gov/ecfs/filing/107161552527661 ("NCTA Petition").

be no worse off in real terms after hosting a pole attachment than it was prior to the attachment request. The NCTA petition's approach would achieve that outcome by ensuring that pole owners are compensated for the marginal costs of the pole replacement associated with the new attachment request, net of the betterment that the pole owner receives.

As a practical matter, given that recurring rates based on fully allocated costs are not at issue in the petition and will continue to compensate pole owners well in excess of the minimum levels required by law, there is little to no risk that pole owners will face any cost recovery shortfall problems as a result of granting the NCTA petition. Given the pressing need to close the digital divide, there is much more risk to society from the windfall recovery built into utilities' current inefficient make-ready cost allocation practices, due to the market distortions and disincentives to invest in broadband infrastructure, especially in unserved areas, that those practices create. Granting the petition thus aligns utility practice to sound economic principles and promotes broadband deployment in unserved areas.

Part I: The Economic Principles of Efficiency, Cost Causation and Cost Allocation

A. Key Economic Principles Guiding the Effective Regulation of Pole Attachment Costs and Maximization of Overall Societal Welfare

The primary purpose of pole attachment regulation, both historically and today, is to protect cable operators and other third-party communications attachers against potential abuse by pole-owning utilities. Utilities not only provide regulated services over their own existing network facilities; they also control access to a vital, often unavoidable input of production needed to provide broadband and other critical communications services. Pole-owning utilities, by virtue of historical incumbency and preexisting network facilities, own and control pole plant to which third-party communications providers often have no practical or economically viable alternative but to attach.

Pole attachment regulation by and under Section 224 follows from this first principle, and recognizes that cable and other third-party communications and broadband providers were never expected to build their own parallel pole plant. Rather, public policies have historically relied on the use of economic regulation to ensure communication companies have access to these ubiquitous utility-owned pole facilities under just and reasonable rates, terms, and conditions in order to provide their services to end users. Following the passage of the Telecommunications Act of 1996, access to poles and just and reasonable rates was also an essential element of promoting the development and expansion of facilities-based competition within the communications market.

That poles and conduits are "essential facilities" capable of serving as bottlenecks to third-party communications providers (and, by extension, competition among providers) has long been recognized in regulatory economic literature and by the Commission, state and local regulatory bodies, and the courts.[2] This reality has been a major factor in rulings by these bodies as to the

[2] *See NCTA v. Gulf Power*, 534 U.S. 327, 330 (2002):

> Since the inception of cable television, cable companies have sought the means to run a wire into the home of each subscriber. They have found it convenient, and often essential, to lease space for their cables on telephone and electric utility poles. Utilities, in turn, have found it convenient to charge monopoly rents.

This point was also explicitly recognized by the Eleventh Circuit in its *APCo* decision:

> As the owner of these 'essential facilities,' the power companies had superior bargaining power, which spurred Congress to intervene in 1978.

Alabama Power v. FCC, 311 F.3d 1357, 1362 (11th Cir. 2002) ("*Alabama Power*" or "*APCo*").

continued appropriateness of applying the cable rate formula to determine recurring rates applicable to pole attachments.[3] While the 'essential facility' doctrine is most often cited in the context of the Commission's recurring rate formula, it also applies in equal force to make-ready charges, which are the other component of cost recovery afforded utilities under the Commission's pole attachment rules. It is those make-ready charges that NCTA's petition brings before the Commission in this docket.

Where a utility has control over an essential or bottleneck facility like poles, left unchecked by regulation the utility may condition access to these essential bottleneck facilities on the extraction of excessive monopoly rents from would-be attachers. As a historical matter, and as Congress has recognized, third-party communications attachers have had, and continue to have, little (if any) realistic choice *but* to rent space on the existing local network of utility poles and conduits.[4] Given growing utility interest in entering the broadband market to compete with attachers,[5] pole-owning utilities today have an even greater incentive to use their control over

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The legislative history of the Communications Act Amendments of 1978 further confirms this point. The Senate Report accompanying the legislation cited a Staff Report by the Commission's Office of Plans and Policy which found that "public utilities by virtue of their size and exclusive control over access to pole lines, are unquestionably in a position to extract monopoly rents from cable TV systems in the form of unreasonably high pole attachment rates." *Communications Act Amendments—Penalties and Forfeitures Authority and Regulation of Cable Television Pole Attachments by the Federal Communications Commission*, S. Rep. No. 95-580 at 13 (Nov. 2, 1977) (citation omitted), *reprinted in* 1978 U.S.C.C.A.N. 109, 121.

[3] At bottom, it was the lack of viable market-based alternatives for pole and conduit space that led Congress in the Telecommunications Act of 1996 ("the Act") to extend protections previously afforded cable operators under Section 224 of the Communications Act to new telecommunications providers, and also to require utilities to provide non-discriminatory access to these essential pole and conduit facilities for both cable operators and telecommunications carriers. See Pub. L. 104-104, Title VII, § 703, Feb. 8, 1996, 110 Stat. 149, *codified at* 47 U.S.C. § 224 (1996). As the legislative history and language in the Act suggests, in expanding the Commission's jurisdiction over poles and conduit to telecommunications service providers, Congress wanted these entities, like the cable television companies before them, to have nondiscriminatory access to utilities' bottleneck facilities without having to pay monopoly rents. See *id.* at § 703(2), (7) (adding reference to "provider of telecommunications service," and imposing nondiscriminatory access obligation alongside existing just and reasonable rate provisions), *codified at* 47 U.S.C. § 224(a)(4), (f) (1996).

[4] S. Rep. No. 95-580 at 13 (1977):

> Owing to a variety of factors, including environmental or zoning restrictions and the costs of creating separate CATV poles or entrenching CATV cables underground, there is often no practical alternative to a CATV system operator except to utilize available space on existing poles.

[5] Electric providers have increasingly begun to offer broadband service alongside their traditional electric utility operations. Several investor-owned utilities serving rural areas have shown interest in providing broadband. See Dominion Energy, *Broadband Feasibility Report* (Dec. 1, 2018), *available at* https://rga.lis.virginia.gov/Published/2019/RD281/PDF. State legislatures and state agencies have also given serious thought to the idea of electric providers adding broadband to their service offerings. Vermont Department of Public Service, *Feasibility Study of Electric Companies Offering Broadband in Vermont* (Dec. 2019), *available at* https://legislature.vermont.gov/assets/Legislative-Reports/Feasibility-Study-of-Electric-Companies-Offering-Broadband-in-Vermont.pdf; see also Indiana Senate Bill 411 (passed Senate Jan. 28, 2020) (proposing study of the installation and leasing of broadband capacity infrastructure by investor-owned electric utilities in unserved and underserved areas), *available at* http://iga.in.gov/

bottleneck pole facilities to impose high costs of entry on potential competitors. These monopoly rents—well in excess of an efficient level—effectively place the pole-owning utility in a gatekeeper role, particularly as it pertains to unserved rural areas.

Under established economic principles, that efficient level is a price approximating marginal costs: the outcome that would result naturally under competitive market conditions for pole attachments, if such conditions existed (which they do not). As a general matter, in a competitive market, entry barriers are low; there are a multitude of sellers, and no individual seller is large enough to control prices or sustain price increases much in excess of a normal level of compensation for use of their productive capacity (*i.e.*, a level that would induce entry by other sellers). This is the case in either a production input market (*e.g.*, that for pole attachment space) or in a final product market (*e.g.*, the market for broadband and other communications services). At prices much greater than marginal costs, entry would be induced, resulting in an increase in supply and prices bid back down close to the incremental or marginal costs of production.[6] Marginal cost pricing, by contrast, ensures fair compensation to utilities while avoiding inflated costs in the final product market (in this case, the market for broadband and other communications services) that would inevitably be passed through to consumers. The competitive market outcome is associated with the realization of a number of desirable performance attributes: these include increased infrastructure investment, innovation, more widespread service deployment, and the offering of a greater array of advanced, high quality service offerings to consumers and at lower rates.

Because there is not a "free" or generally open production input market for pole attachment space, the function of rate regulation in that market is to mimic competition to the extent possible under the circumstances and promote economic efficiency despite the natural limitations of the

legislative/2020/bills/senate/411. Although not subject to the Commission's jurisdiction, the strong interest shown by electric cooperatives in providing broadband services in rural America is indicative of utility pole owners controlling access to essential pole facilities needed by communications providers to provide services in these unserved areas. See, e.g., Kit Carson Electric Cooperative, "Kit Carson Internet" at 7 in 2018 Annual Report (accessed Aug. 3, 2020), *available at* https://kitcarson.com/wp-content/uploads/2019/06/2018-Annual-Report-.pdf; Nat'l Rural Elec. Cooperative Ass'n, *Broadband Case Study: Show-Me Power Electric Cooperative* (Sept. 2019), *available at* https://www.cooperative.com/programs-services/bts/Documents/Advisories/Advisory-Broadband-Case-Study-Sho-Me-September-2019.pdf; Otsego Electric Cooperative, "Broadband Project Update" (Nov. 14, 2017), *available at* https://www.otsegoec.coop/broadband-project-update.

[6] See Walter Nicholson, Christopher M. Snyder, *Microeconomic Theory: Basic Principles and Extensions* at 418-20 (12th ed.; Cengage Learning 2016) (explaining attraction of new firms and their effect on prices and economic profits).

input market. And when regulators fail to strive towards efficient prices in regulated input markets, that failure leads to a number of undesirable outcomes. Prices well in excess of the competitive level have a distorting impact on market outcomes by suppressing both the supply of and demand for the final good or service (*e.g.*, broadband and other communications services) to inefficient levels. As expanded upon below, these market distortions diminish overall economic societal welfare, and are *especially* detrimental in unserved/rural areas characterized by intrinsically high costs per subscriber, in direct contravention of public policy goals. From an economic social welfare perspective, there is economic value to society associated with the efficient use of resources. By contrast, there is an economic loss to society associated with inefficient market outcomes, and avoidable inefficiencies result when pole-owning utilities are permitted to exercise market power in the pricing of make-ready charges for pole replacements, the concern raised in the NCTA petition.[7]

From a social welfare economics perspective, efficient pricing practices promote the best possible utilization of resources. As discussed later in this paper, the NCTA petition explains that clarifying make-ready pricing practices applicable to pole replacements would ensure that these practices better align those prices to the true cost-causative, unavoidable costs incurred by the utility in connection with the attacher's request: those associated with the deviation from the otherwise-applicable pole replacement plans that the utility otherwise would have followed. This would conform make-ready pricing for replacement poles to the Commission's pricing principles as applied in other make-ready situations. Present utility pricing practices that shift to the attacher the utility's total loaded cost of new poles—regardless of the utility's endogenously-determined replacement program, for which the primary cost driver is the provision of the utility's core electric service—result in far less than optimal outcomes especially in unserved areas.

The gap between the pole attachment make-ready replacement costs currently demanded by utilities from attachers and those that would result from more efficient, marginal cost pricing is not just a theoretical, chalkboard problem. This mispricing engenders very negative real-world consequences. There are significant harms to the consuming public and overall societal welfare when pole attachment costs substantially deviate from socially optimal levels as defined in accordance with established, objective economic principles. Given the essential facility nature of

[7] See NCTA Petition at 8, 16-17.

pole attachments and in the absence of a well-functioning market for pole attachment space, pole-owning utilities have no incentive to lower make-ready charges closer to their efficient marginal cost levels—as explained below, the monopoly rents accrue to the utility, at the expense of broadband subscribers (including the utility's own ratepayers) and society more generally.[8] Marginal cost pricing, however, would still fairly compensate the utility while promoting efficiency.

As a surrogate for the naturally occurring economic forces at play in a competitive market, effective economic regulation ideally would aim to better allocate resources so as to achieve allocative and productive efficiencies in the final product market for broadband service as well, *i.e.*, overall utility-maximizing levels of investment in, supply of, and demand for broadband services. In doing so, it would yield benefits to consumers and avoid "deadweight" efficiency losses to society—a loss of value to consumers that is over and above the increase in monopoly profits directly associated with higher-than-competitive prices.[9] Skillful regulatory intervention is especially critical in unserved/rural areas where the negative impacts of market distortions are magnified by inherently challenging structural market conditions, and that intervention is all the more necessary in light of the pressing need to close the digital divide.

B. Application of Economic Efficiency Principles to Make-Ready Charges as Applied to Third-Party Attachers for Pole Replacements

One extremely important economic insight highlighted by the NCTA petition is that in applying 'cost causation' economic logic to the make-ready context the activities or costs in question are not solely determined by temporal proximity—the pole-owning utility's costs must be viewed from a long-term dynamic, systemic perspective in order to understand their relation to marginal cost and economic efficiency. In other words, to properly apply the "but for" or "avoidable cost" principle of cost causation to make-ready charges a regulator should not assume that all the activities or costs incurred immediately after a request for a new attachment is made

[8] While economists may disagree on many things, there is perhaps one central tenet upon which there is solid agreement, and that is the notion that rates that recover the marginal costs of production (but not more) are economically efficient and subsidy-free. See, e.g., Paul A. Samuelson, *Economics: Tenth Edition* at 462-63 (McGraw-Hill Book Co., 1976); Bridger M. Mitchell, "Costs and Cross-Subsidies in Telecommunications, "The Changing Nature of Telecommunications Infrastructure," National Academy Press, Washington, DC, 1995; *Alabama Power*, 311 F.3d at 1369-70.

[9] See Nicholson and Snyder, *Microeconomic Theory*, *supra* note 6 at 498-500 (explaining deadweight loss effects of monopolization and misallocation of resources).

were in fact caused by that request. Yet this is a condition implicitly assumed in the current manner that utilities—largely in the absence of regulatory oversight—are applying that principle to make-ready charges associated with pole replacements.

As a general matter, utilities do not take a long-term perspective in assessing what proportion of make-ready costs for pole replacements would have occurred anyway at some future date in the absence of a request. An appropriate application of the underlying economic principle of cost causation to make-ready charges would take into consideration the time frame within which the utility would have replaced the pole anyway, and a regulator informed by that proper application would apportion incremental or "but for" costs as between the utility and attacher in light of that understanding.[10]

It is in this key context that the NCTA petition correctly recognizes the appropriate economic frame of reference for determining whether the costs associated with a pole replacement are properly considered avoidable by the utility (and hence an incremental or "but for" cost to the utility attributable to the attacher) must be informed by a dynamic time frame sufficiently long enough to factor in the utility's own replacement program for the poles in question.[11]

That frame of reference also recognizes the economic gains or utility "betterment" bestowed upon the utility as a consequence of pole replacements. This 'betterment,' as it has been referred in the pole attachment regulatory context,[12] is the productive value enjoyed by the utility

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[10] See Nicholson and Snyder, *Microeconomic Theory*, *supra* note 7 at 348-49, 405, 747 (noting that long-run perspectives allow for more efficient, flexible supply responses and input reallocations); *id.* at 418-20 (explaining that a perfectly competitive market is one in a long-run competitive equilibrium marked by zero economic profits). Applying too short a time frame by definition locks in production constraints that prevent the realization of the most efficient outcome—inappropriately so in the case of replacement poles given the routine replacement of poles as part of normal utility operations.

[11] See NCTA Petition at 8, 18.

[12] See NCTA Petition at 10 & n.17; see also *Response of Pennsylvania Electric Company to Pole Attachment Complaint Filed by Zito Media, L.P.* at 23-24, FCC Proceeding No. 17-316, File No. EB-17-MD-006 (dated Dec. 13, 2017), *available at* https://www.fcc.gov/ecfs/filing/1214136309; *id.*, at Attachment H (Penelec email acknowledging that the cost of pole replacements associated with the utility's betterment was not to be imposed on the attacher and that Penelec had imposed such charges by mistake during the pole attachment process until identified by attacher); *Adoption of Rules for the Regulation of Cable Television Pole Attachments*, Second Report and Order, 72 F.C.C. 2d 59, at ¶ 29 (1979):

> *Non-recurring costs*. Such costs, defined in a general functional fashion, are those that are expended by the utility to prepare utility poles for CATV attachments. As indicated in the legislative history, pre-construction, survey, engineering, make-ready, and change-out (non-betterment) costs are included in additional costs but only to the extent they are out-of-pocket expenses specifically attributable to CATV attachments or facilities… In short, costs which are incurred to prepare pole plant for CTAV attachments are includible, but repairs or upgrading of the plant of other users are

from the replacement pole, which can be quite significant. As discussed later in this paper, these gains include operational benefits, strategic benefits, rate base benefits, revenue-enhancing opportunities, and a number of other cost savings/expense mitigation.

From an economic perspective, costs mitigated by one party are the mirror image of benefits received by the other party and should be treated accordingly. This means that with respect to cost causation, the costs incurred by one party to a transaction that would not exist "but for" the actions of the other should be attributed to the causing party. This also means that the gains enjoyed by one party to a transaction that would not exist "but for" the actions of the other should *also* be attributed to the causing party. In other words, the "betterment" enjoyed by the utility brought about by the replacement pole that would not exist but for the timing of the attachment request should be attributed to the attacher for economic purposes.

While the underlying economic theory is indifferent as to how these factors are precisely categorized and accounted for (*i.e.*, economic theory does not care whether betterment is thought of as an offset to the costs attributable to the attacher or recorded as a positive benefit attributable to the utility), economic theory is far from indifferent as to the necessity of *taking these factors into consideration* in determining the efficient level of cost responsibility attributed to the two parties as necessary to achieve an economic outcome that maximizes social welfare. A social welfare-maximizing economic framework examines the total effect of an action—not just who or what is *harmed* by the action, but also what was *gained* by the action.[13] While the social economic welfare literature focuses more on what it terms 'external diseconomy' situations (where there is a "fall in the value of production elsewhere for which no compensation is paid by the business" who benefits), the basic economic reasoning at issue there applies to situations like this one regarding pole replacements where an economic unit (the attacher) takes an action (the request) that results in unrecognized cost savings or gain in production capacity elsewhere that must be properly taken into account in assessing efficiency and social welfare.[14]

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not. Therefore, we believe these non-recurring costs, which are of a one-time only nature, are directly reimbursable by the CATV operator and should not constitute any component of 'additional costs' for purposes of Section 1.1409(c).

[13] See Ronald Coase, *The Problem of Social Cost*, 3 J. Law & Econ. 1, 44 (1960) ("In devising and choosing between social arrangements we should have regard for the total effect" and not just individual pieces of it).

[14] See William K. Swank, *Inverse Condemnation: the Case for Diminution in Property Value as Compensable Damage*, 28 Stan. L. Rev. 779, 791 (1976) ("Essentially an external diseconomy is a harmful effect on one or more

In the absence of detailed regulatory oversight, the calculation of make-ready charges has been largely left to the mostly unfettered discretion of the utility. In drawing up invoices for those activities, utilities have typically based their cost calculations on a myopically short time frame that excludes any consideration of offsetting gains (or mitigated costs) and treats a make-ready project as an exogenous imposition on the utility rather than a facility improvement with joint economic value to *both* the utility and the attacher. The result of this utility myopia is that high make-ready costs well in excess of the competitive level are externalized onto the attacher, on the tacit and incorrect assumption that the attacher is the only party who obtains value from the improvement. To ignore this practical economic reality, as heretofore been the case, has allowed utilities to impose excessive, inefficiently high levels of make-ready charges on attachers designed to shift the full cost responsibility of the replacement pole onto the attacher—going so far in some cases to include the costs of remedying pre-existing problems and all costs associated with replacements.[15] As discussed further below, the prevailing make-ready cost allocation practices of utilities regarding replacement poles inherently leads to a level of broadband deployment and service availability far less than desired by consumers or optimal from a social welfare economics perspective, particularly in unserved/rural areas.

In the parlance of social welfare economics, economists define efficiency as an optimal state where it is impossible to improve the economic situation of one party without making another worse off.[16] The Commission's rules seek to guide pole owners and attachers towards this efficient

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persons that emanates from the action of a different person or firm" and whose impact "is not reflected in the private cost" of the activity that causes it); see also Coase, *Social Cost*, 3 J. Law & Econ. at 40 (discussing private and social products).

[15] See, e.g., NCTA Petition at 7 n.11 (citing *Knology, Inc. v. Georgia Power Co.*, Memorandum Opinion and Order, 18 FCC Rcd. 24615, 24629-32 ¶¶ 36, 40 (2003)). I have also encountered instances where vague utility engineering standards would allow utilities to impose noticeably more stringent expectations on attachers than the otherwise applicable safety codes and engineering requirements would call for, such that attachers are placed at real risk of paying for costs that the attacher was not responsible for creating. See Testimony of Patricia Kravtin on behalf of the Ohio Cable Telecommunications Association at 58-61, *In the Matter of the Application of Duke Energy Ohio, Inc. for an Increase in Electric Distribution Rates*, Case No. 08-709-EL-AIR (Pub. Util. Comm'n of Ohio, filed Feb. 26, 2009), available at https://bit.ly/34G8h5h.

[16] In the *2011 Pole Attachment Order*, the Commission explained:

> The allocation of goods is optimal in a perfectly competitive market. That is, no buyer can be made better off by reallocating resources to produce a different mix of goods without making other buyers worse-off. *See, e.g.*, WALTER NICHOLSON, MICROECONOMIC THEORY, BASIC PRINCIPLES AND EXTENSIONS 512–13 (2d ed. 1978).

See *Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, WC Docket No. 07-245, GN Docket No. 09-51, Report and Order and Order on Reconsideration, 26 FCC Rcd. 5240, 5301, ¶ 143 & n.425 (Apr. 7, 2011) ("*2011 Pole Attachment Order*"), *aff'd sub. nom. Am. Elec. Power Serv. Corp. v. FCC*, 708 F.3d 183 (D.C. Cir. 2013) ("AEP").

state by ensuring that all parties that directly benefit or gain from the modification share proportionately in the cost of that modification, commensurate with that benefit or gain. Thus, both economics and regulation point towards the same outcomes here—efficiency and marginal cost pricing—the outcomes that would occur if the market for pole attachment space were perfectly competitive.

Refining prevailing utility make-ready cost allocation practices in the particular context of pole replacements in unserved areas to better align with underlying economic efficiency principles is the essence of what the NCTA petition is seeking to accomplish; it articulates a properly balanced, efficient allocation of costs in proportion to or commensurate with the benefits in that context by recognizing that in the majority of cases the new attacher merely advances the *timing* of a future pole replacement and should compensate the pole owner accordingly.[17]

That compensation, as grounded in economic principles, would consist of the set of additional temporally-related costs associated with the advancement of the existing pole's retirement, rather than a simple measure of the total replacement costs for the new pole. This is because the utility is the primary recipient of the value of the replacement; the utility receives the enhanced productive capacity or value of the upgraded plant (inclusive of associated cost savings). It is also because the utility, in the absence of the request, would have inevitably needed to replace that facility anyway at its own cost—the request merely made the utility deviate from its otherwise applicable pole replacement schedule.

Any movement away from the properly balanced equilibrium that the NCTA petition recommends be applied to replacement costs would lead to a cost responsibility imbalance, in a cost-causative sense, introducing inefficiencies and investment-inhibiting distortions into the marketplace. The economic standard for an optimal, economically efficient market, governed by cost causation principles and the absence of cross subsidy,[18] is that the utility should be no worse off in real terms after hosting a pole attachment than it would be prior to the attachment request. This is *not* the same as saying that the utility's cash position and account balances should be

[17] See NCTA Petition at 18, 23-24.

[18] This is essentially the same standard the Commission observes under legal just compensation principles. See *id.* at 5300, ¶ 142 & n. 421, citing to *Alabama Power*, 311 F.3d. at 1370 ("Legal precedent has established that a pole attachment rate above marginal costs provides just compensation, and marginal and incremental cost pricing can be an appropriate approach to setting regulated rates.").

restored to their pre-request levels by the attacher—what it means in an economic sense is that the utility should be indifferent between its overall economic position before the request (with its existing facilities) and its overall economic position after the request (with the new facilities) because the attacher has compensated it for all of the replacement costs that did not provide the utility with corresponding economic betterment value.

The proper economic calculus (that is, one designed to achieve allocative and productive efficiencies and the maximization of overall societal welfare) takes into account the totality of all economic costs and benefits (including cost savings) to the respective parties, as measured in a properly balanced manner and across the appropriate time frame. These costs and benefits include:

- both recurring and nonrecurring charges paid by the attacher;
- the intrinsic nature of the avoidable costs causally linked to the attacher (*i.e.*, the temporal costs of deviating (shifting forward) the inevitable retirement/replacement of the existing pole that otherwise would have ensued in the normal course of utility operations); and,
- the real economic gains or betterment value the utility enjoys from the replacement pole.

In sum, as long as charges paid by the attacher—including both recurring and non-recurring charges—fully compensate the utility for the true cost causative set of costs as described above, the utility is made whole. By contrast, if the utility charges new attachers the total replacement costs of a new pole facility (without taking into account the corresponding betterment), it will be made *better off* by avoiding a cost that it would otherwise be responsible for in the future. Not only is that additional cost alleviation not required, societal welfare is decidedly worse off if the attacher is assigned a cost responsibility in excess of its efficient proportionate share, because the utility's excess pricing of the pole attachment input will lead to the ultimate mispricing and availability of the attacher's broadband service. These pricing and other associated market distortions work to the detriment of the consuming public, and especially in areas of unmet demand, with no offsetting gains to overall societal welfare.

C. The Principle of Cost Causation, Embraced by the Commission Pursuant to Section 224 Pole Regulation as Well as in Other Cost Allocations Contexts, Is Grounded in Economic Efficiency

As described above, the concepts of marginal cost pricing and economic efficiency are inextricably tied and have a long and established tradition in the regulation of public utilities, where due to the natural monopoly nature of utilities,[19] the market cannot be relied upon to provide an efficient allocation of societal resources. To obtain desirable efficient outcomes, price regulation must serve a proxy role for competitive market forces. This role is further magnified for pole attachments given they are essential facilities for which the utility has the opportunity and incentive to price in excess of the efficient, competitive level.

In serving in this capacity, regulators, including this Commission, have developed economic cost allocation tools for translating the theoretical marginal cost standard into practical, implementable cost allocation practices and guidelines, building on a rich body of public utility regulation literature.[20] Under the cost causation principle, costs are assigned to the entities deemed causally responsible—*i.e.*, the entities but for whose existence or action a cost could have been avoided. The most prominent of these tools is the concept referred to as the principle of "cost causation." As described by the Commission:

> That is to say, prices based on cost causation principles enable an allocation or mix of goods to be produced that buyers desire and are willing to pay for and so are socially efficient and enable an efficient firm to recover its costs.[21]

The principle of cost causation has played a front and center role in the FCC's implementation of Section 224 pole rate regulation over the past four decades since the passage of the Pole Attachment Act of 1978, and in particular, in applying the just and reasonable standard to rate setting primarily in the context of recurring rates, but also in connection with make-ready charges consistent with the Act.[22] In applying the cost causation standard to other terms and

[19] Utility distribution networks including poles are a classic case of what economists refer to as a "natural monopoly," meaning "economies of scale are so persistent that a single firm can serve the market at a lower unit cost than two or more firms." See F.M. Scherer, *Industrial Market Structure and Economic Performance* at 482 (Rand McNally, Chicago, 1980).

[20] See, e.g., J.C. Bonbright, *Principles of Public Utility Rates*, Columbia University Press, 1961.

[21] See *2011 Pole Attachment Order*, 26 FCC Rcd. at 5301 ¶ 143 n.425.

[22] See *id.* at 5322 ¶ 185 n.572 (providing that parties "can seek Commission review of make-ready charges to the extent that they believe such charges are unjust or unreasonable," and an "attacher [is] responsible only for [the] cost of work made necessary because of its attachments.").

conditions of access, such as those relating to rearrangement or replacement of facilities, Section 224(i) establishes that a third-party attacher to a pole "shall not be required to bear any of the costs" in connection with an activity "sought by any other entity (including the owner of such pole, duct, conduit, or right-of-way)."[23]

These concepts have also been relied on by the FCC in other regulatory contexts, as well, including its Part 64 rules governing the allocation of costs between regulated and non-regulated activities of the utility. These rules were specifically designed to prevent the cross-subsidization of non-regulated activities, but have general applicability, and have been frequently applied to a wide range of regulatory cost applications. Pursuant to the Part 64 rules, carriers are instructed to assign costs directly to the originator or cost causing unit whenever possible. Carriers are further instructed to allocate indirect costs or common costs that cannot be directly assigned "based upon an indirect, cost causative linkage to another cost category…for which a direct assignment or allocation is available."[24] These well-established cost allocation guidelines as applied by the Commission are designed to produce efficient, subsidy-free rates. To this end, they expressly prohibit the inclusion of costs directly attributable to another such entity or activity.

As applied in the pole attachments context, the cost causation principle requires identification of costs having a strong, direct causal linkage to pole attachments and pole attachment requests, to be distinguished from those costs whose principal driver is the provision of the pole owner's core service (most typically electric service). Once those amounts are identified, the next step is to assign a reasonable proportionate share of cost responsibility to the

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[23] 47 U.S.C. § 224(i).

[24] See 47 C.F.R. § 64.901(b)(2)-(3) (Allocation of Costs):

> (2) Costs shall be directly assigned to either regulated or nonregulated activities whenever possible.
>
> (3) Costs which cannot be directly assigned to either regulated or nonregulated activities will be described as common costs. Common costs shall be grouped into homogeneous cost categories designed to facilitate the proper allocation of costs between a carrier's regulated and nonregulated activities. Each cost category shall be allocated between regulated and nonregulated activities in accordance with the following hierarchy:
>
> (i) Whenever possible, common cost categories are to be allocated based upon direct analysis of the origin of the cost themselves.
>
> (ii) When direct analysis is not possible, common cost categories shall be allocated based upon an indirect, cost causative linkage to another cost category (or group of cost categories) for which a direct assignment or allocation is available.
>
> (iii) When neither direct nor indirect measures of cost allocation can be found, the cost category shall be allocated based upon a general allocator computed by using the ratio of all expenses directly assigned or attributed to regulated and nonregulated activities.

attacher for the former but to exclude the latter, as the responsibility of the utility and for which the utility receives compensatory cost recovery under its public utility traditional cost-of-service/rate base regulatory process in another forum. Any costs that are necessary and unavoidable in the provision of the utility's core service (most typically electric service) are properly borne by the utility or its ratepayers. This process recognizes the fundamental point that the utility's network was primarily built and maintained to provide the core utility service, and the cost structure of that service is in many respects separate and distinct from the utility's role as a pole attachment space provider. Rates that allow the core utility service activities to shift onto pole attachment activities an inefficiently high proportionate share of cost responsibility will produce detrimental, market distorting impacts in the downstream broadband and electricity retail markets. Congress recognized this proportionate or 'relative use' allocation issue in its design of the cable rate formula the 1970s:

> This allocation formula reflects the concept of relative use of the entire facility. To the extent that a pole is used for a particular service in greater proportion than it is used for another service, the relative costs of that pole are reflected proportionately in the costs of furnishing the service which has the greater amount of use.[25]

The legislative history indicates a similar economic philosophy and intent regarding make-ready charges, which were addressed by the Commission in one of its earliest pole orders in 1987.[26] The Commission cited to comments referencing the specific findings in the 1977 Senate Report about the apportionment of costs "in those instances where it may be necessary for the utility to replace an existing pole with a larger facility in order to accommodate the CATV user"—specifically the finding that "it would be appropriate to charge the CATV user a certain percentage of these pole 'change-out' replacement costs," sometimes referred to as the "'nonbetterment costs,'" reflecting the costs caused by the CATV attacher, in other words, those costs that were "arising solely by virtue of the CATV occupation of space within the communications space on the pole."[27] Congress thus viewed nonbetterment costs as the attacher's responsibility, a sound economic conclusion.

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[25] S. Rep. No. 95-580 at 20.
[26] See *In the Matter of Amendment of Rules and Policies Governing the Attachment of Cable Television Hardware to Utility Poles*, Report and Order, 2 FCC Rcd. 4387, 4397 ¶ 74 (Jul. 23, 1987), CC Docket No. 86-212 ("*1987 Report and Order*").
[27] S. Rep. No. 95-580 at 19.

Conversely, under this same reasoning, the proportion of pole replacement costs that *do* pertain to the 'betterment' of the utility (even if the pole attachment precipitated the replacement) is appropriately assigned to the utility. While the Commission declined in the 1987 Order to "adopt any substantive guidelines as to which terms or conditions may warrant a deduction or the quantification of any such deduction," it specifically took note of this particular Senate finding as one of "a number of terms and conditions [that] have been brought to our attention which should be given close scrutiny in individual complaint cases."[28]

Accordingly, under the cost causation principle and as Congress recognized, isolating the true nonbetterment costs is critically important, as the principal cost driver for pole costs is the utility's provision of its core service (most typically electric service), and thus the utility and its electric customers must bear the lion's share of the costs of the pole. In many different contexts the Commission has recognized this point, including with respect to operating and maintenance expenses,[29] capital investment costs,[30] and in connection with the 2011[31] and 2015[32] updates to

[28] *1987 Report and Order*, 2 FCC Rcd. at 4397 ¶ 74.

[29] With regard to operating and maintenance expenses, the Commission in its 2001 Reconsideration Order reiterated its rejection to requests by utility petitioners to include certain operating and maintenance-related expenses other than those booked to Account 593 for overhead lines (*i.e.*, expenses booked to FERC accounts 580 and 590), "because the costs or expenses reported to these accounts do not reflect a sufficient nexus to the operating expenses and actual capital costs of the utility attributable to the pole or conduit attachment." See *FCC Consolidated Partial Order on Reconsideration*, CS Docket 97-98/CS Docket 97-151, FCC 01-170, May 25, 2001 ("*FCC Recon. Order*") at ¶¶ 116-117, 119.

[30] With regard to capital investment costs, the Commission rejected inclusion of certain capital investment costs noting "the accounts suggested by petitioners include capital expenditures which support the utility's core business function and are not related to the pole costs." See *id.* at ¶ 123. While the Commission in this specific context was referring to embedded investment accounts other than those booked to account 364 for poles that utilities were seeking to add into the recurring rate formula, the Commission's application of the cost causation principle in finding these costs demonstrated to "support the utility's core business function" be allocated to the utility bears directly on the appropriateness of allocating to the utility an appropriate proportionate share of new replacement poles in recognition of their primary use in support of the utility's core business function and benefits to the utility as advanced in the NCTA petition.

[31] In its 2011 pole proceeding, citing extensively to cost causation principles as basis for its findings, see *2011 Pole Attachment Order*, 26 FCC Rcd. at 5301 ¶¶ 143-144, the Commission introduced and applied specific urban and rural proportionate cost factors (.66 and .44, respectively) to the old Telecom rate formula so that the formula approximated the rate derived under the proportionate use Cable formula, *i.e.*, "generally will recover a portion of the pole costs that is equal to the portion of costs recovered in the cable rate." See *id*. at 5305 ¶ 151. The Commission also introduced an alternative formula that excludes capital costs from the carrying charge component of the rate calculation consistent with cost causation principles and that was described as a lower bound rate. In practice, as was recognized at the time by the Commission, the alternative formula could produce a rate higher or lower than the statutory formula incorporating both capital and operating costs, and the Commission's rules allow the utility to base recurring telecom rates at the higher of the two cost causative telecom alternatives. See *id.* at 5299-5306, ¶¶ 138-152.

[32] See *In the Matter of Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, Order on Reconsideration, 30 FCC Rcd. 13731 at ¶ 1 (Nov. 24, 2015) (WC Docket No. 07-245, GN Docket No. 09-51) (*2015 Order on Reconsideration*). In its 2015 *Order on Reconsideration*, issued in Response to a Petition from NCTA, COMPTEL, and tw telecom, inc., the Commission further revised its previously adopted fixed factors to allow these

the Telecom rate formula. As articulated by the Commission, the policies adopted in its 2011 and 2015 decisions were designed "to improve efficiency, reduce potentially excessive costs of network deployment and accelerate broadband buildout, and eliminate the wide disparity between the telecom and cable formulas."[33]

While the FCC's embrace of cost causation principles has been more memorialized in the context of the recurring rate formula which has been the subject of numerous rulemakings, investigations and complaint proceedings over the past forty years of rate regulation, from an economic perspective, those principles apply in equal force to make-ready charges. Indeed, in its 2011 Pole Order adopting the significant reforms to the Telecom rate detailed above, the Commission made direct connections between "its existing approach in the make-ready context" to the application of cost causation principles defined by the Commission "if a customer is causally responsible for the incurrence of a cost, then that customer—the cost causer—pays a rate that covers this cost."[34]

D. The Economic and Social Stakes of Inefficiently High Pole Attachment Costs, Including Make-Ready Charges, Are Very Great, Particularly in Unserved Areas

As widely acknowledged, both by this Commission and other regulatory bodies nationwide, pole attachments are a vital input needed for the delivery of new, advanced broadband services and applications. For the reasons explained above, setting rates for pole attachments at economically efficient levels creates a market environment that accurately reflects the economic tradeoffs inherent in broadband infrastructure investment. More monopolistic pricing of pole

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factors to vary in order to bring the Telecom formula into better cost causative alignment with the proportionate-based cable rate formula, noting rates produced by the revised Telecom formula as much as 70 percent higher than cable rates. See *id.*at ¶ 3. These further revisions were also expressly motivated by the Commission's desire to incent the deployment of broadband infrastructure especially in rural areas, with the Commission noting its concern that subjecting cable operators to higher, inefficient pole attachment rates merely because they "also provide telecommunications services including broadband Internet access could defer investment…which would undermine the Commission's broadband deployment policy," particularly in rural areas. See *id.*at ¶ 4. ("We additionally act to support incentives for deployment of broadband facilities, particularly in rural areas.").

[33] See *2015 Order on Reconsideration*, 30 FCC Rcd. 13731 at ¶ 1; see also *2011 Pole Attachment Order*, 26 FCC Rcd. at 5303-04, ¶147:

> In addition to reducing barriers to the provision of new services, reducing the telecom rate can expand opportunities for communications network investment, as discussed in greater detail below. … We thus conclude that lowering the telecom rates will better enable providers to compete on a level playing field, will eliminate distortions in end-user choices between technologies, and lead to provider behavior being driven more by underlying economic costs than arbitrary price differentials.

[34] See *2011 Pole Attachment Order*, 26 FCC Rcd. at 5301, ¶143.

attachments inefficiently discourages broadband investment, and sacrifices the gains that could and would be achieved from that investment if efficient pricing practices were observed.

Conforming pole replacement pricing practices to economic principles in unserved areas as clarified in the NCTA petition makes much more economic and public policy sense than current, more monopolistic practices. Widespread availability of broadband services at affordable prices is well recognized as essential to the economic and overall well-being of a community. Broadband connectivity at affordable prices is essential for numerous aspects of modern life including health, education, public safety, recreation and culture, commerce, and government, both in the pre-COVID environment and especially now. Accurate pricing of access to broadband bottleneck facilities like poles ensures that these important goals are fairly weighed in investment decisions and broadband deployment is not inefficiently discouraged.

As the Commission has recognized, the need for broadband connectivity in everyday life is particularly acute in less populated areas where other underlying economic factors make broadband services deployment more costly, *i.e.*, where lower population densities result in higher construction costs per capita and fewer subscribers over which to spread high fixed costs. These are all points the Commission first emphasized in its National Broadband Report, but has repeatedly reinforced across a wide range of rulings over the past decade, including in its 2011 Pole Order.[35] Allowing the monopoly pole owners to charge cable operators and other broadband services providers non-recurring charges well in excess of an economically efficient level, perhaps more obviously than any other regulatory policy, will serve to impede private investment that would otherwise expand broadband services in unserved and underserved regions of this country.

[35] See Federal Communications Commission, *Connecting America: The National Broadband Plan* at 110-111 (Mar. 17, 2010) (Recommendation 6.1), available at https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf; see also *2011 Pole Attachment Order*, 26 FCC Rcd. at 5298 ¶ 135, 5305, ¶ 150 (adopting differential cost factors for rural versus urban areas, specifically noting the need to mitigate the increased burden of high pole attachment rates on broadband deployment in rural areas):

> Given the operation of section 224(e), using the same definition of cost in both types of areas would increase the burden pole attachment rates pose for providers of broadband and other communications services in non-urban areas, as compared with urban areas. Such an outcome would be problematic given the increased challenges already faced in non-urban areas, where cost characteristics can be different and where the availability of, and competition for, broadband services tends to be less today than in urban areas. By defining cost in non-urban areas as 44 percent of the fully allocated costs we largely mitigated that concern…

To the extent broadband providers are able to flow through the higher monopolistic-level pole access costs in selected markets, it will have the effect of raising the cost of broadband and other advance service offerings, thereby reducing the ability of consumers (who include the electric utilities' ratepayers) to afford and enjoy the widely-acknowledged economic and social benefits of affordable access to broadband services in today's information age economy. As a general proposition, and particularly in less populated areas, many poles can be required to serve an individual subscriber, such that the price charged per pole attachment can have a very significant impact on the cost to serve any one broadband subscriber.

The societal and economic development benefits of advanced broadband services are well established,[36] and were a driving force behind reducing and harmonizing pole attachment costs across providers and across the country.[37] Similarly, in the 2015 Open Internet Order, the

[36] Research has shown that "the main dividing lines for [broadband] access are along socioeconomic dimensions such as income and education," thus expanding access helps benefit those with fewer socioeconomic advantages. See John B. Horrigan, *Broadband Adoption and Use in America*, FCC Omnibus Broadband Initiative Working Paper Series No. 1 at 3 (Feb. 2010), *available at* https://transition.fcc.gov/national-broadband-plan/broadband-adoption-in-america-paper.pdf.

Expanding broadband access facilitates the greater availability of telemedicine and distance education, increased service sector productivity, and more telework opportunities. Peter Stenberg et al., *Broadband Internet's Value for Rural America*, U.S. Dept. of Agriculture Economic Research Service Report No. 78 at 23-27 (Aug. 2009), available at https://ageconsearch.umn.edu/record/55944/. Studies have also indicated that broadband availability has a positive association with employment growth and nonfarm private earnings. See *id.* at 39. Congress is well aware of this connection between broadband service and economic development, finding that expanding broadband facilitates "enhanced economic development and public safety for communities across the Nation, improved health care and educational opportunities, and a better quality of life for all Americans." 47 U.S.C. § 1301(1).

State policymakers and task forces also recognize that expanding broadband connectivity and access in rural areas yields important benefits and is a key economic development strategy. See, e.g., West Virginia Broadband Enhancement Council, *West Virginia State Broadband Plan 2020-2025* at 2 (Dec. 31, 2019), *available at* https://broadband.wv.gov/wp-content/uploads/2020/01/West_Virginia_State_Broadband_Plan_2020-2025.pdf; Executive Order 01.01.2017.14, "Office of Rural Broadband," State of Maryland (issued Jun. 27, 2017), *available at* https://content.govdelivery.com/attachments/MDGOV/2017/06/28/file_attachments/838894/EO%2B01.01.2014.14.pdf; Department of Commerce and Consumer Affairs, State of Hawaii, *Hawaii Broadband Strategic Plan* at 98-99 (Dec. 2012), available at http://cca.hawaii.gov/broadband/files/2015/01/Hawaii_Broadband_Strategic_Plan_Dec_2012.pdf.

[37] These points are emphasized in the FCC's 2010 National Broadband Plan, which recommended rates for pole attachments be set as low and as close to uniform as possible (in the vicinity of the current Cable Rate) to support the goal of broadband deployment, and particularly in less densely populated or rural areas where the "impact of these rates can be particularly acute." *National Broadband Plan*, *supra* note 35 at 110; see also *2011 Pole Attachment Order*, 26 FCC Rcd. at 5298, ¶ 135; *Protecting and Promoting the Open Internet*, Report & Order on Remand, Declaratory Ruling, & Order, GN Docket No. 14-28, 30 FCC Rcd. 5601, 5831, ¶ 478 (Apr. 3, 2015) ("*2015 Open Internet Order*"), *abrogated on other grounds by* 33 FCC Rcd. 311 (2018):

The Commission has recognized repeatedly the importance of pole attachments to the deployment of communications networks, and we thus conclude that applying these provisions will help ensure just and reasonable rates for broadband Internet access service by continuing pole access and thereby limiting the input costs that broadband providers otherwise would need to incur.

Commission described the "'virtuous cycle' that drives innovation and investment on the Internet," referring specifically to "broadband providers invested $212 billion in the three years following adoption of the [Open Internet] rules—from 2011 to 2013—more than in any three year period since 2002."[38]

Policies that encourage investment in broadband make good economic sense generally, but especially in unserved areas, as a way of lifting those areas, many of which are depressed financially, out of poverty given the opportunities that affordable access to high quality broadband service affords. The longer these areas lack affordable access, the further behind they fall vis-à-vis other areas of the country, and the cycle of poverty and lack of economic opportunity becomes harder to break. Moreover, there is strong empirical evidence that broadband serves as a key driver of economic growth with significant multiplier effects across economic sectors.

According to research compiled by Internet 2, a non-profit consortium of research and education entities, a 10 percent increase in broadband penetration is associated with up to a 1.5 percent increase in annual per-capita growth, as measured by gross domestic product ("GDP").[39] Research undertaken by the World Bank and the Public Policy Institute of California further supports the direct association between broadband expansion and positive economic growth indicators including employment growth, job creation, retail sale and tax revenues.[40] Another study conducted by the Brookings Institution that "estimated that a one percentage point increase in broadband penetration would lead to 'an increase of about 300,000 jobs' for the U.S. economy as a whole."[41] A White House Council of Economic Advisors study concluded that broadband access correlates to higher employment rates, especially in rural communities, and that job seekers

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And FCC Chairman Pai recently declared that: "[t]o bring the benefits of the digital age to all Americans, the FCC needs to make it easier for companies to build and expand broadband networks. We need to reduce the cost of broadband deployment, and we need to eliminate unnecessary rules that slow down or deter deployment." *Infrastructure Month at the FCC*, FCC Blog (Mar. 30, 2017), *available at* https://www.fcc.gov/news-events/blog/2017/03/30/infrastructure-month-fcc.

[38] *2015 Open Internet Order*, 30 FCC Rcd. at 5603, ¶ 2.

[39] See Internet 2, *Proposals for Building Our Broadband Future* at 3 n.3 (2017), available at Internet2.edu/media/medialibrary/2017/02/01/Broadband-Policy-Paper-020117.pdf, (citing Martin Cave, *Spectrum and the Wider Economy* at 7 (2015); Nina Czernich et al., *Broadband Infrastructure and Economic Growth* at 1 (CESifo Working Paper No. 2861, 2009)).

[40] See *id.* at nn.3-4 (citing Christine Zhen-Wei Qiang, et al., *Economic Impacts of Broadband*, in *Information and Communications for Development* at 39, 44-45 (World Bank Group, 2009); Jed Kolko, Public Policy Institute of California, *Does Broadband Boost Local Economic Development* at 22-28 (2010)).

[41] See *id.* at 3 & n.5 (citing Robert Crandall et al., Brookings Institution, The Effects of Broadband Deployment on Output and Employment: A Cross-Sectional Analysis of U.S. Data at 2 (2007)).

who can search for jobs online were re-employed 25 percent faster.[42] That study "also found that 30 million Americans used library internet access to conduct job searches, submit job applications, and engage in job-related training."[43]

Conversely, the lack of broadband access at affordable prices is associated negatively in connection with these same economic growth indicators and multiplier affects across a community. These empirical associations serve to reinforce the critical role that effective pole attachment regulation can play in bringing down the costs of the vital pole input necessary for broadband expansion, including those pertaining to make-ready for pole replacements, to more efficient, cost causative, just and reasonable levels as outlined in the NCTA petition.

[42] See *id.* at 3 & n.6 (citing Council of Economic Advisors, "The Digital Divide and Economic Benefits of Broadband Access" (Mar. 2016), available at https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160308_broadband_cea_issue_brief.pdf.).

[43] See *id.* at 3.

Part II: The Critical Need to Conform Make-Ready Charges for Pole Replacements to Efficient, Just and Reasonable, Broadband-Promoting Levels Particularly in Unserved Areas

In response to the NCTA petition, the Commission can better conform make-ready charges for the costs of pole replacement in unserved/rural areas to economic cost causation principles and achieve a more efficient path forward for rural broadband deployment where broadband providers can deliver great societal benefit to unserved customers, yet face a host of other challenges. Make-ready charges raise the same efficiency and market distortion concerns, and pose similar questions as to how best to proportion cost responsibility between the pole owner and an attacher in an economically fair, balanced, just and reasonable manner as have arisen and been addressed by the Commission in connection with the recurring rates in 2011 and 2015. The Commission's purpose in adopting those policies was to promote the "overarching goal to accelerate deployment of broadband by removing barriers to infrastructure investment" particularly in rural areas, which it found best achieved "[b]y keeping pole attachment rates unified and low."[44] The same opportunity is also available here in connection with make-ready charges for pole replacements.

A. Current Utility Practices Regarding Pole Replacement Cost Allocations Are Inefficient, Allocating to Attachers a Disproportionately High, Unjust and Unreasonable Percentage of Costs that Would Be Inevitably Incurred by the Utility

Today, when a request for a new pole attachment by a third-party attacher is deemed by the pole owner to necessitate the changeout or replacement of an existing utility pole and/or the rearrangements of wires on the poles, communications attachers are often required to make substantial payments to pole owners in the form of make-ready charges to the utility. These charges are typically based on the fully loaded cost of labor and materials to install a new pole, as well as the costs to remove the existing pole, as determined by the utility at its own discretion, and typically on a take it or leave it basis.[45]

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[44] See *2015 Order on Reconsideration*, 30 FCC Rcd. 13731 at ¶ 4; see also *2011 Pole Attachment Order*, 26 FCC Rcd. at 5243-44 ¶ 8, 5303 ¶ 146.

[45] See *Crown Castle Fiber LLC v. Commonwealth Edison Co.*, Complaint at ¶ 64, FCC Docket EB 19-169 (filed Jun. 19, 2019), *available at* https://www.fcc.gov/ecfs/filing/106190301602914:

> "As of April 30, 2019, ComEd had sent Crown Castle invoices alleging that the cost to replace the 862 red tagged poles for fiber attachments is $11,625,206" or an average make-ready charge of approximately $13,500 per replacement pole.

Because utilities set make-ready charges in the general absence of regulatory scrutiny, utilities have both the incentive and opportunity to set make-ready charges at levels that recover more than an economically efficient or cost causative attribution of cost. Under current rules, attachers may be charged make-ready fees for a pole change-out that the utility would have made in the absence of the cable attachment either at the present or some prospective date in the near to immediate future, or the cable company may be charged costs in excess of those actually incurred due to the attachment, especially after all the loadings are applied.

A third-party attacher has effectively no practical, feasible alternative to paying the make-ready charges: the alternatives of going underground is often prohibitively high, and as is well established, the building of a duplicative network of poles simply not feasible. In theory and in practice, the utility as monopoly owner of the pole network has extraordinary leverage over the attacher. High make-ready fees meet the classic industrial organization textbook definition of a barrier to entry,[46] and attachers' real-life experience bears that out.[47]

See also *Fiber Technologies Networks, L.L.C. v. Baltimore Gas and Electric Co.*, Complaint at ¶¶ 42-44, FCC Docket No. EB-14-MD-006 (filed Apr. 10, 2014) (describing initial pole replacement cost estimate for 157 poles of $3,931,000 (or $25,038/pole) and a revised estimate for 105 poles of $1,682,000 (or $16,019/pole)). By comparison, bare wood pole costs for the average joint use pole have been estimated in the range of $400 to $700 new. See Michelle Connolly, *The Economic Impact of Section 224 Exemption of Municipal and Cooperative Poles*, July 12, 2019, submitted by NCTA Re: Broadband Deployment Advisory Committee, GN Docket No. 17-83, Wireline Infrastructure, WC Docket No. 17-84, Wireless Infrastructure, WT Docket No. 17-79, at 9 & n.13.

[46] See Joe S. Bain, *Barriers to New Competition* (Cambridge, Mass.: Harvard University Press, 1965); see also George J. Stigler, *The Organization of Industry* (Homewood, Il.: Richard D. Irwin,1968); C.C. von Weizsacker, "A Welfare Analysis of Barriers to Entry," *The Bell Journal of Economics* (Autumn 1980); W. Kip Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust* at 159 (2d Ed., The MIT Press, Cambridge, Mass., 1995).

[47] Overstated and high make-ready fees inhibit the provision of telecommunications services by interposing an economic barrier to entry and conferring competitive disadvantage, not unlike the kind of entry barriers that in other contexts the Commission has found inconsistent with competition and efficiency. See *In the Matter of Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, FCC 18-111, 33 FCC Rcd. 7705, 7788 ¶ 162 & n.594 (Aug. 3, 2018) ("*Third Wireline Deployment Order*") ("We exercise that authority in this Declaratory Ruling to make clear that express and de facto moratoria violate Section 253(a) as legal requirements that 'prohibit or have the effect of prohibiting' the provision of telecommunications service."); see also *In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment; Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, Declaratory Ruling and Third Report and Order, FCC 18-133, 33 FCC Rcd. 9088, 9102 ¶ 35 (Sept. 27, 2018) (WT Docket No. 17-79; WC Docket No. 17-84), *petition granted in part on other grounds*, 2020 WL 4669906 (9th Cir., Aug. 12, 2020):

> In this Declaratory Ruling, we first reaffirm, as our definitive interpretation of the effective prohibition standard, the test we set forth in *California Payphone*, namely, that a state or local legal requirement constitutes an effective prohibition if it 'materially limits or inhibits the ability of any competitor or potential competitor to compete in a fair and balanced legal and regulatory environment.' We then explain how this "material inhibition" standard applies in the context of state and local fees and aesthetic requirements. In doing so, we confirm the First, Second, and Tenth

As typically calculated by utilities, these make-ready charges seek to shift 100% of the total cost responsibility of the pole replacement from the utility onto the attacher (including removal and disposal cost of the old pole, purchase price and installation cost of the new pole, and cost to transfer utility facilities to the new pole)—notwithstanding: (1) the pole would be replaced by the utility over the normal course of operations to meet the utility's own operational needs to meet growth, in response to damage or other exogenous events, as part of the utility's normal and routine cyclical capital asset replacement program tied to the average service life of the asset, or on an even more accelerated basis in conjunction with the increasing number of pole resiliency and hardening programs nationwide; and (2) the numerous cost savings, revenue enhancements, and other benefits enjoyed by the utility as a result of the earlier pole replacement associated with the hosting of a new third-party attachment.[48]

As described in the first section of this report, economic efficiency is maximized when pricing more closely approximates marginal costs. When costs are allocated at levels greater than those truly avoidable following the objective, economic principles described above, there is a shifting of resources away from an economically efficient outcome and less than optimal supply of and demand for the good or service in question ensues to the detriment of consumers and overall societal welfare. The problem at hand, as articulated in the NCTA petition, is the current inefficient pricing practice of pole owners with respect to make-ready charges for pole replacement cost that seek to shift 100% of the total cost responsibility of the pole replacement onto third-party attachers.

The current pricing practice with regard to make-ready for pole replacements is inefficient, first and foremost, because it fails to take into consideration the utility's disproportionate share of the economic gains from that replacement in the form of "betterment" directly attributable to the new attacher request. The crux of the problem is the utility's myopic framing of the cost allocation calculus based on the shortest of short-run time frames, *i.e.*, the static point of time of the

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> Circuits' understanding that under this analytical framework, a legal requirement can "materially inhibit" the provision of services even if it is not an insurmountable barrier.

See also, e.g., *In the Matter of California Payphone Association Petition for Preemption of Ordinance No. 576 NS of the City of Huntington Park, California Pursuant to Section 253(d) of the Communications Act of 1934*, Memorandum Opinion and Order, FCC 97-25, 12 FCC Rcd. 14191, 14206 ¶ 31, 14210 ¶ 42 (Jul. 17, 1997) (CCBPol 96-26) ("In making this determination, we consider whether the Ordinance materially inhibits or limits the ability of any competitor or potential competitor to compete in a fair and balanced legal and regulatory environment.").

[48] See discussion below at pages 34-36.

attachment request. Applying an appropriate time frame more aligned with the service life of the asset brings the aforementioned "betterment" factors attributable to the attachment request into the economic calculus consistent with fundamental principles of economic efficiency and social welfare maximization, either as realizable "benefits" or offsetting "cost savings" to the pole owner.

Tying the definition of a just and reasonable cost to a more economically appropriate, dynamic timeframe would causally attribute to the attacher a more limiting set of costs reflecting the true unavoidable costs incurred by the utility consistent with the economic reality of poles—namely the additional temporal costs incurred by the utility that are causally linked to the attacher's precipitation of the pole replacement. Current practice attributes the total costs of the replacement pole, despite the economic reality that the small subset of poles subject to early replacement in connection with the third-party attachment request would be replaced in due course, independent of the existence of the attacher, as part of the utility's core service operations—albeit at a prospective date.

As an economic matter, the ultimate replacement of the pole by the utility is an inevitable event. The event could occur at a later point in time either toward the end of the asset's service life in response to the natural obsolescence or wear and tear or degradation of the pole over time, or precipitated much earlier, but it could also occur close to contemporaneously with the attachment request.[49] Other precipitating factors unrelated to the new attachment request that

[49] See, e.g., before the New York State Public Service Commission Niagara Mohawk Power Corporation d/b/a National Grid *Proceeding On Motion Of The Commission As To The Rates, Charges, Rules And Regulations Of Niagara Mohawk Power Corporation For Electric And Gas Service* Testimony and Exhibits of: Electric Infrastructure and Operations Panel Exhibit (EIOP-19), 376 – 684: September 2011 Asset Condition Report, Book 31 at I-1 (submitted Apr. 2012) (emphasis added):

> *The purpose of evaluating the condition of assets is to determine those assets whose condition necessitates their replacement before their performance negatively impacts our ability to provide safe and adequate service.* Additionally, an asset's useful service life may include several considerations, including: the safe operation of equipment, obsolescence, and the inability of an asset to operate as designed. Notably, some elements of the T&D system were installed nearly a century ago and, based upon industry knowledge and experience; certain classes of assets are at or past the end of their projected useful service life. While age is not dispositive of the condition of an asset, it is often used to parse the population of assets to identify areas where condition may be a concern. Similarly, while it is not necessarily the case that every asset should be replaced at the end of its projected service life, in some cases the relative age of National Grid's T&D facilities (i.e., power transformers) increases the likelihood that an element will fail when stressed. Thus, an asset's projected service life is sometimes used to identify assets requiring further engineering analysis and, in asset planning, it is a factor that can help predict the volume of assets that will require replacement in the future.

See also *id.* at I-4 ("Typically 2%-4% of poles inspected are identified as needing replacement. This equates to over 6,000 poles identified per year as requiring replacement and these replacements are scheduled within a three year horizon"); *id.* at II-16 (emphasis added):

would result in the near or immediate term would include the replacement of poles due to damage from natural occurring acts of nature such as storm or wildfire damage or accidents, or as part of increasingly common pole resiliency or hardening programs as approved or mandated by a state regulatory authority,[50] or in connection with a utility-initiated smart grid[51] or modernization program.[52]

Condition and Performance Issues: National Grid inspects and treats the ground line of wood poles and structures on a 10 year cycle. In addition, routine visual inspections of the entire structure are conducted once every five years. Wood poles and structures that fail to meet the requirements of the NESC are classified as 'rejects.' Severely deteriorated wood poles and structures are classified as 'priority rejects.' In general, reject poles and structures have two-thirds or less of their original design strength. The greatest risk from reject poles and structures is the likelihood of failure during severe weather conditions. Failures can hamper service restoration efforts, increase outage durations and raise public safety concerns. Priority reject poles and structures potentially can fail during 'normal' weather conditions. For this type of reject pole, the residual strength may be below one-third of its original design strength. *It is important to replace these poles and structures expeditiously as the safety and reliability risks from priority rejects are significant.*"

[50] See, e.g., *Application of the Connecticut Light and Power Company d/b/a Eversource Energy to Amend its Rate Schedules*, Pre-filed testimony of Kenneth B. Bowes at 38 (Conn. Pub. Util. Reg. Auth. Docket No. 17-10-46, submitted Nov. 22, 2017) (stating that in addition to replacing shorter poles with stronger taller poles, the company is installing "cross-arms made of stronger, man-made composite materials rather than wood"); *Application of the Connecticut Light and Power Company for Approval of its System Resiliency Plan — Expanded Plan*, Decision at 2, 7, 8 (Conn. Pub. Util. Reg. Auth. Docket No. 12-07-06RE01, June 3, 2015); Public Service Electric and Gas Co., *Energy Strong II Program Filing*, Docket Nos. EO18060629 and GO18060630, Direct Testimony of Edward F. Gray, Attachment 2 at 23, 25 (N.J. BPU, filed June 8, 2018) (outlining, as part of larger safety, reliability, and resiliency efforts, a subprogram that would replace approximately 7,100 poles along 450 miles of circuits, specifically targeting "smaller diameter poles that are greater than 30 years of age" and other "aged facilities"), available at https://nj.pseg.com/aboutpseg/regulatorypage/-/media/6DCDE89354844F93975C0DA2D98825C6.ashx.

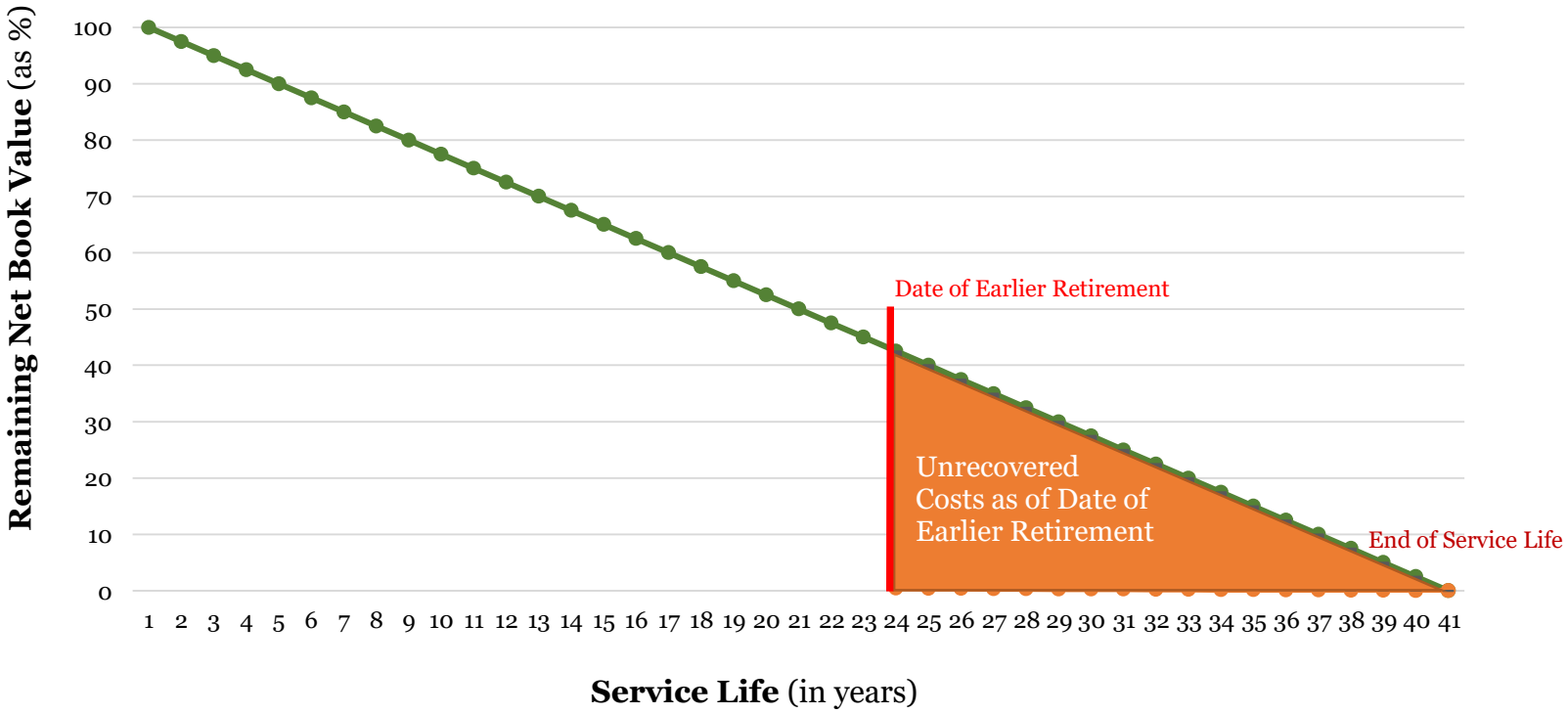
[51] See, e.g., *Before the Public Utilities Commission of Ohio, Case Nos. 16-481-EL-UNC, 17-2436-EL-UNC, 18-1604-EL-UNC, 18-1656-EL-ATA*, Stipulation and Recommendation at 2 (Nov. 9, 2018) ("…the stipulation provides for electric distribution grid modernization initiatives that will improve system reliability, enable faster restoration of services after outages, improve voltage conditions on the distribution system, allow customers to make more informed choices about energy usage, facilitate access to customer data by authorized competitive retail electric service providers, and better enable the Companies to make future electric distribution grid modernization investments").

[52] See, e.g., *Before the Public Utilities Commission of the State of California, SDG&E (U 902 M), 2019 General Rate Case, A.17-10007/008*, Exhibit SDG&E-14-R, Direct Testimony of Alan F. Colton (Electric Distribution Capital) at AFC-85 (Dec. 2017) ("The plan spans 27 years, prioritized by the replacement of 4kV substation and circuits of the highest risk, as determined by various operational factors, and measured as a ratio of enterprise benefits to cost. This budget incorporates mitigation of potential safety risks identified through RAMP in the early years of the program. Construction will include but not be limited to *changing poles, cross-arms,* conductors, insulators, transformers, switches, pad-mounted equipment, subsurface structures, and other equipment to accommodate modern 12kV construction with advanced distribution automation and volt-var control (e.g., conservation voltage reduction [CVR] capabilities" (emphasis added)); Florida Power & Light Company, *2020-2029 Storm Protection Plan*, Exhibit MJ-1 at 7-8, 10 (Fla. P.S.C. Docket No. 20200071-EI, filed Apr. 13, 2020) (describing FPL's "eight-year pole inspection cycle for all wood distribution poles" and that FPL inspects approximately 150,000 poles every year), available at http://www.psc.state.fl.us/library/filings/2020/01913-2020/01913-2020.pdf; *id.* at 10 ("FPL's Commission-approved distribution pole inspection program has facilitated the replacement and/or strengthening of over 140,000 distribution poles since it was first implemented in 2006 and has directly improved and will continue to improve the overall health and storm resiliency of its distribution pole population."); *id.* at 11 (reporting annual average pole program costs of between $51-$61 million).

Under generally accepted accounting principles, utilities are allowed for tax and regulatory purposes to write down the cost of their assets over the assets' average service lives in recognition of the loss in service value due to the "consumption" or prospective retirement of the asset over time by virtue of "wear and tear" and/or the natural obsolescence of the plant in the course of service as the plant matures in age. Accordingly, asset values decline over time as depreciation expense (an accounting allocation/accrual, not an actual cash outlay of the utility) is recognized in each period and accumulated on the books of the utility as the asset approaches the end of its normal useful service life to the utility. From a cost-causation perspective, there is no net impact on the utility's depreciation accrual due to pole attachments. Both the original purchase of the pole asset, its consumption over time, and its replacement are driven by the utility's *provision of core service*, be it electric (or telephone) service.

As shown in **Figure 1** below, the younger the pole subject to replacement in connection with an attachment request (compared to the pole's average service life), the higher the net

Figure 1:
Remaining Net Book Value of Plant Over Life of Asset



investment value[53] remaining on the utility's books that would be left unrecovered or "stranded" due to the earlier-than-planned retirement. Conversely, for poles closer to the end of their average service life, the lower the existing net book value of the replaced pole remaining on the utility's books that would be left unrecovered. **Figure 1** above represents this portion of unrecovered costs as the area under the curve as of the date of the earlier retirement, showing the costs that would otherwise have been recovered from utility customers and attachers in the later or out-years of the life of the asset.

In general, poles are long-lived assets, with average service lives ranging from 25 to 50 years, if not longer.[54] There is evidence to suggest that many utilities deferred pole replacement activities, with the result that many poles in current utility inventory are past their normal service lives.[55] This may have led to a number of aggressive pole replacement/upgrade programs around the country that now aim to replace aging plant and to meet the current and growing needs of core electricity operations. Trends in electric utility pole investment booked to Account 364 for Poles, Towers, and Fixtures, in recent years confirm dramatic increases in that account over and above regional construction cost trends. These trends are illustrated in **Figure 2** below.[56] Again, from a cost causative perspective, the growth trends in Account 364 are driven by the utility's provision of its core electric service and the growing requirements to provide a robust and resilient primary

[53] Defined for purposes of this example as the gross plant value less accumulated depreciation. Simple straight-line depreciation is used in this example.

[54] Utility poles often last for several decades, but like any other physical utility plant must eventually be replaced due to sudden damage or routine degradation. See NCTA Petition at 6 & n.9 (noting utility data suggesting an average service life for poles of around 44-50 years); Pacific Gas and Electric Co., "Facts about PG&E Pole Management and Maintenance" (Nov. 8, 2017) ("Poles in PG&E's service area average 39 years of age"), *available at* https://www.pgecurrents.com/2017/11/08/facts-about-pge-pole-management-and-maintenance/; Florida Power & Light Company, *2020-2029 Storm Protection Plan* Exhibit MJ-1 at 7-8, 10 (Fla. P.S.C. Docket No. 20200071-EI, filed Apr. 13, 2020) (describing FPL's "eight-year pole inspection cycle for all wood distribution poles" and that FPL inspects approximately 150,000 poles every year), *available at* http://www.psc.state.fl.us/library/filings/2020/01913-2020/01913-2020.pdf.

[55] See, e.g., NCTA Petition at 6 & n.9 (citing study of Los Angeles Dept. of Water and Power finding "that 30 percent of poles [are] already beyond their 65-year service life and in need of replacement"); Los Angeles Dept. of Water and Power, *LADWP 2018-19 Power Infrastructure Plan* at 4 (Oct. 2019) (chart showing that "the majority of LADWP poles were installed in the 1940s through the 1960s" meaning that "[o]ver 65% of poles are at least 50 years old"), available at https://www.ladwpnews.com/ladwp-2018-19-power-infrastructure-plan/.

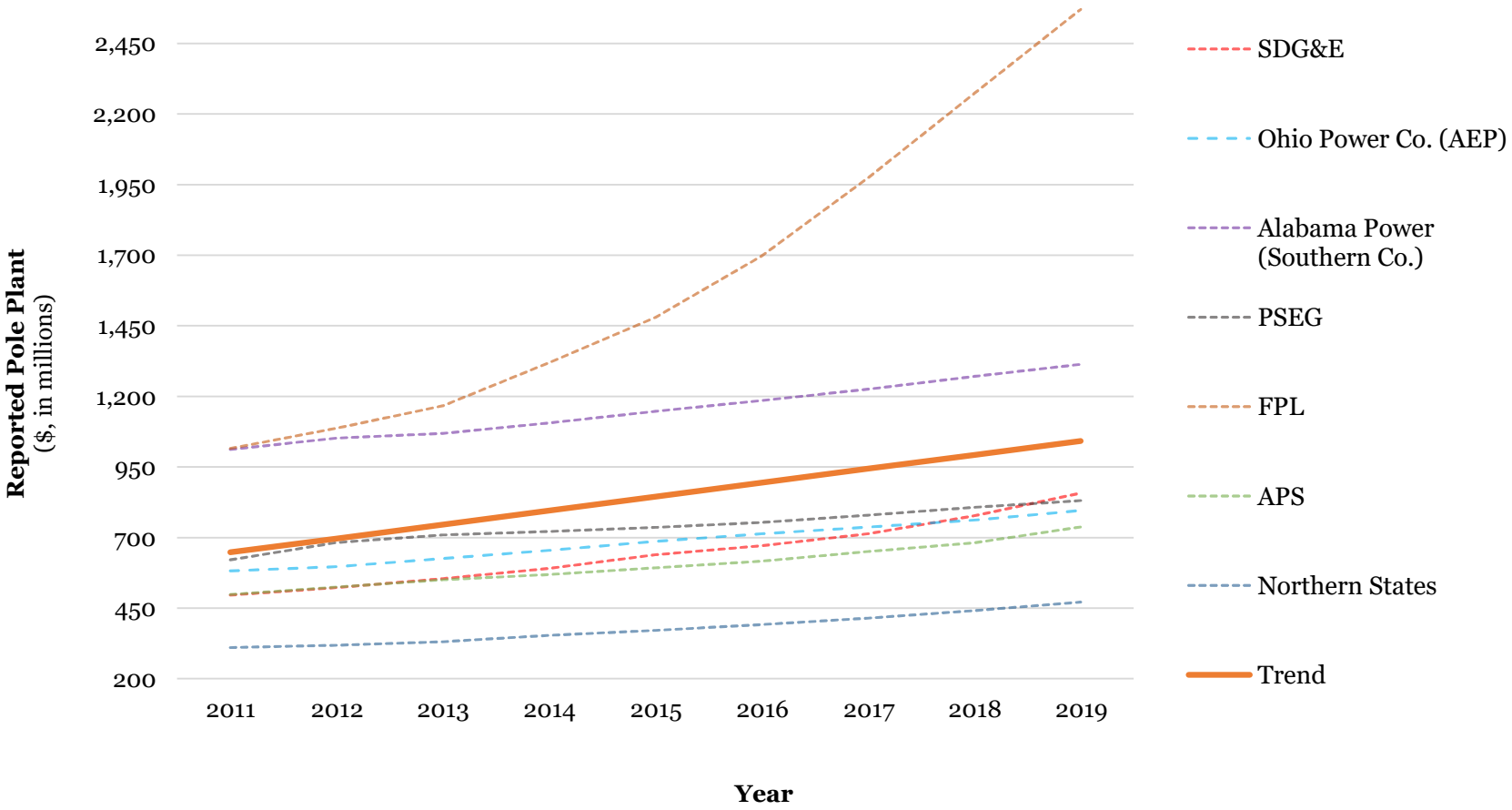
[56] As reported by the widely used region-specific Handy-Whitman Index ("HWI") of Public Utility Construction, cost trends pertaining to new pole construction costs recorded in FERC Account 364 for the period covered in Figure 2 are in the range of only 18% to 23%. All else being equal, one would expect period increases shown in Account 364 for poles to trail the HWI since the HWI relates to new construction only, whereas Account 364 reflects historic, embedded investment costs. See Handy-Whitman Index of Public Utility Construction Costs, "Cost Trends of Electric Utility Construction," Bulletin No. 177, as published by Whitman, Requardt, and Associates, LLP, 801 South Caroline Street, Baltimore, Maryland 21231; all rights reserved.

service, rather than the incidental requests for attachments by third-party communications attachers. See **Figure 2** below.

From an economic efficiency perspective, it is inefficient to allocate to the attacher a proportionate share of costs greater than those causally linked to the timing of the plant replacement due to the attacher's action, *i.e.*, the deviation from the otherwise planned or naturally-occurring retirement or replacement of the utility pole in the normal course of its operations. By charging third-party attachers make-ready amounts reflecting the full new, undepreciated cost of a replacement pole to which they seek to attach to provide service, rather than only the unrecovered portion of the utility's original booked investment remaining on its books at the time of the replacement, the utility stands to reap an economic windfall to the detriment of the attacher and the broadband market generally.

Moreover, the utility's ability to extract these windfall amounts from third-party attachers provides an additional incentive to the utility, as owner of the essential pole facility, to overstate the necessity to replace poles to accommodate third-party attachments, further exacerbating the detrimental impacts of its inefficient cost allocation and pricing practices. This incentive to do so is increasing over time due to the increased demands on utilities to upgrade and replace their aging pole infrastructure.

Figure 2
Examples of Recent Aggressive Growth in
FERC Account 364 Pole Investments



B. Current Cost Allocations for Make-Ready Fail to Account for the Substantial Offsetting Economic Gains to the Utility in the Form of Betterment and Cost Savings Properly Attributable to the Attacher in Determining Just and Reasonable Charges

A more complete and realistic look at the economics of pole replacements under established cost causation principles, as explained above, reveals that attachers merely precipitate costs that would otherwise occur at a future date even in the absence of the attachment request, and that there is economic value provided to the utility (which can be described either as benefits or cost savings) as a result of the replacement. An economic efficient method of assigning cost responsibility to attachers (*i.e.*, one focused on sending accurate price signals to economic actors) recognizes these dynamic conditions.

Although Congress, and this Commission in its 1987 Order,[57] recognized the concept of betterment/nonbetterment as it applied to make-ready cost allocations years ago, betterment concepts are often ignored in practice, despite the fact that the betterment gains to the utility from pole replacements are multifold. They include:

- Operational benefits of the replacement pole (*e.g.*, additional height, strength and resiliency) that can enhance the productive capacity of the plant to meet service quality and other regulatory mandates;
- Strategic benefits, including the ability to offer additional service offerings and enhancements of its own (*e.g.*, smart grid applications[58]) as well as broadband in competition with the attacher;
- Revenue-enhancing benefits, including enhanced rental opportunities from the increased capacity on the new replacement pole;
- Capital cost savings associated with future planned plant upgrades and cyclical replacement programs;
- Operational cost savings in the form of lower maintenance and operating expenses inherent to features of the new, upgraded/higher-class replacement pole,[59] or as a result of the earlier

[57] See S. Rep. No. 95-580 at 19; also *1987 Report and Order*, 2 FCC Rcd. at 4397 ¶ 74 ("if a utility is purportedly charging a rate based on fully allocated costs, then it should not also be charging additional fees because, by definition, fully allocated costs encompass all pole-related costs").
[58] See, e.g., *supra* note 51.
[59] See American Iron and Steel Institute, *Advantages of Steel for Utility Poles* (accessed Aug. 26, 2020) ("Maintenance: After installing steel poles, you do not have to re-tighten hardware later due to pole shrinkage. Steel retains its shape and strength and isn't susceptible to damage by woodpeckers, insects, rot, or fires. There is no expensive inspection

time shift of the removal and installation of the new pole, given the generally rising costs of labor and material over time as measured by published industry cost indices;[60] and,

- Enjoyment of additional tax savings from the accelerated depreciation of a new capital asset which reverses as the asset ages.

Importantly, the cost allocation inefficiencies identified in the NCTA Petition are somewhat unique to pole replacements and do not affect or require the Commission's consideration of most other types of make-ready projects, such as rearranging wires or installing extension arms or brackets. Pole replacements are the starkest example of utility betterment in make-ready, and also the clearest instance of an otherwise inevitable utility investment—the pole will someday need to be replaced anyway. Thus, while although other forms of make-ready may in some cases be properly classified as 100% avoidable costs from the utility's perspective, pole replacements are distinguishable for the reasons articulated in this paper.

C. Current Levels of Make-Ready Charges for Replacement Poles Are Detrimental to Broadband Deployment, Particularly in Unserved Areas, Where They Act as a Compounding Barrier to Entry

By applying cost causation principles in the myopic fashion described above, the current utility system of cost allocation for make-ready for pole replacement shifts costs onto the attacher in excess of efficient levels resulting in a number of market distorting, detrimental impacts on the final broadband product market. As laid out in the first section of this report, resources that would otherwise be used by those attaching to utility poles toward investment in broadband facilities and the provisioning of service are instead diverted toward higher pole charges paid to the utility and the concomitantly higher monopoly rents to the pole owner. This shift in resources reduces overall societal welfare by producing ultimately higher prices and the provision of less broadband services for consumers, including the utility's own ratepayers, from which they would derive significant economic benefit.

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and toxic treatment programs necessary after the installation of steel poles."), *available at* https://www.steel.org/steel-markets/utility-poles; see generally SCS Global Services, *Environmental Life Cycle Assessment of Southern Yellow Pine Wood and North American Galvanized Steel Utility Poles* (Apr. 2013), https://lineman.steel.org/-/media/files/lineman/upoles---report---steel-vs-wood-utility-pole-lca-study-executive-summary-final.ashx?la=en&hash=50B4DD42BDCDD6AE2642D071E354893A4730C116.

[60] See, e.g., the Handy-Whitman Index of Public Utility Construction Costs, "Cost Trends of Electric Utility Construction," Bulletin No. 177, as published by Whitman, Requardt, and Associates, LLP, 801 South Caroline Street, Baltimore, Maryland 21231; all rights reserved.

Put simply, there is no efficiency gain in charging make-ready costs that represent the fully loaded replacement cost of a pole to the utility; this practice generates only efficiency *losses* associated with the extraction of monopoly rents and the creation of deadweight loss to society and consumers. It results in fewer broadband infrastructure investments, reduced service availability, and higher broadband prices. Quite simply, the more dollars that attachers must pay over economically fair and efficient levels to a utility for pole replacements raises their cost of entry, puts them at an absolute and/or relative competitive disadvantage, and siphons off dollars that could otherwise be invested in broadband infrastructure.

For the reasons mentioned above, this problem is particularly acute in unserved (often rural) areas due to the generally higher number of poles required per-customer and lower population densities. In these areas, broadband providers face the compounding challenges of higher costs of entry from excess make-ready charges *and* fewer subscribers over which to spread those higher costs, making an already difficult undertaking all the more difficult.[61] Additionally, those areas tend to be pockets of lower income, such that potential subscribers will tend to be even more highly sensitive to the prices for broadband.[62]

Utilities often advance a false narrative that ascribes the prohibitively high costs of broadband entry in rural areas exclusively to the unfavorable per-unit economics associated with serving low density areas, suggesting pole attachment charges are irrelevant as barriers to entry.[63] By embracing this misconception, utilities try to absolve themselves from any responsibility for imposing excessively high pole attachment charges on broadband providers such as high make-ready costs for pole replacements. However, the economic reality is that the two go hand in hand. It is precisely because of the economics of low density, and the relatively larger number of

[61] High make-ready costs can also serve as entry barriers in unserved urban areas, but those barriers, while still important, are not compounded by low population densities.

[62] *See FCC 2015 Broadband Progress Report and Notice Of Inquiry on Immediate Action to Accelerate Deployment, GN Docket No. 14-126,* FCC 15-10, released February 4, 2015, ¶ 7, citing *infra* ¶ 95, Tbl.14. ("Americans with lower median incomes and where the poverty rate, rural population rate, and unemployment rate is higher tend to have lower broadband adoption rates."); **s**ee also Nicholson and Snyder, *Microeconomic Theory, supra* note 6 at 159, 161-162 (discussing income effects and demand elasticity); *id.* at 405 (identifying elasticity of market demand as a function of income); *id*. at 744 (defining income and substitution effects).

[63] See, e.g., NRECA (Brian O'Hara, Regulatory Director), *Rural Electric Cooperatives: Pole Attachments Policies and Issues, Broadband Deployment in Rural America Not Impeded by Pole Attachment Rate*s, updated January 2020.

poles/per subscriber that are required in rural areas, that high per pole make-ready charges can be so devastating on the business case for broadband deployment.

Sources of entry barriers need not be exclusive—they can be additive and compound preexisting problems and challenges. The higher the entry barriers facing the broadband provider in any given area, the more formidable the headwinds are against broadband deployment. Moreover, the role of make-ready charges for pole replacements as an entry barrier for broadband investment and availability are of even heightened concerns in recent years given the ever growing importance of deploying affordable broadband in rural areas highlighted in the current COVID environment and the additional incentives for utilities to exploit their monopoly power to favor their own entry into the market.

High make-ready costs well in excess of a competitive market level operate just like an inefficient tax on broadband service, except that the utility and not the government reaps the cash levy, and the large positive externalities of increased broadband adoption (including among the utility's ratepayers) are lost. Even more troubling is the fact that utilities are showing an increasing interest in entering the broadband market themselves,[64] meaning that high make-ready cost 'taxes' on attachers in some cases may be levied by a potential competitor. As is well recognized in the public regulatory and economic literature, inefficient taxes levied on a vital input introduce market distortions into both the supply and demand sides of both the intermediate (pole) input and final downstream (broadband) product market that reduce consumer welfare and create deadweight losses to society.[65] As applied to broadband, the ultimate or inevitable market outcome of the inefficient tax-like effects from excessive make-ready charges levied by utilities on broadband providers is less investment by those broadband providers, and less availability and affordability of the service to consumers—including the utility's own ratepayers.

Some might consider high-make-ready charges a useful method to contribute to or defray the rising costs of delivering electric distribution services, but that argument invites the very cost reallocation problems that lead to economic inefficiency. A monopolist is not entitled to recover "losses" from foregone monopoly rent,[66] and efficient prices promote the highest and best use of

[64] See note 5 above.
[65] See Nicholson and Snyder, *Microeconomic Theory*, *supra* note 7 at 432, 437-38 (explaining deadweight loss effects of taxes); *id.* at 499 (explaining deadweight loss, and allocational and distributional effects of monopoly).
[66] See *Alabama Power*, 311 F.3d at 1369-70.

resources, whatever they may be in each individual case. Efficient pricing properly balances the goal of promoting investment in broadband infrastructure "with the historical role that pole rental rates have played in supporting … pole infrastructure,"[67] and allows broadband deployment to occur where it makes economic sense. In those areas, several important multiplier effects of broadband on economic and social wellbeing would likely materialize as suggested by the strong empirical evidence cited above.[68]

Indeed, there are several other factors that suggest, beyond the economic logic detailed above, that siting the bulk of pole replacement cost responsibility with its primary cost driver—electric service—has proper and appropriate secondary effects:

- Pole attachment revenues (of which make-ready charges are just one component) represent, on a per electric subscriber dollar or per kilowatt hour basis, a small portion of electric utility revenues.[69] This means that conforming replacement cost charges to the Commission's cost-causation framework would have little impact on ratepayers with respect to the availability or affordability for electricity. The opposite is true for broadband, where ensuring economically fair and efficient pole attachment charges could have a significant positive impact on broadband prices.[70]

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[67] See *2015 Order on Reconsideration*, 30 FCC Rcd. 13731 at ¶ 9.

[68] See *supra* notes 39-43.

[69] See, e.g., Southern California Edison, *2021 General Rate Case before the Public Service Commission of the State of California*, SCE-02 Volume 7 at 91 (Aug. 2019) (showing 2018 pole attachment rental revenues of $6,206,000, as compared to 2018 total electric revenues of $12,796,966,537 as reported in FERC Form 1, p. 300, line 27, col (b), indicating pole attachment revenues of less than half of one percent [$6,206,000/$12,796,966,537 =.00485]); see also Public Service Company of New Hampshire, FCC Docket No. DT 12-084, Response to TW-COMCAST-01, dated 09/28/2012, Q-TW-COMCAST 006 (showing 2008 pole attachment revenues of $1,899,000, as compared to 2008 total electric revenues of $1,173,647,888 as reported in the FERC Form 1, indicating pole attachment revenues of less than 2/10ths of one percent [$1,899,000/$1,173,647,888=.00162]).

[70] See, e.g., *National Broadband Plan*, *supra* note 35 at 110 ("To support the goal of broadband deployment, rates for pole attachments should be as low and as close to uniform as possible. The rate formula for cable providers articulated in Section 224(d) has been in place for 31 years and is 'just and reasonable' and fully compensatory for utilities. Through a rulemaking, the FCC should revisit its application of the telecommunications carrier rate formula to yield rates as close as possible to the cable rate."); *id.* ("The impact of these rates can be particularly acute in rural areas, where there often are more poles per mile than households…. If the lower rates were applied, and if the cost differential in excess of $8 per month were passed on to consumers, the typical monthly price of broadband for some rural consumers could fall materially. That could have the added effect of generating an increase – possibly a significant increase – in rural broadband adoption.").

Indeed, the significant negative economic impact of high pole attachment rates such as proposed by many utilities for broadband service subscribers is magnified by the little to any offsetting value of those higher rates for residential electricity subscribers (who are also subscribers of broadband), since the impact of higher pole attachment rates on a per electric subscriber or per kilowatt hour basis is very small in contrast to the relatively large impact per broadband subscriber. Applying the analytic framework for evaluating the impact on broadband subscribers of high pole

- The demand for electric distribution service is not price sensitive—it is what economists refer to as 'inelastic' demand, meaning that even *if* the impact of pole attachment revenues per electric subscriber was significant (which it is not given the miniscule portion of total electric revenues that make-ready charges represent[71]) and even *if* it could be shown that electric rates charged by the utilities would actually go up in response to changes in pole attachment charges (which is not readily demonstrated or likely due to a host of considerations impacting the determination of a utility's cost of service and revenue requirement), subscriber demand for electricity would not be negatively impacted. If anything, subscriber demand for electricity would likely increase in connection with greater access to high quality broadband, as would their overall economic welfare.

- There is no evidence to suggest any dampening of investment in distribution plant by electric utilities has occurred in the more than four decades in which the cable rate has been the prevailing rate for third-party pole attachment rates, or in the near decade in which the Telecom formula was reformed to align with the cable rate. To the contrary, increases in Account 364 gross investment in pole plant has been steadily increased over time, if not dramatically so for some utilities. (See **Figure 2** above.) Given the relatively tiny proportion of make-ready charges to total electricity revenues, there is no reason to believe a reduction in make-ready charges would have a significant if even noticeable impact on the utility's cost of service.

- Since its inception, the utility's core electric service has been, and necessarily remains, the principal driver of its capital budgeting decisions and investment in its pole network infrastructure. Utilities' planning for the appropriate amount of pole plant of the height, type and class they deem appropriate is ultimately based on their own operational needs and in response to regulatory mandates for service quality and network resiliency.

attachments rates to data for the Public Service Company of New Hampshire showed estimated average annual impacts on broadband customers of over ten times the average annual impact on electric customers across various utility pole attachment pricing proposals. Before the Public Utilities Commission of the State of New Hampshire, *Time Warner Entertainment Company L.P. d/b/a Time Warner Cable Petition for Resolution of Dispute with Public Service Company of New Hampshire*, DT-12-084, Pre-filed Reply Testimony of Patricia D. Kravtin, dated October 31, 2012 at 14. Moreover, due to price elasticity of demand effects, as described below, even these shown impacts understate the true relative impact on broadband service subscribers versus electric distribution subscribers of higher pole attachment rates.

In sum and as a general economic proposition, there is no good purpose to be served by the current practice of make-ready charges for replacement poles well in excess of efficient levels. There are however concrete social economic welfare gains to be realized by the consuming public and overall societal welfare from the realignment of make-ready charges pertaining to replacement poles. In the economic social welfare framework, this is all the more compelling in unserved areas of the country, where broadband deployment has been recognized as an overarching goal of this Commission.

Part III: The NCTA Petition: A Fair, Efficient, Economically Principled, and Readily Administrable Solution to Existing Utility Make-Ready Cost Allocation Practices

A. The Rationale Underlying the NCTA Petition

The NCTA petition presents a thoughtful approach to pricing make-ready charges for pole replacements that is well-grounded in economics principles and readily-available data. In a nutshell, the rationale underlying the NCTA petition is to align utility cost allocation practices with underlying cost causation principles.[72] As explained earlier, the cost responsibility for a pole replaced after the receipt of a new attachment request can be shared in an economically fair and efficient manner such that the utility's economic gains (or "betterment" as it is referred to in the legislative history of Section 224) is recognized and the attacher bears the true additional cost burden imposed on the utility, *i.e.*, the incremental costs caused by the advancing of the pole replacement to an earlier date, and other proven additional "nonbetterment" portions of the replacement cost.[73] The NCTA approach recognizes that the replacement of poles is an inevitable or unavoidable cost to the utility that would occur in the normal course of utility operations in connection with the utility's own capital programs and independent of the existence of the third-party attacher, albeit at a later date.

Consistent with the underlying theory, the appropriate economic assessment under the NCTA petition for determining whether the costs associated with pole replacement are properly considered avoidable by the utility—and hence an incremental or "but for" cost to the utility attributable to the attacher—is based on a dynamic time frame sufficiently long so as to take into consideration both (1) the utility's inevitable replacement of the poles in question; and (2) the explicit recognition of the economic gains or "betterment" enjoyed by the utility in regard to the replacement pole.

In this manner, the NCTA petition ties the definition of just and reasonable make-ready charges for pole replacement to a more economically appropriate, dynamic timeframe (versus the instant, static time frame applied by the utility) that causally attributes to the attacher a more limiting set of "nonbetterment" costs reflecting the true unavoidable or incremental costs incurred

[72] See NCTA Petition at 22-27.
[73] See S. Rep. No. 95-580 at 20.

by the utility in connection with the new attachment request. As described earlier, the NCTA approach articulates a properly balanced, efficient allocation of costs in proportion to or commensurate with the benefits in that context by recognizing that in the majority of cases the new attacher merely advances the timing of a future pole replacement and should compensate the pole owner accordingly based on the more limiting economically principled set of additional temporal-related costs associated with that advancement—rather than the total replacement costs of the new pole for which the utility is the primary beneficiary of the betterment or enhanced productive capabilities of the upgraded plant (inclusive of associated cost savings). Any movement away from that properly balanced equilibrium as recommended by the NCTA petition would increase the proportion of costs allocated to either the attacher or the pole owner that does not well align in a cost-causative sense with the corresponding, proportional benefits of the respective parties, introducing inefficiencies and investment-inhibiting distortions into the marketplace.

In addition to applying the Commission's long-standing cost causation principles to pole replacements, the NCTA petition also helpfully builds on the language in a Maine rule that bases make-ready costs associated with pole replacement on a "reasonable estimate of the net book value of the joint use utility pole and supporting equipment."[74] The Maine rule provides a sharp contrast to the current, widespread, and inefficient cost allocation practices of utilities that shift the entire fully loaded cost responsibility of the new pole onto attachers. This paper explains how that rule has a robust economic foundation, and also shows why the NCTA approach is a workable paradigm that can be applied by this Commission nationwide.

B. Cost Categories Proposed in the NCTA Petition that Meet Definition of Costs Properly Attributable to Attachers

As described in the NCTA petition, there are two major categories of costs that meet the criteria for true "but for" costs attributable to attachment requests in an economically dynamic efficiency framework. These are: (1) the net book value (*i.e.*, original net pole cost not yet depreciated or recovered by the utility) of the existing utility pole plant that "but for" the new attachment could have remained in service until such time it was fully depreciated and/or reached the end of its service life or used and useful life to the utility (whichever came first); and (2) an additional category of incremental costs, to apply where the existing pole is not near the end of its

[74] See Maine Regulations 65-407, Part 8 Chapter 880 at 5.C, available at https://www.maine.gov/mpuc/legislative/rules/part8-multi.shtml.

useful life as measured by the utility's current depreciation rate, to account for the cost differential, to the extent any could be demonstrated with verifiable data, between the replacement pole and the pole the utility would otherwise have installed upon retirement of the existing pole "but for" the new attacher.[75] This would include, for example, the additional unique costs owing to extra height, class or strength of pole that "but for" the new attachment the utility would have deployed to serve its own core electric service) with the pole required to accommodate the new attachment.

Except in these limited cases discussed below where the additional cost component can be fully supported and well documented, the utility will be made whole under the NCTA approach by make-ready charges that simply recover the net book value of the earlier retired replaced pole remaining on its books. In many respects, this charge is analogous to a stranded investment recovery charge, a widely accepted practice for making utilities whole in light of events or decisions to replace plant earlier than planned or anticipated or before the end of the plant's historical useful life.[76] Each aspect of the NCTA approach is discussed in turn.

Net book Value of the Replaced/Retired Pole. Specifically, and with respect to the net book value of the removed pole, the NCTA approach establishes a presumptive value based on the average booked net bare pole cost under the Commission's recurring rate formula methodology. **Table 1** below provides an illustrative example of that sort of calculation for an illustrative electric

[75] See NCTA Petition at 9-12, 23-26.

[76] Stranded costs—*i.e.*, situations where "utilities may not be able to recover all of their prudently incurred costs" from ratepayers because of an exogenous change to the policy landscape not within the control of the utility—are a very well-known and well-understood concept in electric utility regulation, and many states have enacted some form of stranded cost recovery out of fairness to utilities. See Gregory Basheda et al., *The FERC, Stranded Cost Recovery, and Municipalization*, 19 Energy L. J. 351, 352 & n.8, 355 & nn.22-26 (1998), available at https://www.eba-net.org/assets/1/6/6-Vol19_No2_1998_Art_FERC,_Stranded_Cost.pdf. In other words, when utilities' long-term capital planning processes and best laid plans are interrupted, as occurred in many states upon the adoption of electric restructuring and retail choice, the overnight losses in value of utility plant (or premature retirements of resources) can be compensated through non-bypassable charges levied upon electric customers. See Congressional Budget Office, *Electric Utilities: Deregulation and Stranded Costs* at 3, 5, 7-8, 12 (Oct. 1998), available at https://www.cbo.gov/sites/default/files/105th-congress-1997-1998/reports/stranded.pdf; see also, e.g., N.J. Stat. 48:3-51 (defining "market transition charge" and "stranded cost"); N.J. Stat. 48:3-61 (permitting recovery of stranded costs from ratepayers through market transition charges). Here, the same sort of exogenous change occurs, albeit on a much smaller scale: the utility retires pole plant in response to a request from an attacher and the remaining undepreciated value of that plant is no longer recoverable from utility customers. Make-ready charges thus function as an opportunity for the utility to recover what otherwise would be a stranded, unrecoverable cost—the value of the now retired pole. That is the economic opportunity that the utility loses when a pole is replaced, and the approach advanced in the NCTA petition would ensure that the utility is made whole for that exogenous change to its plans and that no economic value is lost.

utility. As shown in **Table 1** below, the per-unit net bare pole cost is calculated in the following four steps:

- **First**, the electric utility's gross investment in pole cost is determined based on amounts reported in the utility's books of account in Account 364 ("Poles, Towers and Fixtures").
- **Second**, this gross investment amount is converted to a net investment figure by subtracting accumulated depreciation for pole plant and accumulated deferred taxes applicable to poles.[77]
- **Third**, the net investment in bare pole plant is determined by making a further reduction to remove amounts booked to Account 364 for "appurtenances," such as cross-arms, used in the provision of the core electric service only and from which communications attachers do not derive benefit.
- The **fourth** and final step is to divide the net investment in bare pole plant figure by the total number of poles the utility has in service to derive a per-unit pole cost figure, which can then be scaled to the number of poles to be replaced in the course of a particular attachment project.

[77] To appropriately reflect the cost changes associated with the 2017 Tax Cuts and Job Act (TCJA), the amount of ADIT which became "excess" as a result of the lower corporate income tax rate adopted by the TCJA, but that pursuant to GAAP accounting principles as of December 31, 2017, are publicly reported in the utility's FERC Form 1 Report in Account 254 (at page 278) must also be included to those amounts booked to the standard recurring formula ADIT accounts (i.e., Account 190, 282-283). These unamortized amounts remain on the utility's books and continue to provide a source of zero-cost capital to the utility and accordingly must be included in the pole formula proration as a deduction to gross pole investment in order to properly reflect the underlying investment with related tax expense and tax liability accounts. *See, e.g.*, *Investigation of the Financial Impact of the Tax Cuts and Jobs Act of 2017 on Regulated Ohio Utility Companies*, Finding and Order, No. 18-47-AU-COI, at 19, ¶ 30 (Pub. Util. Comm'n of Ohio Oct. 24, 2018) (directing "pole owners filing future pole attachment rate adjustment applications to deduct, in addition to ADIT and depreciation reserves, any unamortized excess ADIT resulting from the TCJA from total gross plant and gross pole investment in their pole attachment rate calculations"), available at https://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=a6f02a5a-72c2-4f45-9acb-62f0814f9dcd; *Ohio Power Company's Implementation of the Tax Cuts and Jobs Act of 2017; Application of Ohio Power Company to Amend Its Tariffs*, Nos. 18-1007-EL-UNC; 18-1451-EL-ATA (Pub. Util. Comm'n of Ohio Oct. 3, 2018) (joint stipulation showing specific required accounting adjustments), available at http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=f05153fa-f5df-41ce-8f4e-59104005441b; see also *Application of The Connecticut Light and Power Company d/b/a Eversource to Amend its Rate Schedules*, Approval of Amended Compliance Filing, No. 17-10-46 (Conn. Pub. Util. Reg. Auth. Feb. 14, 2019), available at https://bit.ly/2EDsfTl; *Application of The Connecticut Light and Power Company d/b/a Eversource to Amend its Rate Schedules*, Amended Compliance Filing & Resolution of NECTA's Objections Raised in Motion Nos. 46 & 47, No. 17-10-46 (Conn. Pub. Util. Reg. Auth. Feb. 5, 2019) (detailing settlement between Eversource and the New England Cable Television Association that revised pole attachment rates to "reduce Eversource's total gross plant and gross pole investment by the amount of any unamortized Accumulated Deferred Income Tax ... expense resulting from the Federal Tax and Job Cuts Act of 2017, in addition to ADIT and depreciation reserves"), approved Feb. 14, 2019, available at https://bit.ly/3gD0tDD.

Table 1 Illustrative Example of Per-Pole Average Remaining Net Book Value Based on FCC Recurring Rate Formula Methodology		
Formula Calculation: Net Bare Pole Cost Component	**Data as of 12/31/xx Current Cost Year**	*Sources/ Notes*
Investment in Pole Plant Acct 364	$675,000,000	FERC Form 1 Report Acct 364
- Accumulated depreciation for poles	$300,000,000	Prorated from Electric/ Distribution Plant or Internal Utility Records
- Accumulated deferred income taxes for poles	$120,000,000	Prorated from Total/Electric Plant including Excess ADIT Amounts
= Net Pole Investment	$255,000,000	
x (1- Appurtenances Factor)	.85	FCC 15% Rebuttable Presumption or Actual
= Net Pole Investment allocable to Attachments	$216,750,000	
/ Total Number of Poles	400,000	Utility Records
= **Estimated Average Remaining Net Book Value/Pole**	**$541.88**	

In summary and as enumerated in the NCTA petition, employing the recurring rate formula methodology as a basis for calculating the net book value offers many advantages, including:

- The methodology is widely accepted and used throughout the country;
- The methodology relies primarily on publicly available utility cost information (the one exception being aggregate utility pole count, but that is generally available data and provided in recurring rate calculations);
- The methodology has been upheld by the Supreme Court;
- The methodology is straightforward to implement and easily administered, and
- Parties could rely on existing agency and judicial precedent accumulated over the past four decades in providing substantial guidance, reducing the likelihood of costly and time-consuming challenges and litigation.[78]

In addition, the use of the recurring rate methodology in the computation of make-ready charges would allow for a uniform approach across the states under FCC jurisdiction, as well as some uniformity between the two types of pole attachment charges permitted under the FCC's

[78] See NCTA Petition at 23-27.

regulatory regime in regard to measuring capital costs of a pole attributable to attachers. That said, as with any rebuttable presumption as applied in the recurring rate formula, parties would have the opportunity to challenge the presumptive net bare pole cost value as measured by the recurring rate formula where actual, well-supported and documented data on the removed pole was available and could be substantiated and verified.

Additional Unique, Data-Verified Incremental Costs. As a practical matter and an economic reality, the second category of costs identified in the NCTA petition—additional/incremental pole costs beyond what a utility would have installed in its normal course of pole replacements—should be a very limited occurrence. As described earlier in this report, utilities are increasingly deploying taller, stronger poles to meet their own expanding operational needs such as to meet growth and satisfy regulatory mandates for quality of service, safety, and resiliency. There are an increasing number of pole resiliency/hardening and upgrade modernization programs underway nationwide in response to a generally aging pole infrastructure or to meet the growing demands of the utility's primary service. The NCTA petition, while fair to the utility in allowing for the possibility of this second area of cost recovery by the utility in make-ready charges for pole replacement, appropriately establishes the (rebuttable) presumption that such costs do not exist.

Data-Verified Adjustments to Rebuttable Presumptions. As with the rebuttable presumptions in the recurring rate formula, the parties would have the opportunity to challenge the presumption based on actual, well supported and documented data that could be substantiated and verified. In light of the utility's opportunity and incentive to seek additional cost recovery in excess of true "but for" costs as defined in an economically dynamic efficiency framework, such additional cost recovery to the utility would be allowed under the NCTA approach only in those instances where the utility can provide actual, detailed factual documentation in support of such a claim.

The NCTA petition specifically provides either party the opportunity to challenge the use of the average net book cost based on the average age of the utility's pole plant and support instead the use of a net book value amount associated with the actual vintage of the removed pole. In particular, the pole owner could seek to use a higher net book value to calculate make-ready charges where it could be demonstrated with verifiable data the age of the removed pole was younger than average vintage pole and hence subject to fewer than average years of depreciation-

related capital recovery. Similarly, attachers could seek to use a lower net book value where it could be demonstrated the age of the removed pole was older than the average vintage pole and hence subject to more years of depreciation-related capital recovery (*i.e.*, write-down) by the utility.

Given both the incentive for the utility to overcharge, its control over the data used in the calculations, and the desirability of setting make-ready charges at efficient, just and reasonable broadband promoting levels as contemplated in the NCTA petition for the reasons further explained in this report, it is important the utility be required to provide well documented reliable and verifiable forms of support for any challenge to a rebuttable presumption that raises make-ready charges. Generally reliable sources of data would include: published construction guidelines or specific pole replacement plans including current or future pole resiliency and hardening programs, detailed pole construction planning and budgeting schedules provided in connection with rate case filings, fixed asset accounting records pertaining to Account 364 with detailed depreciation entries for tax and ratemaking purposes, and detailed work orders pertaining to the specific removed poles.[79] Holding utilities responsible for documenting and proving any challenge to these rebuttable presumptions will help ensure that the Commission's time in sorting through those challenges is well spent. In addition, to be balanced, attachers should also have a reasonable opportunity to make presumptive challenges, including a process by which they could obtain reasonable, timely access to sources of utility data not publicly reported but internally tracked and available to the utility as potential support for its data claims.

C. The Relatively Easy, Practical Application of the NCTA Petition

Table 2 below provides an illustrative example of how the NCTA petition would work in practice. As demonstrated in **Table 2**, even in cases where there were presumptive challenges, the NCTA approach offers a relatively straightforward, uniform, easily administered approach to determining just and reasonable make-ready charges as compared to the status quo.

[79] See NCTA Petition at 25-26.

Table 2			
Illustration of NCTA Approach for Make-Ready for Replacement Poles			
Calculation Steps	**Age of Poles**		
	Newer than Average Vintage Poles	**Average-aged Poles, or No Verifiable Pole-Specific Data Available**	**Older than Average Vintage Poles/Poles Scheduled for Near-Term Replacement**
Estimated Average Remaining Net Book Value (NBV)/Pole	$541.88	$541.88	$541.88
+/– Reasonable Adjustment to Accumulated Depreciation (Add/Subtract Annual Depreciation Accrual x No. Years Younger/Older than Average)	+$250	n/a	-$250
+ Additional Unique Cost/Pole (in Limited Cases Where Documented/Demonstrated Costs Caused by Attacher)	$200	Presumed zero or no sufficient documentation	$0
– Less Cost Savings from Earlier Replacement and Lower Maintenance Amortized over Life	$50	Presumed zero or no sufficient documentation	$0
Adjusted Average NBV/Pole	$941.88	$541.88	$291.88
Number of Poles	1,000	1,000	1,000
New Attacher Cost Responsibility [Product of NBV/Pole * # of Poles]	$941,880	$541,880	$291,880

The NCTA petition also offers an alternative method to the recurring rate formula to estimate the net book value of the removed pole from the bottom-up based on the current installed per unit cost of a newly installed pole.[80] This method could be applied in the limited instances where historic records cannot be relied upon, *e.g.*, where data on pole counts (the one input used in the calculation of the net bare pole cost in the recurring formula that is not based on data reported in the FERC Form 1) is not readily available or deemed reliable. This alternative method starts with the average cost of a standard joint use pole being installed by the utility in the relevant geographic area, and adjusts that cost by the average age of the utility's embedded base of poles to account for (1) cost changes from the installed date of the new pole using a published cost index

[80] See NCTA Petition at 25, n.56.

such as the Handy Whitman Index for Utility Construction for that geographic region; and (2) to develop an age-appropriate amount of accumulated depreciation to net against the age-adjusted gross investment cost. This alternative method is illustrated in **Table 3** below. Given the reporting requirements applicable to Investor Owned Utilities ("IOUs") (and followed by most coops as well), however, it would be expected that parties could almost always rely on the recommended method of the recurring rate formula.

Table 3
Alternative Method to Estimate Remaining Net Book Value of an Installed Pole – Illustrative Example

Step	Description	
1	Utility Current Installed Per-Pole Cost (2019)	$2,500.00
2	Cost Deflator from 2019 to 1999 (1)	0.5671
3	Estimated Installed Per-Pole Cost (1999)	$1,417.75
4	Depreciation Rate (default 40-year life)	2.50%
5	Annual Depreciation (2)	$35.44
6	Accumulated Depreciation (default 20 Years) (3)	$708.80
7	**Net Installed Per-Pole Cost (2019) (4)**	**$708.95**

(1) The Handy Whitman Index, Bulletin No. 175, North Central Region, was used to deflate pole cost from 2019 to 1999 (50% service life).
(2) Annual depreciation (straight-line) using depreciation rate of 2.50% based on a pole life of 40 years. (If available, use actual reported utility Account 364 service life, average age/remaining life, and accrual rate inputs).
(3) Line 5 times 20 years (50% service life).
(4) Line 3 minus Line 6.

Part IV: The NCTA Petition Produces Make-Ready Charges that Are Reasonable and Compensatory to the Pole Owner, Especially in Combination with Fully Allocated Recurring Rates

As explained earlier in this report, the economic standard for achieving an optimal, economically efficient market outcome—one governed by cost causation principles and the absence of cross-subsidy—is that the utility is no worse off in real terms after hosting a pole attachment than it was prior to the attachment request. Consistent with both the economics and the associated legal principle of just compensation, all that is required to make such a showing is that the utility is made whole for the marginal costs it incurs in connection with the attachment, inclusive of betterment value, in which case there will be no cross-subsidy of the attacher's service by the utility.

For the reasons described in this report, the charges resulting from the cost allocation practices proposed by NCTA for make-ready associated with pole replacement are fully consistent with the economic efficiency principles underlying the Commission's cost causative approach to implementing the Section 224 regulatory framework. The resulting charges under the NCTA paradigm are therefore economically fair to utilities by covering the true "but for" or avoidable costs incurred by the utility in connection with a new attachment request. The NCTA paradigm properly calculates the totality of costs and benefits (including cost savings) attributable to the respective parties and uses an economically appropriate dynamic time frame. That said, ensuring that the utility is made whole for the attachment (and therefore that there is no cross-subsidy by or of the attacher's service) is not a determination that can be made independent of relevant cost recovery context. The ultimate economic picture is necessarily and properly informed by the amount of total cost recovery the utility receives in connection with the third-party attachment. This is especially true in light of the fact that the recurring rental rate is intended to provide fully allocated cost recovery and that the utility charges all attachers on a per-pole per-foot of attachment basis. These rental rates provide substantial opportunity for recovery of utility overhead well in excess of marginal cost.

The economic synergy between the two forms of pole attachment charges (recurring and nonrecurring), as well as the need to take possible action to ward against overcompensation of the utility, were well recognized by the Commission in one of its earlier orders:

> In theory, if a utility is purportedly charging a rate based on fully allocated costs, then it should not also be charging additional fees because, by definition, fully allocated costs encompass all pole-related costs. In addition, if a particular condition is so onerous as to be unreasonable, we will eliminate the unreasonable condition rather than adjusting the rate….[81]
>
> While we reject the arguments advanced by the cable commenters that we should adopt an overall deduction from the fully-allocated-cost-based rates because of a cable operator's subordinate status on the poles, we will address allegations that unreasonable make-ready, or inspection, change-out requirements or other abuses are in violation of the Act in individual complaint proceedings…[82]
>
> We will not adopt any substantive guidelines as to which terms or conditions may warrant a deduction or the quantification of any such deduction. However, we note that a number of terms and conditions have been brought to our attention which should be given close scrutiny in individual complaint cases.[83]
>
> For example, several commenting cable operators have stated that a standard provision in pole attachment contracts requires cable systems to pay all costs arising from pole change-outs even when the need for such a change-out is not caused by the attachment of cable facilities but by some other user. They point out that the Senate Report anticipated that "where a change-out was necessary *in order to accommodate* CATV users, it would be appropriate to charge the cable operator a certain percentage of these pole change-out replacement costs." (Emphasis added.) It did not contemplate that cable would pay the entire cost of replacing the pole even when the change was necessitated in order to accommodate cable facilities. *Id.* Other areas of possible abuse include unreasonable make-ready costs, unreasonable delay in performing make-ready work, and unreasonable inspection and application fees.[84]

As recognized by the Commission in the passages cited above from its 1987 Order, the annual recurring rate is based on a fully allocated cost methodology, that by design, is set to recover much more than incremental costs—including a full range of costs that would exist for the utility independent of the attacher, such that the utility should not have any need to "also be charging additional fees." Fast forward to over three decades later, there is even *more* reason to believe the fully allocated rental rate is more than sufficient alone to provide the utility with just and reasonable, fully compensatory cost recovery for pole attachments.

[81] See *1987 Report and Order*, 2 FCC Rcd. at 4397, ¶ 74.
[82] See *id.* at ¶ 76.
[83] See *id.*
[84] See *id.* at ¶ 76 n.44.

A number of changing trends in pole plant, utility record keeping, and other factors affecting the capital investment and expense recovery built into the three components of the recurring formula—net bare pole costs, the carrying charge factor, and the usable space factor[85]—have been accelerating in recent years such that dramatic increases in the recurring rate have been observed. In its 2011 National Broadband Report, the Commission identified average recurring rates for cable operators subject to its cable rate formula methodology of approximately $7 per foot per year, as compared to $10 per foot per year for telecom providers subject to its then existing telecom formula methodology, and $20 or more applied to some incumbent LECs subject to joint ownership agreements.[86] As of 2017, an NCTA study found average pole attachment rates for IOUs generally remained in the $7 to $10 range, in contrast to rates for Coops and Munis not subject to the Commission's jurisdiction or similar state rate regulation at levels roughly 2 times the average IOU rate, *i.e.*, in the range of $15 to $20.[87] Since that time, and notwithstanding the Commission's 2011 and 2015 rulings designed to promote broadband deployment and competition especially in rural areas by aligning rates derived using the telecom formula to the expected *lower* levels derived under the cable formula,[88] a disturbing trend is emerging of recurring rental rates calculated using the cable rate methodology well in excess of previously observed levels.[89] These

[85] In my recent experience, I have observed several factors in the recurring rate formula that can and have been used to increase utility capital recovery: Use of depreciation rates that are well in excess of straight-line depreciation rates; tax-related opportunities for excess capital recovery, e.g., changes in ADIT relating to Tax Cut and Jobs Act that the Commission has not yet addressed and many utilities have declined to recognize; accumulated depreciation reserves that reflect substantial write-downs for undocumented or statistically simulated values of future negative net salvage; pole counts that are increasing at a much lower rate (even decreasing) vis-à-vis additions to gross pole investment; the use of default values (a usable space factor of 7.41, and 15% appurtenances) that no longer reflect the existing population of joint use poles.

[86] See Federal Communications Commission, *Connecting America: The National Broadband Plan* at 110-111 (Mar. 17, 2010) (Recommendation 6.1 & Exhibit 6-A), available at https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf.

[87] See Michelle Connolly, *The Economic Impact of Section 224 Exemption of Municipal and Cooperative Poles* at 13-17 & Tables 1-3 (July 12, 2019), submitted by NCTA – The Internet & Television Association on July 22, 2019, in *Broadband Deployment Advisory Committee*, GN Docket No. 17-83, *Wireline Infrastructure*, WC Docket No. 17-84, *Wireless Infrastructure*, WT Docket No. 17-79, available at https://www.fcc.gov/ecfs/filing/10722008938472.

[88] See nn.31-33 & 44 above.

[89] See, e.g., Southern California Edison, *2021 General Rate Case – Workpapers*, Other Costs and OOR, SCE-02, Vol. 07, Witnesses: T. Reeves, at 143-144 (showing an increase in the recurring pole formula rate from $11.50 as of June 30, 2019 to $23.40 effective July 1, 2019), http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/B5C19E2B21A4284788258466007 8A5BE/$FILE/WPSCE02V07.pdf; see also Testimony of SDG&E R. Craig Gentes in *California Cable & Telecommunications Association v SDG&E*, Application C.17-11-002, before the California Public Utilities Commission, November 21, 2018 at 5 (presenting a cable rate formula calculation of $29.40 for billing year 2018); Consolidated Edison Company of New York, Inc, *PSC No: 10 – Electricity*, Rider K – Pole Attachment Rental Rate (eff. date Nov. 29, 2019) ("Rental Rate Per Span Wire Pole Attachment - $ 32.39"), available at https://www.coned.com/_external/cerates/documents/elecPSC10/electric-tariff.pdf; Connecticut Light & Power Co. d/b/a Eversource Energy, *Notice of Annual January 1st Adjustment to Formula Pole Attachment Rate* (Nov. 12, 2019) (advising of a

more recently observed high recurring rate levels are well in excess of rates produced by the now abandoned telecom rate that the Commission found to be well in excess of cost causative, efficient levels and detrimental to broadband deployment and competition.[90]

Based on these recent trends in the level of recurring rates, which show no signs of declining absent further Commission action, there is very little risk if any, as a practical matter, that the NCTA method will result in the *under* recovery by utilities of all costs actually attributable to a third-party pole attacher, because recurring pole rents are already so far above incremental cost. Indeed, they are at the very high end of, if not above, the fully allocated costs that based on objective economic criteria would meet the Commission's established standards for applying cost causation principles to the recurring rate formula.

$14.86 solely owned pole rate for CATV attachments, a $16.48 solely owned pole rate for urban telecom attachments, and a $16.57 solely owned pole rate for non-urban telecom attachments). While these utilities are subject to the jurisdiction of their state commissions, the majority of certified states rely on the Commission's cable rate formula or a close variation of it. Some other utilities that follow the Commission's cable rate formula also have similarly high rates. See, e.g., Southwestern Electric Power Co., *Letter re: Pole Attachment Agreement Between AEP Southwestern Electric Power Co. and Cox Communications* (May 2, 2019) (advising of Section 224 CATV rate of $22.30 per wireline attachment). Other utilities also report high rates as well. See, e.g., Oklahoma Gas & Electric Co., *Notice of Change in Pole Attachment Rates* (Nov. 1, 2019) (advising of a $19.81 per foot applicable rate).

[90] See *National Broadband Plan*, *supra* note 86; see also *2011 Pole Attachment Order*, 26 FCC Rcd. at 5298-5303 at ¶¶ 134-137, 147 ("We agree with commenters who explain that today, the telecom rate is sufficiently high that it hinders important statutory objectives.").

Conclusion

Pole attachments are a necessary and largely unavoidable input to the production of broadband internet services in the United States. Although pole-owning utilities have pre-existing plans to replace poles at the end of their useful life (if not before), and despite the fact that most of the value of a new pole comes in its contribution to core utility service operations, pole owners across the country often insist that communications attachers pay up front and in full for the entire fully loaded cost of replacing poles where deemed necessary to provide pole access. As explained in this paper, these common utility practices and demands are inconsistent with sound economic and cost causation principles.

When properly considered from the utility's own long-term capital investment perspective, attachment requests merely change the *timing* of a pole's eventual replacement, not its occurrence. In limited cases, a new pole is different from the replacement pole that the utility would have otherwise installed in its normal course of operations, and thus the attachment request causes some additional deviation from the utility's otherwise-applicable replacement plans. These are the primary ways in which a new attacher's requests cause costs for the utility that would not otherwise exist 'but for' the request. Any additional exactions in exchange for pole access that require the attacher to pay for betterment of the utility (*i.e.*, provide value in the form of economic benefits including cost savings) causes unfair and significant economic inefficiencies, especially for broadband deployment in unserved areas.

The NCTA petition in this docket asks the Commission to conform utility practices regarding pole replacement costs with the sound principles of economic efficiency and cost causation that the Commission applies in the make-ready context. It advocates a sensible, administrable approach to pole replacement cost responsibility that makes pole owners whole for the actual costs caused by a new attacher's request. Granting the petition would not just correct widely-recognized problems with utility make-ready charges, it would also help further the ongoing efforts to close the digital divide in the United States.

Duke DR 1-9:

Refer to Administrative Case No. 251, on page 15 of the Commission's September 17, 1982 Order, where it states: "The electric utility with a two-user situation (electric and CA TV), should take its weighted average cost of a 35-foot and 40-foot poles multiplied by its bare pole factor of 85 percent, less $12.50 per ground, multiplied by its annual carrying charges, and finally multiplied by the appropriate usage factor of .1224 to arrive at an annual pole charge for CATV attachments for such use." Does Ms. Kravtin agree that Duke Energy Kentucky has followed this directive?

Response: KBCA objects to this request because it calls for legal conclusions and opinions. KBCA further objects because the phrase "has followed this directive" is vague and ambiguous. KBCA objects to the extent this request mischaracterizes Ms. Kravtin's testimony.

Subject to its objections, KBCA responds that Duke Energy is mischaracterizing Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251. As explained in Ms. Kravtin's testimony, Administrative Case No. 251 permits a utility to deviate from the assumptions cited by Duke Energy where there are "major discrepancies" with the "average characteristics of the utility." Kravtin Testimony at 14. Here, Ms. Kravtin's testimony identifies "major discrepancies" – based on Duke Energy's own data – between the average characteristics of the utility and the presumptive values set forth in Administrative Case No. 251. Specifically, Duke Energy now uses a significant number of 50 foot poles for pole attachments, with a relative decline in the number of 35 foot poles used for pole attachments. *Id.* at 13-14. Thus, Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251 pertains to Duke Energy's misplaced reliance on the presumptive usable factors set forth in Administrative Case No. 251 for the calculation of pole rates that are not accurate or reflective of

Duke Energy's actual pole characteristics. *Id.* Instead of applying inaccurate presumptions, Duke Energy should apply its actual data to calculate its pole rates. *Id.* at 14.

Witness: Patricia Kravtin

Duke DR 1-10:

Please refer to Administrative Case No. 251, on page 16 of the Commission's September 17, 1982 Order, where it states: "Finally, in the case of the three-user pole, the utility should take its weighted average cost of 40-foot and 45-foot poles, multiplied by its bare pole factor (85 percent for electric (less $12.50 per ground) and 78 percent for telephone utilities), multiplied by its annual carrying charges, and finally multiplied by the appropriate usage factor of .0759 to arrive at an annual pole charge for CA TV attachments for such use." Does Ms. Kravtin agree that Duke Energy Kentucky has followed this directive?

Response: KBCA objects to this request because it calls for legal conclusions and opinions. KBCA further objects because the phrase "has followed this directive" is vague and ambiguous. KBCA objects to the extent this request mischaracterizes Ms. Kravtin's testimony.

Subject to its objections, KBCA responds that Duke Energy is mischaracterizing Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251. As explained in Ms. Kravtin's testimony, Administrative Case No. 251 permits a utility to deviate from the assumptions cited by Duke Energy where there are "major discrepancies" with the "average characteristics of the utility." Kravtin Testimony at 14. Here, Ms. Kravtin's testimony identifies "major discrepancies" – based on Duke Energy's own data – between the average characteristics of the utility and the presumptive values set forth in Administrative Case No. 251. Specifically, Duke Energy now uses a significant number of 50 foot poles for pole attachments, with a relative decline in the number of 35 foot poles used for pole attachments. *Id.* at 13-14. Thus, Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251 pertains to Duke Energy's misplaced reliance on the presumptive usable factors set forth in Administrative Case No. 251 for the calculation of pole rates that are not accurate or reflective of

Duke Energy's actual pole characteristics. *Id.* Instead of applying inaccurate presumptions, Duke Energy should apply its actual data to calculate its pole rates. *Id.* at 14.

Witness: Patricia Kravtin

Duke DR 1-11:

Notwithstanding Ms. Kravtin's claims regarding the correct number of poles (i.e., non-unitized pole counts), does Ms. Kravtin agree that Duke Energy Kentucky has complied with the Kentucky Public Service Commission's directives in Administrative Case No. 251 for calculating pole attachment charges? If no, please explain in detail why Ms. Kravtin disagrees.

Response: KBCA objects to this request because it calls for legal conclusions and opinions. KBCA further objects because the phrase "has complied with the Kentucky Public Service Commission's directive" is vague and ambiguous. KBCA objects to the extent this request mischaracterizes Ms. Kravtin's testimony. KBCA objects this request is duplicative of requests 9 and 10.

Subject to its objections, KBCA responds that Duke Energy is mischaracterizing Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251. As explained in Ms. Kravtin's testimony, Administrative Case No. 251 permits a utility to deviate from the assumptions cited by Duke Energy where there are "major discrepancies" with the "average characteristics of the utility." Kravtin Testimony at 14. Here, Ms. Kravtin's testimony identifies "major discrepancies" – based on Duke Energy's own data – between the average characteristics of the utility and the presumptive values set forth in Administrative Case No. 251. Specifically, Duke Energy now uses a significant number of 50 foot poles for pole attachments, with a relative decline in the number of 35 foot poles used for pole attachments. *Id.* at 13-14. Thus, Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251 pertains to Duke Energy's misplaced reliance on the presumptive usable factors set forth in Administrative Case No. 251 for the calculation of pole rates that are not accurate or reflective of

Duke Energy's actual pole characteristics. *Id.* Instead of applying inaccurate presumptions, Duke Energy should apply its actual data to calculate its pole rates. *Id.* at 14.

Witness: Patricia Kravtin

Duke DR 1-12:

Is Ms. Kravtin aware of any Kentucky Public Service Commission order directing Duke Energy Kentucky to include any other pole lengths in the calculation of the two- and three-user pole attachment charges? If the response is in the affirmative, please provide the Commission's Order.

Response: KBCA objects to this request because it calls for legal conclusions and opinions.

Subject to its objections, KBCA responds that Duke Energy is mischaracterizing Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251. As explained in Ms. Kravtin's testimony, Administrative Case No. 251 permits a utility to deviate from the assumptions cited by Duke Energy where there are "major discrepancies" with the "average characteristics of the utility." Kravtin Testimony at 14. Here, Ms. Kravtin's testimony identifies "major discrepancies" – based on Duke Energy's own data – between the average characteristics of the utility and the presumptive values set forth in Administrative Case No. 251. Specifically, Duke Energy now uses a significant number of 50 foot poles for pole attachments, with a relative decline in the number of 35 foot poles used for pole attachments. *Id.* at 13-14. Thus, Ms. Kravtin's testimony concerning Duke Energy's application of Administrative Case No. 251 pertains to Duke Energy's misplaced reliance on the presumptive usable factors set forth in Administrative Case No. 251 for the calculation of pole rates that are not accurate or reflective of Duke Energy's actual pole characteristics. *Id.* Instead of applying inaccurate presumptions, Duke Energy should apply its actual data to calculate its pole rates. *Id.* at 14.

Witness: Patricia Kravtin

Duke DR 1-13:

Is Ms. Kravtin familiar with Case No. 2022-00105 before the Kentucky Public Service Commission?

a. If yes, is Ms. Kravtin aware of any Kentucky Public Service Commission directives from Case No. 2022-00105 that would alter the calculation directives of the Kentucky Public Service Commission in Administrative Case No. 251?

Response: KBCA objects to this request because it calls for legal conclusions and opinions. KBCA further objects because the phrases "aware of" and "calculation directives" are vague and ambiguous.

Subject to its objections, KBCA states that Ms. Kravtin did submit testimony in Case No. 2022-00105. Ms. Kravtin further understands that Case No. 2022-00105 related to terms and conditions pursuant to non-recurring aspects of pole replacements, not to the rate calculation directives of the PSC in Administrative Case No. 251.

Witness: Patricia Kravtin

Duke DR 1-14:

Regarding non-unitized poles, Ms. Kravtin allocates 2,464 additional poles to the 35', 40', and 45' categories in Exhibit 7 beyond the 911 the Company unitized to these categories. Why does Ms. Kravtin believe that there are any remaining 35', 40', or 45' poles in the remaining 2,464 non-unitized pole count when Duke Energy Kentucky stated in KBCA-DR-01-011 that there were a total of 911 poles in the 35', 40', and 45' lengths that were unitized from the total non-unitized pole count value of 3,375?

Response: KBCA objects to the extent this request mischaracterizes Ms. Kravtin's testimony.

Subject to its objection, KBCA states that Ms. Kravtin's testimony is based on the testimony and data provided by Duke Energy. In response to KBCA's request for information, Duke Energy stated that of 3,375 "non-unitized/estimated retirements" poles, only 911 had been "finalized" and "included within the pole counts for 35, 40, and 45 feet poles." KBCA-DR-02-005. Duke Energy did not state or provide evidence that there were only 911 non-unitized 35', 40' or 45' poles total. *Id.* And indeed, it would not make sense for only 911 of 3,375 poles to fall into the 35', 40' or 45' categories where the majority of Duke Energy's poles are 40' or 45'. Kravtin Testimony at 12-13; KBCA-DR-02-002. Based on the information provided by Duke Energy, Ms. Kravtin added the remaining 2,464 poles in poles identified as "non-unitized/estimated retirements" yet to be finalized to the 35', 40' and 45' categories included in Duke Energy's pole rate calculation in the same proportion as the 911 finalized and already assigned by Duke Energy. Kravtin Testimony at 11.

Witness: Patricia Kravtin

Duke DR 1-15:

Please state whether there are any agreements between KBCA and any Intervening Party to the above-captioned proceeding, or any member or affiliate of an Intervening Party to the proceeding, that concern said proceeding. For purposes of this Interrogatory, "intervening party" includes any party to have filed a motion to intervene in the above-captioned proceeding. To the extent that KBCA contends that any such documents are privileged, please provide a privilege log for the same.

Response: KBCA objects to this request because the term "agreements" is vague and ambiguous. KBCA objects to this request because it is unduly burdensome and disproportionate to the needs of the case.

Subject to its objections, KBCA states it does not have agreements related to this proceeding with any other entity.

Witness: Jason Keller

Duke DR 1-16:

Please state whether there are any agreements between the KBCA and any entity exhibiting interest in the above-captioned proceeding, or any member or affiliate of an entity exhibiting interest to the proceeding, that concern said proceeding. For purposes of this Interrogatory, "entity exhibiting interest" includes any party that has not filed a motion to intervene in the above-captioned proceeding. To the extent that the KBCA contends that any such documents are privileged, please provide a privilege log for the same.

Response: KBCA objects to this request because the phrases "agreements," and "any entity exhibiting interest" are vague and ambiguous. KBCA objects to this request because it is unduly burdensome and disproportionate to the needs of the case.

Subject to its objections, KBCA states it does not have agreements related to this proceeding with any other entity.

Witness: Jason Keller

Dated: April 7, 2023

Respectfully submitted,

/s/ James W. Gardner

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Counsel for KBCA

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:	)	
ELECTRONIC APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR (1) AN ADJUSTMENT OF ELECTRIC RATES; (2) APPROVAL OF NEW TARIFFS; (3) APPROVAL OF ACCOUNTING PRACTICES TO ESTABLISH REGULATORY ASSETS AND LIABILITIES; AND (4) ALL OTHER REQUIRED APPROVALS AND RELIEF	)	CASE NO. 2022-00372

VERIFICATION

The undersigned, Patricia Kravtin, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in these Responses for which she is listed as a witness, and that the answers contained therein are true and correct to the best of her information, knowledge, and belief.

Patricia Kravtin

STATE OF UTAH)
SUMMIT COUNTY)

SUBSCRIBED AND SWORN TO before me by Patricia Kravtin on this the 5th day of April, 2023.

KRISTAL BOWMAN-CARTER
4580 N. Silver Springs Drive, Ste. 100
Park City, UT 84098
Notary Public, State Of Utah
My Commission Expires 08/19/2024
COMMISSION NO. 713624

Kristal Bowman-Carter

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:	)	
ELECTRONIC APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR (1) AN ADJUSTMENT OF ELECTRIC RATES; (2) APPROVAL OF NEW TARIFFS; (3) APPROVAL OF ACCOUNTING PRACTICES TO ESTABLISH REGULATORY ASSETS AND LIABILITIES; AND (4) ALL OTHER REQUIRED APPROVALS AND RELIEF	)	CASE NO. 2022-00372

VERIFICATION

The undersigned, Jason Keller, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in these Responses for which he is listed as a witness, and that the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Jason Keller

COMMONWEALTH OF KENTUCKY)
~~JEFFERSON~~ COUNTY)
Fayette

SUBSCRIBED AND SWORN TO before me by Jason Keller on this the 4 day of April, 2023.

Wilson Hanigan Notary Public
Wilson Hanigan

WILSON H. HOURIGAN
Notary Public-State at Large
KENTUCKY - Notary ID # KYNP51107
My Commission Expires 05-17-2026

WILSON H. HOURIGAN
Notary Public-State at Large
KENTUCKY - Notary ID # KYNP51107
My Commission Expires 05-17-2026