

# POLE ATTACHMENT POLICIES AND BROADBAND EXPANSION IN THE STATE OF MISSOURI

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## EXECUTIVE SUMMARY

Between 422,000 and 1.06 million Missourians currently lack access to high-speed broadband. In this study, we estimate that expanding broadband access to this unserved population would create anywhere from \$3.16 billion up to \$8.05 billion of new economic gains to Missouri's homes and small businesses (the amount varying based on the database of unserved locations used to quantify). This estimated economic gain represents the social return on new public and private sector investments, namely the productive, commercial, educational, health, and other benefits that stand to be realized by achieving full broadband expansion in Missouri.

Today, that broadband deployment is being inhibited due to utility pole infrastructure access issues and problematic behavior of certain utility pole owners. Specifically, pole owners can deny or delay broadband providers pole attachment access, or impose economically unfeasible rates, terms, and conditions that impose excessive costs on broadband providers associated with pole replacement and upkeep. In the study of economics, this is known as the **hold up problem**,<sup>1</sup> an inefficient concentration of market power that harms the public interest.

When pole owners hold up the process, the result is foregone economic gains to Missourians. In this study, we estimate that every month of delayed expansion due to pole owner hold up costs Missouri between \$18.72 and \$47.59 million.

Utility poles represent a critical input in broadband deployment, as attachment to existing pole networks is the most efficient means to expand high-speed broadband access to currently unserved areas of the country. Policymakers should initiate measures to recapture this economic value by revising and modifying pole policies and pole owner behavior to facilitate broadband deployment.

Pole Owner  
Hold Up  
Costs Missouri  
**\$18.72M – \$47.59M**  
*every month*  
it delays expansion.

## CURRENT BROADBAND INITIATIVES IN MISSOURI

Depending on the basis of measurement, the total number of Missourians lacking access to high-speed broadband is reported in the range of 422,000 to 1,058,308.<sup>2</sup> We estimate that expanding broadband access to this unserved population would create new economic gains between \$3.16 billion up to \$8.05 billion (calculated as net present value over 25 years at 5% discount rate). With 21% of the state's rural population reported as lacking access to quality broadband internet service, the state ranked 35th in the nation for rural connectivity.<sup>3</sup> The pandemic has vividly highlighted the problems associated with unequal broadband access and the heightened need for broadband services. In a report issued in the spring of 2020, the Missouri Department of Higher Education & Workforce Development (DHEWD) identified the lack of access to reliable, quality broadband internet service as a "major inhibitor to online learning" in postsecondary education in Missouri, and a pressing statewide need to be addressed.<sup>4</sup> This finding was echoed in a 2020 survey by the Missouri Department of Elementary and Secondary Education, which found about 23% of Missouri school age students lacking sufficient internet access.

Policymakers in Missouri initiated action with the passage of HB 1872 in 2018, which created the Missouri Broadband Grant Program. In 2020, that program awarded \$3 million in grant funding covering 35% of identified total project costs to serve an additional 4,400 new connections.<sup>5</sup> The DHEWD has sought an

additional \$56 million in broadband funding from the U.S. Department of Commerce's National Telecommunications and Information Administration ("NTIA") Broadband Infrastructure Program to connect more than 17,000 residential and business locations in the state. A Special Interim Committee on Broadband Development was created by lawmakers in May of this year, with a report expected to be issued by the end of the year.

These state initiatives are in addition to the \$346 million in broadband grant funding awarded to providers in the state through the FCC Rural Digital Opportunity Fund ("RDOF") auction program – a program that will expand broadband access to 199,211 currently unserved homes and small businesses in the state.<sup>6</sup> Moreover, the state's broadband expansion funding effort also has access to \$196.7 million from the ARPA Coronavirus Capital Projects Fund, and a reported \$400 million of the total \$2.7 billion in total ARPA state level fiscal funding was awarded to Missouri.<sup>7</sup> The Infrastructure Investment and Jobs Act of 2021 ("IIJA"), recently enacted by Congress on a bipartisan basis, includes an additional \$42 billion commitment to broadband buildout across all 50 states. When combined with federal and state funding already in the pipeline as part of the recent COVID-19 relief packages, the government funding commitment to invest in the state's broadband infrastructure, as across the other 49 states, is unprecedented.

## EXISTING HOLD UP POWER OF MUNICIPALITY & COOPERATIVELY OWNED ELECTRIC UTILITIES OVER MISSOURI BROADBAND EXPANSION

Despite substantial funding mechanisms from the state and federal government, the public's return on current broadband investment in the state remains substantially vulnerable to the leverage and market power that pole owners enjoy over broadband service providers seeking to attach broadband infrastructure to poles. This leverage has intensified in recent years due to variety of factors: the increased urgency of policymakers to get broadband out to unserved areas of the state, the pole owner's information advantage as to where unserved customers – the target recipients of broadband grant awards and build out commitments – are located thereby raising the currency of the poles owners' gatekeeper status, the greater number of poles needed to reach those customers in outlying hard to reach rural areas of the state, and the increasing desire among pole owners to enter and compete in the broadband market against broadband attachers.<sup>8</sup>

The power to impede others' ongoing investment plans is classified in economics as a "hold up problem." A hold up problem is an example of the inefficient concentration of market power that harms the public interest and results in market failure absent adoption

of public policies to prevent the exercise of the hold up power at its source.

In the case of pole attachments needed for broadband deployment, hold up power emanates from the charging of inefficiently high costs and imposing of delays on pole attachers at the upfront end of their planned broadband buildout as part of the "make-ready" process, although excessive recurring charges (rental rates for space on the pole) are not an insignificant factor. These high make-ready costs and delays are especially pronounced in connection with the change-out or replacement of existing poles. Absent effective regulation, pole owners can seek to push the entire cost of pole replacement on to attaching entities, including broadband providers, thereby sharply, unpredictably, and inequitably increasing the cost of attachment.

Inefficiencies in make-ready charges are in addition to high recurring annual rental rates, which also impede broadband expansion by raising the ongoing costs of attaching to a pole. A 2019 study examining pole rates nationwide found rates charged by cooperative utilities in Missouri to exceed those charged by rate regulated municipal and IOUs in the state by approximately 77% and 25%, respectively.<sup>9</sup>



## MEASURING THE ECONOMIC HARMS OF POLE OWNER HOLD UP POWER IN THE STATE OF MISSOURI

Our analysis measures the economic harms to Missouri residents and small businesses of the hold up power of pole owners. These harms are measured in the form of foregone consumer value, known in economics as **deadweight loss** (DWL).<sup>10</sup> The methodology employed applies well established metrics on consumer **willingness-to-pay** (WTP) from the economic literature (in lay terms, the highest price a household would pay for improved broadband).<sup>11</sup> We apply these WTP metrics to reported data on the number of unserved locations awarded grant funding in the state in the FCC's RDOF auction program. Under the RDOF program alone, third-party providers have committed to expand high-quality broadband access to as many as 199,211 currently unserved homes and small businesses across the state of Missouri, the majority in rural areas.

We've expanded our prior analysis to include the total number of unserved locations in the state identified in the FCC's most recent Broadband Deployment Report as well as information on unserved locations from an independent data base of unserved Missourians compiled by a national data aggregation company, BroadbandNow.<sup>12</sup> Given the substantial private investment and government funding mechanisms being deployed to serve all unserved locations in the state including the IJJA's massive commitment to broadband infrastructure, this broader analysis is appropriate. The FCC Broadband Report database of unserved population indicates a total number of 428,465 unserved

locations across the state based on the average 2.51 persons per household in Missouri.<sup>13</sup> Similarly, according to the BroadbandNow data base, 1,058,308 Missourians are currently without access to broadband, translating into a total of 428,465 unserved locations in the state – over 2.5 times the identified number of unserved locations identified by the FCC of 170,850.<sup>14</sup>

In Tables 1 and 2 below, we present our main findings applied to the state of Missouri. Table 1 reports aggregate economic gains for three speed and latency thresholds under three sets of assumptions. The selected speed (measured in megabits of data) and latency thresholds (measured in milliseconds) are comparable to existing broadband service plan offerings rolling out at the time of this writing. The estimates in Table 1 represent a range of possibilities. For example, if all currently unserved locations assigned for deployment under RDOF get connected at 1000/100 Mbps and <10 Ms, this would create \$3.74 billion of new economic gains nationwide. But if all currently unserved persons estimated by the FCC to lack broadband get similarly connected, that gain would be \$3.21 billion. And connecting all unserved persons as estimated by BroadbandNow would yield \$8.05 billion. These calculations are net present value over 25 years, or the lower end of average pole life, at 5% discount rate.

MO TABLE #1:  
ECONOMIC GAINS  
IF ALL  
CURRENTLY  
UNSERVED  
POPULATION  
GAINS  
BROADBAND  
ACCESS

	All Assigned RDOF Locations Gain Access	All FCC Unserved Population Gains Access	All BroadbandNow Unserved Population Gains Access
150/25 Mbps at <10 Ms	\$3.16B	\$2.72B	\$6.81B
300/100 Mbps at <10 Ms	\$3.51B	\$3.01B	\$7.54B
1000/100 Mbps at <10 Ms	\$3.74B	\$3.21B	\$8.05B

*Note: Table entries equal net present value of annualized gains over 25 years at 5% discount rate. See Appendix D of the companion Federal paper for explanation of methodology and modeling assumptions.*

Moving to Table 2 below, this same computation methodology demonstrate the foregone economic gains, known in economics as **deadweight loss** (DWL), due to delayed or denied broadband expansion under the pole owner hold up problem. 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, we compute the magnitude of DWL to be in the range of \$18.72 million to \$47.59 million per month, at speed

thresholds of 1000/100 Mbps and <10 Ms latency.

We emphasize that these Missouri estimates, as with our nationwide estimates, are conservative in magnitude given that the underlying WTP estimates do not reflect higher broadband demand since COVID-19 or the high speeds being deployed in current expansion plans. For these reasons, the true economic gain to Missouri of full broadband expansion likely exceeds the estimates shown in Table 1 above.

MO TABLE #2:  
ESTIMATES OF  
FOREGONE  
ECONOMIC  
GAINS DUE  
TO POLE  
ATTACHMENT  
HOLD UP

	Foregone Gains of Delayed Expansion to Currently Unserved RDOF Locations	Foregone Gains of Delayed Expansion to Currently Unserved FCC Estimated Population	Foregone Gains of Delayed Expansion to Currently Unserved BroadbandNow Estimated Population
150/25 Mbps at <10 Ms	\$18.72M	\$16.05M	\$40.26M
300/100 Mbps at <10 Ms	\$20.73M	\$17.78M	\$44.59M
1000/100 Mbps at <10 Ms	\$22.13M	\$18.98M	\$47.59M

*Note: Table entries are monthly aggregate foregone economic gains.*

## CONCLUSION: POLICY RECOMMENDATIONS TO PROMOTE FULL BROADBAND ACCESS IN MISSOURI

Rapid broadband expansion in the state is particularly at risk given the lack of effective make-ready rules governing the nonrecurring rates, terms, and conditions of third-party access to utility poles. The lack of an effective regulatory framework applicable to utility make-ready practices in Missouri enables these entities to potentially hold up broadband expansion that are in the public interest, and instead advance their narrow interests, especially under circumstances where they seek to enter into the broadband market in competition with the entities over which they enjoy the hold up power. The hold up power that unregulated cooperative and municipal pole owners can impose on broadband attachers at the front end of deployment is further compounded in the case of cooperative utilities – currently exempted from both federal and state recurring pole rate rules and regulation – by cost impediments associated with high annual pole rental rates they can impose on broadband providers in addition to the high upfront attachment costs.

This study demonstrates that the economic stakes at risk are high. Necessary electric utility pole infrastructure investments and pole reforms that address municipal utilities and cooperatively owned electric utilities to help speed broadband infrastructure deployment

should include: adoption of efficient pole replacement cost allocation standards based on the net book value of the poles to be replaced (taking into account the inevitable replacement of those poles and the betterment value to the pole owner from their earlier replacement), along with other economically fair, just and reasonable rates, terms, and conditions of access to utility poles for broadband providers as delineated in Appendix A to the national study that accompanies this state study.

While a number of such legislative and regulatory initiatives are underway across the country, the ability of pole owning utilities to hold up broadband expansion is going largely unchecked. One of the first such legislative initiatives enacted to date is Texas HB 1505, passed by the Texas legislature this past spring. The Texas law incorporates a number of the key elements of a model pole policy presented in the national study (and reproduced as Appendix A to this study.)

Given the substantial demonstrated consumer gains of full broadband expansion in Missouri, there is a compelling public interest case for policymakers to act now to adopt these key reforms.



## APPENDIX A: ELEMENTS OF A MODEL POLE POLICY

Two foundational principles necessary for the success of broadband deployment in unserved areas are: 1) changing the cost equation for the intermediate pole input in order to encourage infrastructure investment in hard-to-reach areas of the country; and 2) the removal of other regulatory or market impediments to the vital pole input that might jeopardize the cost-efficient nature of that infrastructure investment and deployment. These two principles are at the forefront of the effort to achieve full broadband access in unserved rural areas of our country. The first policy priority is being addressed by federal and state programs that seek to support the cost-efficient deployment of broadband in hard to serve areas of the country; however, the second priority requires additional policies, including policies to ensure an economically efficient and fair cost allocation of pole costs that would help to moderate a pole owners' ability to exercise anti-competitive, anti-consumer market power in an otherwise competitive ecosystem.

Key elements of urgently needed broadband deployment promoting policies include:

- Creation of a pole replacement fund or grant program to promote the efficient use of available state and federal infrastructure funding dollars in support of the buildout of utility pole infrastructure into unserved areas, and in conjunction, ensure pole owners provide nondiscriminatory, just and reasonable non-recurring and recurring rates, terms, and conditions of access to broadband providers (consistent with those detailed below);
- Definitions for make-ready related pole replacements that distinguish make-ready pole replacements from those related to the utility's own inevitable electric (or broadband related) infrastructure upgrade costs;
- Terms that require the pole owner to pay the entire cost of pole replacement when due to safety or reliability as a result of normal wear and tear or other natural causes; or the pole has recorded conditions or defects that would reasonably be expected to endanger human life or property and which should be promptly corrected (whether or not officially "red tagged" for replacement);
- Terms that provide for the economically efficient and equitable sharing of costs of pole replacements tied to the age and/or net book value of the utility poles to be replaced that would preclude, as precondition of access, new attachers from having to bear the full cost of replacing aging poles. This would preclude the utility seeking from attachers the full recovery of poles that the utility would have to replace at its own cost in the near future in the absence of the new attachment or overlash;
- Terms that prevent the utility from seeking any cost recovery from attachers associated with pole replacements unrelated to the need to accommodate a new attachment terms that facilitate the efficient use of federal and state grant funding;

- Detailed make-ready related invoices;
- Specify workable time frames for pole permit application, survey timeframes, pre- and post-construction requirements;
- Shorter timelines for make-ready work;
- Longer timelines for assessing new attacher One Touch Make-Ready ("OTMR") requests versus existing attachers whose facilities are slated for OTMR;
- Audit process and costs;
- Reasonable notice-only policy for overloading;
- Terms that preclude, as precondition of access prior to overloading, a requirement for permitting or fixing of preexisting violations;
- Expedited dispute resolution under the auspices of the state utility commission or through the courts subject to applicable law;
- Charges for non-recurring charges, including pole replacement, must be based on actual, reasonable costs, objectively determined (i.e., based on accepted economic cost allocation criteria); and
- Recurring rental rates set based on the widely used FCC cable rate formula.

## END NOTES

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<sup>1</sup> The hold up problem is the power to impede others' ongoing investments. In general, hold up problems arise in scenarios where Entity A makes an initial investment that is called "relationship-specific" because its return depends on Entity A subsequently contracting with Entity B. In these scenarios, if Entity B has information about A's investment, then B has market power to extract rents from A's investment and thereby destroy economic value by requiring a high selling price (high, specifically, relative to what the selling price would be in absence of this market power). Hold up problems are classified in economics terms as one example of inefficient concentration of market power that harms the public interest.

<sup>2</sup> See FCC Fourteenth Broadband Deployment Report, rel. January 19, 2021, FCC 21-18, Appendix A, <https://broadbandnow.com/research/fcc-broadband-overreporting-by-state>.

<sup>3</sup> See FCC 21-18, Appendix A.

<sup>4</sup> <https://dhewd.mo.gov/documents/AAR.pdf>.

<sup>5</sup> <http://ded.mo.gov/sites/files/Broadband%20Documents.pdf>.

<sup>6</sup> See FCC (Federal Communications Commission) 2020. "FCC Launches \$20 Billion Rural Digital Opportunity Fund to Expand Rural Broadband," Report and Order, FCC-20-5, February 7, 35 FCC Rcd 686 (1).

<sup>7</sup> <https://www.fiercetelecom.com/special-report/u-s-broadband-funding-state-by-state>.

<sup>8</sup> See, e.g., <https://www.pemdunk.com/>, <https://osagevalley.com/broadband-update/>, <https://westplains.gov/fiber-broadband-high-speed-internet/>, <https://muninetworks.org/content/houston-missouri-forging-ahead-fiber>.

<sup>9</sup> See Michelle Connelly, *The Economic Impact of Section 224 Exemption of Municipal and Cooperative Poles*, July 12, 2019, submitted before the FCC Broadband Deployment Advisory Committee, GN Docket No. 17-83, Wireline Infrastructure, WC Docket No. 17-84, Wireless Infrastructure, WT Docket No. 17-79, July 22, 2019, Tables A4.

<sup>10</sup> Deadweight Loss (or, DWL) is a standard textbook measure of foregone economic gains created by end-users lacking access to goods and services, including broadband access. In Appendix D of the national study that accompanies this state study, we explain the economic methodology used to generate these estimates. See also Appendix B of the national study for a Glossary of Technical Terms used in this study.

<sup>11</sup> Willingness-to-Pay (or, WTP) is a standard textbook measure of economic gains created by end-users having access to goods and services, including broadband access. In Appendix A of the national study that accompanies this state study, we explain the economic methodology used to generate these estimates. See also Appendix C of the national study for a Glossary of Technical Terms used here.

<sup>12</sup> See <http://BroadbandNow.com>.

<sup>13</sup> See FCC Fourteenth Broadband Deployment Report, rel. January 19, 2021, FCC 21-18, Appendix A.

<sup>14</sup> More precisely, the BroadbandNow data base identifies unserved population to which state-specific ratios of the average number of persons to households can be applied to derive a number of locations comparable to those identified in the RDOF data base, 2.47 in the case of Missouri. The discrepancy in unserved locations between the FCC and BroadbandNow databases is largely attributable to the FCC's methodology which only included unserved households in fully unserved census blocks, whereas the BroadbandNow drilled down below the census block level. See <https://broadbandnow.com/research/fcc-broadband-overreporting-by-state>.