STATE OF MINNESOTA
BEFORE THE PUBLIC UTILITIES COMMISSION

Katie Sieben	Chair
Joseph K. Sullivan	Vice Chair
Hwikwon Ham	Commissioner
Valerie Means	Commissioner
John Tuma	Commissioner

In the Matter of Xcel Energy's Interactive Service Quality Map and Equity Analysis	DOCKET NO. E-002/M-24-27

COMMENTS OF THE OFFICE OF THE ATTORNEY GENERAL

INTRODUCTION

Northern States Power Company d/b/a Xcel Energy (Xcel) filed its 2023 Annual Report on Safety, Reliability, and Service Quality (SRSQ) on April 1, 2024. In the report, Xcel provides analyses of its Customers Experiencing Lengthy Interruptions (CELI-12) reliability metric performance, which measures the number of Xcel's customers that experienced an outage lasting 12 hours or more.[1] Specifically, Xcel identifies the number of its customers that have experienced such an outage,[2] and identifies vegetation growth and vegetation–power line contact as a primary cause of outage minutes.[3] Further, Xcel offers targeted undergrounding of overhead lines, enhanced vegetation management, and evaluation of its "distribution equipment vintage" as potential solutions.[4]

As the OAG will discuss in these comments, research reveals a persistent and unacceptable increase in CELI-12 outages among populations with a higher percentage of People of Color. But two of Xcel's proposed solutions—enhanced vegetation management and targeted

[1] In these Comments, the OAG focuses on topic no. 4 of the Commission's July 26, 2024 Notice of Comment period. The OAG may respond to other commenters on additional topics in reply.
[2] 2023 SRSQ Part II at PDF Page 63/152, Graph 20.
[3] 2023 SRSQ Part II at PDF Page 17/152, Graph 1.
[4] 2023 SRSQ at PDF Page 82; *Id*. at PDF Page 69.

undergrounding—do not appear tailored to reducing the duration of customer outages. Further, Xcel's targeted undergrounding proposal carries risk of costs vastly outweighing the benefits Xcel suggests may accrue. The Commission should require more information from Xcel regarding the cause of the disparities in CELI-12 outages before moving forward with Xcel's proposals. The Commission should also require Xcel to explore alternatives to these proposals that may be better tailored to reducing the identified disparities in long-duration outages.

BACKGROUND

In Xcel's 2021 electric rate case, the Just Solar Coalition filed testimony by Dr. Gabriel Chan, whose work focuses on energy and environmental policy.[5] Dr. Chan examined Xcel's 2021 Electric Service Quality Interactive Map.[6] Specifically, Dr. Chan compared CELI-12 data from Minneapolis' two "Green Zones"[7] to CELI-12 data from other portions of Xcel's Hennepin County and overall Minnesota service territories. Dr. Chan found that from 2018 to 2020, the rate of outages experienced in the Green Zones was 85 percent higher than the rate in Xcel's other Hennepin County service territory, and 59 percent higher than the rate in the remainder of Xcel's Minnesota electric service territory.[8] Similarly, Dr. Chan found that from 2019 to 2021 Xcel's customers in the Green Zones experienced a 32 percent higher rate of outages lasting over 12 hours

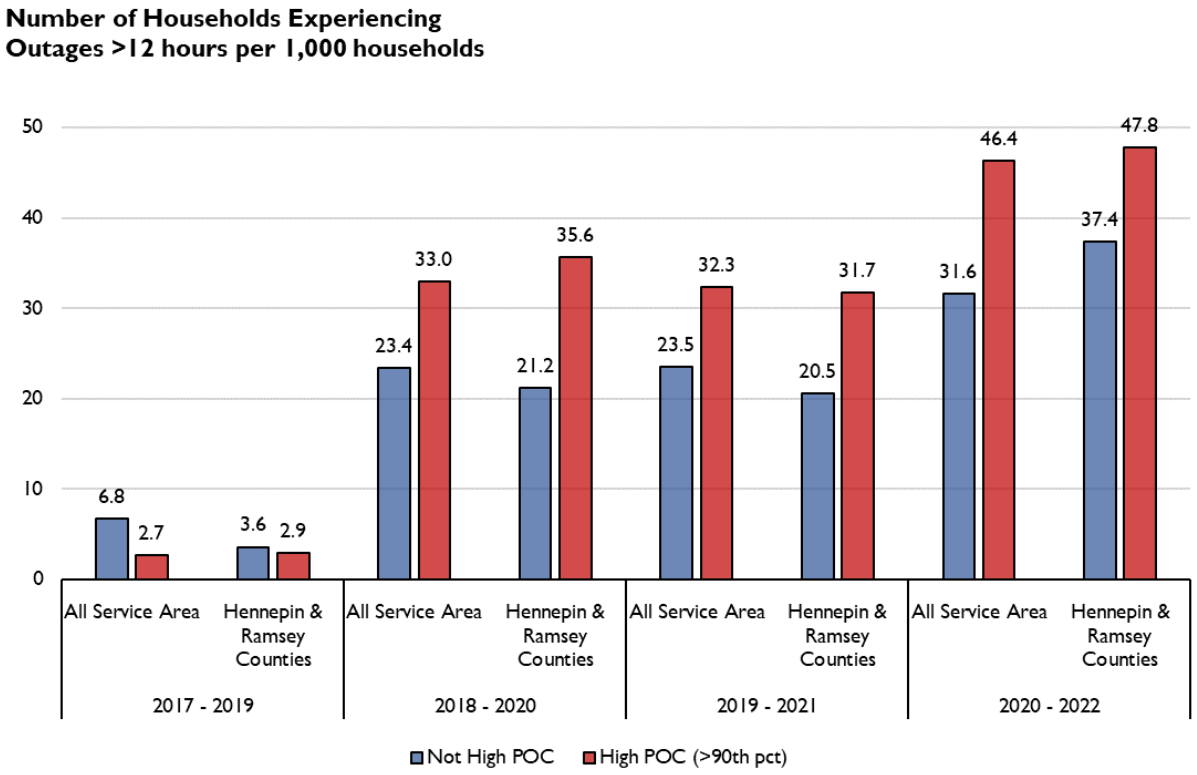
[5] *In re Appl. of N. States Power Co. for Authority to Increase Rates for Elec. Serv. in Minn.*, Docket No. E-002/GR-21-630, Chan Surrebuttal (Dec. 6, 2022).
[6] Docket No. E002/GR-21-630, Chan Surrebuttal at 9-10.
[7] *See* City of Minneapolis, *Green zones*, https://www.minneapolismn.gov/government/departments/health/sustainability-homes-environment/sustainability/green-zones/ (Mar. 19, 2024) (defining a green zone as a group of neighborhoods with high levels of pollution as well as racial, political and economic marginalization).
[8] Chan Surrebuttal at 21.

than the rate experienced in other portions of Xcel's Hennepin County service territory, and 35 percent higher than the rest of Xcel's Minnesota service territory.[9]

In February 2024, Dr. Chan and co-author Bhavin Pradhan published a report that expanded on this analysis. The report found that "living in poorer neighborhoods with a greater concentration of people of color is associated with a statistically and practically significant difference in the likelihood of . . . extended power outages."[10] Put differently, Chan and Pradhan found that economically disadvantaged Census Block Groups (CBGs) consistently endure more power outages exceeding 12 hours, suggesting unequal distribution of resources affecting power stability.[11] Chan and Pradhan's Figure 7, below, provides a stark illustration of this disparity. The graph depicts "[h]ouseholds experiencing outages longer than 12 hours (CELI-12), comparing CBGs with high percentage of people of color (POC) with other CBGs in Xcel Energy's Service Area and in Hennepin and Ramsey Counties from 2017-2022."[12]

[9] Chan Surrebuttal at 22.
[10] Chan and Pradhan, *Racial and Economic Disparities in Electric Reliability and Service Quality in Xcel Energy's Minnesota Service Area* at 1, (Feb. 2024), https://conservancy.umn.edu/items/8121c1ee-b191-4add-ac72-086af690e344 [hereinafter Chan and Pradhan].
[11] *Id.* at 11-12.
[12] *Id.* at 13.

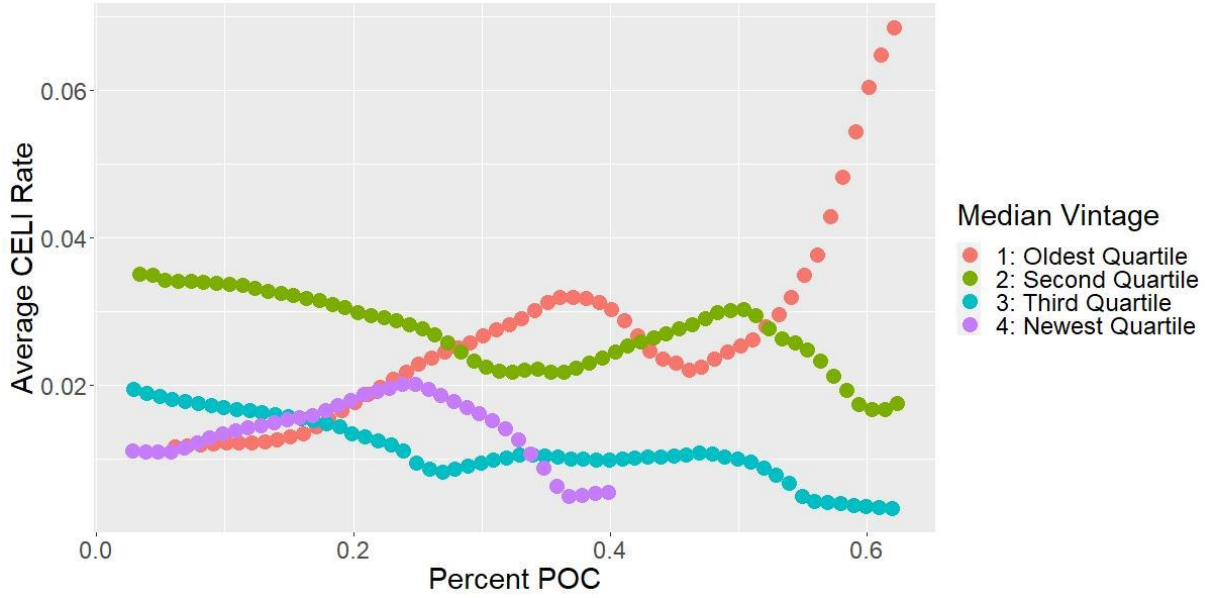
Chan and Pradhan Figure 7[13]



In response to Dr. Chan's testimony, Xcel contracted with research firm TRC "to provide Xcel Energy with objective and comprehensive analysis of the relationship between demographics such as race and income key metrics of power service reliability and quality (e.g., disconnections, outages)," which builds on Dr. Chan's analysis in Xcel's last electric rate case.[14] Even after expanding on Dr. Chan's analysis, the TRC study concludes that "there have been more long-duration outages in high percent POC communities that also have older housing vintage,"[15] as illustrated in TRC's Figure 3, below:

[13] *Id.* at 12.
[14] 2023 SRSQ at Attachment Q Page 6 of 22.
[15] 2023 SRSQ at Attachment Q Page 22 of 22.

TRC Figure 3: Average CELI vs. Percent POC by Vintage Quartile[16]



TRC reports that the CBGs with 50 percent POC and higher as well as oldest quartile housing vintage—i.e., the CBGs experiencing incidence of CELI-12 outages—are clustered in three areas: North and South Minneapolis, and surrounding downtown St. Paul.[17] Though TRC was unable to explain the disparity in CELI-12 outages, the study hypothesizes that "[b]ecause these neighborhoods were developed earlier than other neighborhoods, the distribution infrastructure is likely to be older on average and is less likely to be underground in construction, making it more susceptible to disruption from vegetation."[18] The TRC study thus concludes that Xcel may have "an opportunity to assess vegetation management practices in those neighborhoods or assess distribution equipment vintage that could lead to longer outages."[19]

In the following sections, the OAG will discuss why Xcel's proposed remedies—enhanced vegetation management and targeted undergrounding of overhead lines—are not well tailored to

[16] Xcel 2023 SRSQ at Attachment Q Page 11.
[17] Xcel 2023 SRSQ at Attachment Q Page 12.
[18] Xcel 2023 SRSQ at Attachment Q Page 13.
[19] Xcel 2023 SRSQ at Attachment Q Page 22.

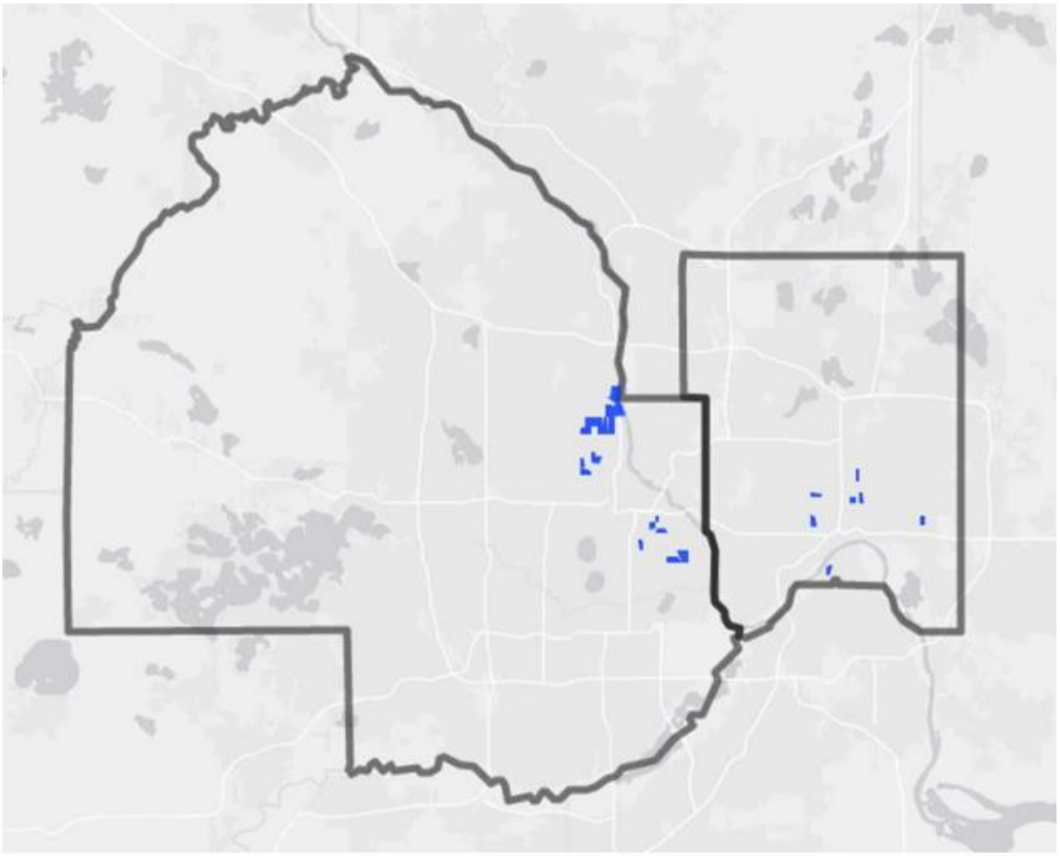
balancing remediating disparate CELI-12 outage experiences with the substantial costs that doing so would impose on ratepayers, and why any future filings stemming from these proposals warrant strong Commission scrutiny.

I. ENHANCED VEGETATION MANAGEMENT APPEARS MORE LIKELY TO REDUCE THE FREQUENCY, RATHER THAN THE DURATION, OF OUTAGES.

Xcel indicates that vegetation is the cause of the identified disparities in CELI-12 outages. But Xcel's support for this causal theory is limited. First, it does not appear Xcel has conducted a detailed review of its records to determine the actual outage causes in TRC's identified CBG clusters or whether these areas have less undergrounding than similar areas with a lower percentage of POC. Instead, Xcel's argument for vegetation as the cause of the disparity is focused on aggregate outage minutes, not CELI-12 outages. Moreover, Xcel's speculative rationale that privately owned infested trees are causing the identified disparity has not been corroborated by publicly available tree-infestation data. While the OAG does not oppose Xcel filing a more detailed vegetation management plan, these gaps in Xcel's analysis should give the Commission pause. Xcel should be required not only to put forward a vegetation management plan, supported by a cost-benefit analysis, but also to investigate further whether vegetation is the cause of the identified disparity.

First, it is not apparent from the report whether Xcel attempted to review its own records regarding CELI-12 outages in even the relatively small cluster of CBGs provided in Figure 4 of the TRC study.

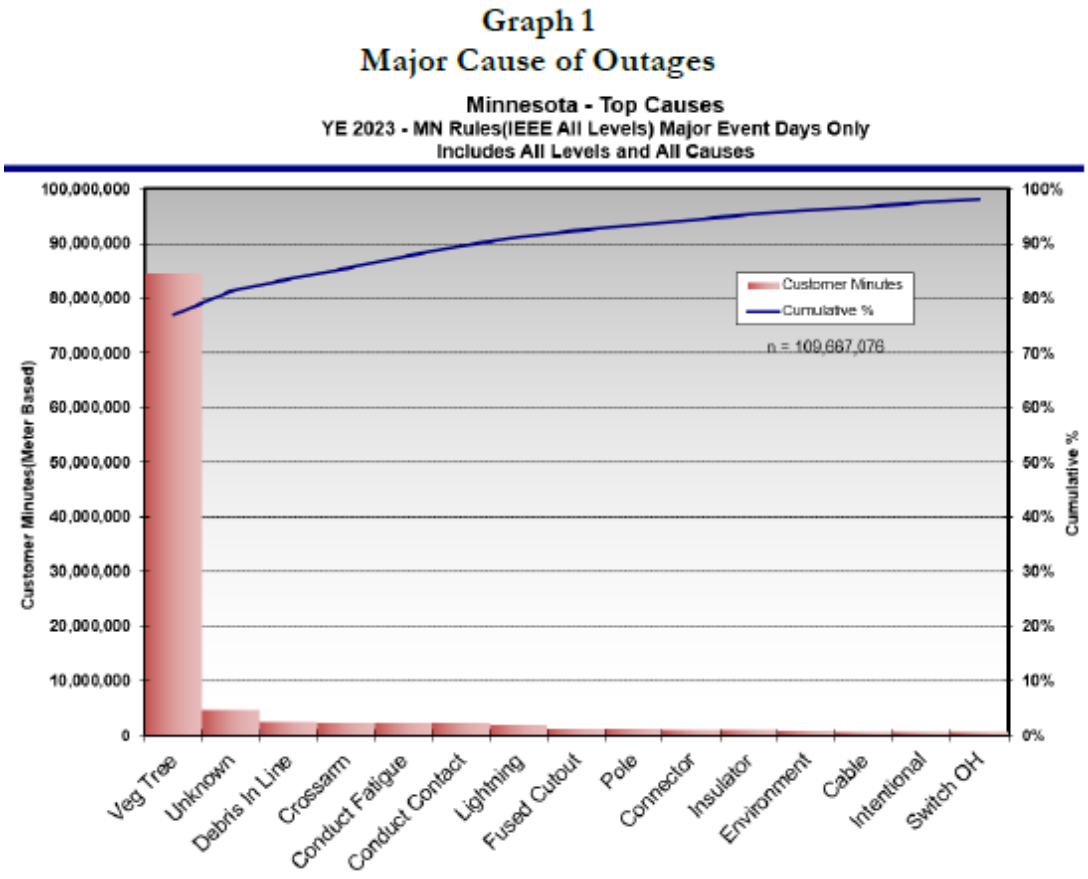
Figure 4. Census Block Groups with High Percent POC and High CELI



With the submission of any vegetation management plan, the Commission should require that Xcel review its records, at least for these identified CBGs, to determine whether the CELI-12 outages were caused by vegetation.

Instead of conducting a review of its records, Xcel leans heavily on its Graph 1, below, to identify "Veg Tree" as the cause responsible for by far the largest number of customer outage minutes, attributing over 80,000,000 outage minutes to "Veg Tree." The second leading cause of outage minutes, "Unknown," is responsible for less than 10,000,000 outage minutes. No cause of outage minutes attributable to Xcel's equipment ranks higher than "Crossarm," the fourth leading cause of outage minutes, making it appear at first as though vegetation is, for all practical purposes, the only noteworthy cause of customer outage minutes.

Xcel Graph 1 – Major Cause of Outages



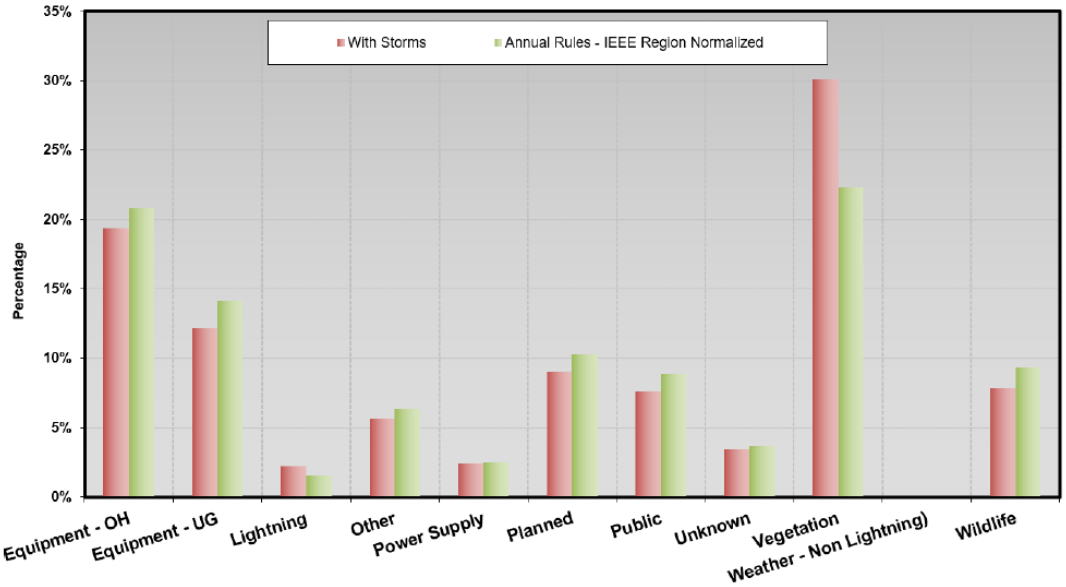
However, the true cause of outages plaguing these communities of older housing vintage and high percentage People of Color is likely not so simple. For example, Graph 1 only aggregates all customer outage minutes—obscuring the duration of individual outages. Stated differently, individual outages that affect more customers are going to have a large impact on a graph such as Xcel's Graph 1, above, even if the outages are relatively short. For example, if a tree branch causes an outage that affects 25,000 customers and lasts for three hours (180 minutes), that outage will account for 4.5 million customer outage minutes. In contrast, an outage that lasts for 12 hours (720 minutes) but affects only 1,000 customers will only account for 720,000 customer outage minutes.

Thus, Xcel's Graph 1 does not capture the extent to which vegetation causes CELI-12 outages, and does not sufficiently support Xcel's proposal to conduct "enhanced" vegetation management to reduce CELI-12 outages beyond efforts already expended in Xcel's current Vegetation Management Program.

Additionally, on Xcel's Graph 1, equipment as a cause of outage minutes is broken out into multiple categories of equipment, thus giving the impression of fewer outages caused by equipment. That is, because each specific type of equipment listed is responsible for fewer outages than the total caused by all equipment, this depiction underrepresents the outage minutes from all types of equipment combined. In contrast, other graphs in Xcel's report only break out the percentage of equipment-caused customer interruptions by overhead and underground equipment. These graphs indicate that a significant percentage of outages are due, at least in part, to equipment failures.[20]

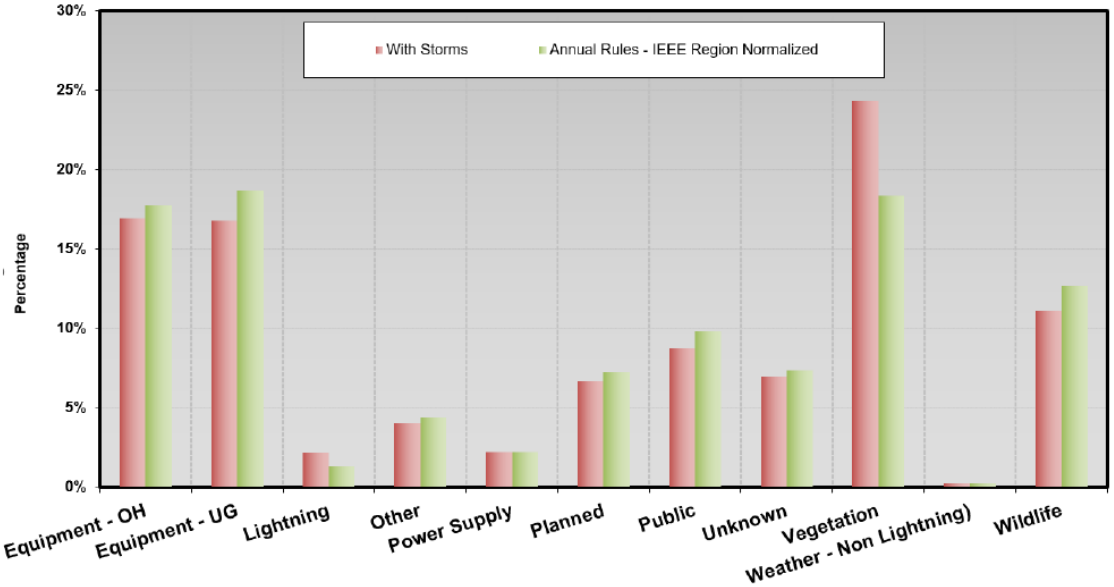
[20] 2023 SRSQ Part II at PDF Page 15-17.

Xcel Graph 1A
Metro East Work Region Outage Causes
2019-2023 Average Annual Customer Interruption Percentages – All Levels



Annual Rules based on sustained outages (>5 minutes), including All Levels and All Cause codes, IEEE 1366 Region normalized using 5 year rolling data including outliers

Xcel Graph 1B
Metro West Work Region Outage Causes
2019-2023 Average Annual Customer Interruption Percentages – All Levels



Annual Rules based on sustained outages (>5 minutes), including All Levels and All Cause codes, IEEE 1366 Region normalized using 5 year rolling data including outliers

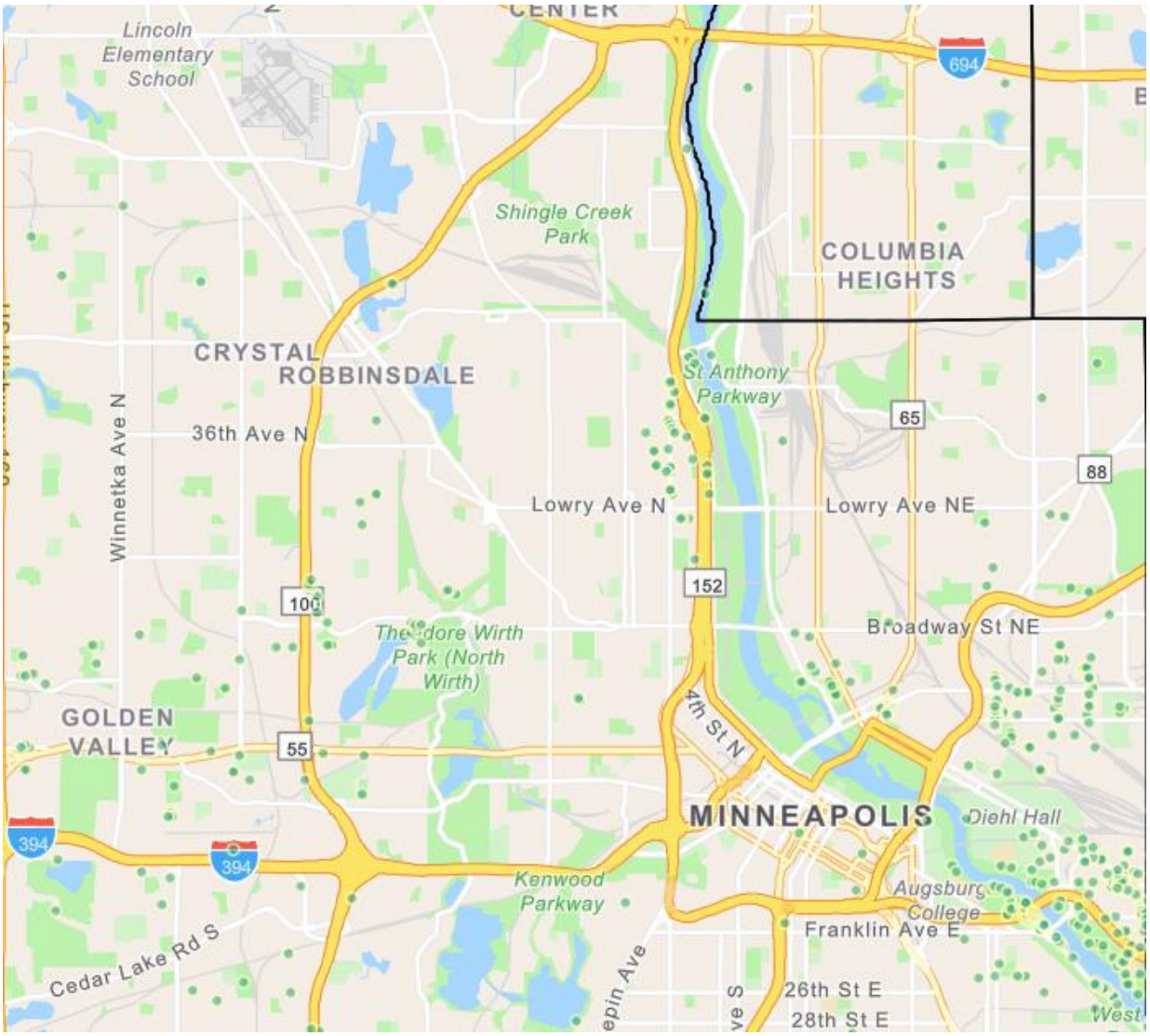
In addition to the problematic aggregation of customer outage minutes reflected in Graph 1 and described above, there is another reason these details are important. Xcel's emphasis on vegetation as a cause of outages does not explain why vegetation would be so problematic in just three discrete—and entirely physically disconnected—portions of Xcel's service territory. If vegetation alone were such a significant cause of extended outages, it stands to reason that would be reflected in all of Xcel's service territory, not just a select few neighborhoods with high percent People of Color and older housing vintage.[21]

Xcel speculates that enhanced vegetation management could mitigate heightened risk to overhead distribution lines, such as those caused by recently rising rates of overhead line impacts from trees afflicted by emerald ash borer infestations.[22] Xcel states that this approach may yield positive impact because "[h]omeowners in lower income neighborhoods may be less able to afford insecticide treatment or address dying ash trees on their property."[23] However, Xcel apparently did not seek to verify this speculation with any supporting data. The Minnesota Department of Agriculture, for example, maintains significant data regarding the range presence of emerald ash borer throughout the state,[24] and maintains a map showing known emerald ash borer locations.[25] This map does not show significant concentrations of infected trees in the CBGs Xcel flagged as problematic. Xcel's figure 4, reproduced above, shows in blue the identified CBGs, although not in great detail. OAG Figure 1 below shows the same area as the north cluster of CBGs, OAG

[21] The OAG acknowledges that vegetation may be the cause of some or many of these outages, but that the cause of the outage is vegetation is not the reason why these outages are being remedied more quickly in some areas versus others.
[22] 2023 SRSQ Part II at PDF Page 82.
[23] 2023 SRSQ Part II at PDF Page 82.
[24] Minnesota Department of Agriculture, *Emerald Ash Borer Status* map, https://mnag.maps.arcgis.com/apps/webappviewer/index.html?id=63ebb977e2924d27b9ef0787ecedf6e9 (last visited Aug. 26, 2024).
[25] *Id.*

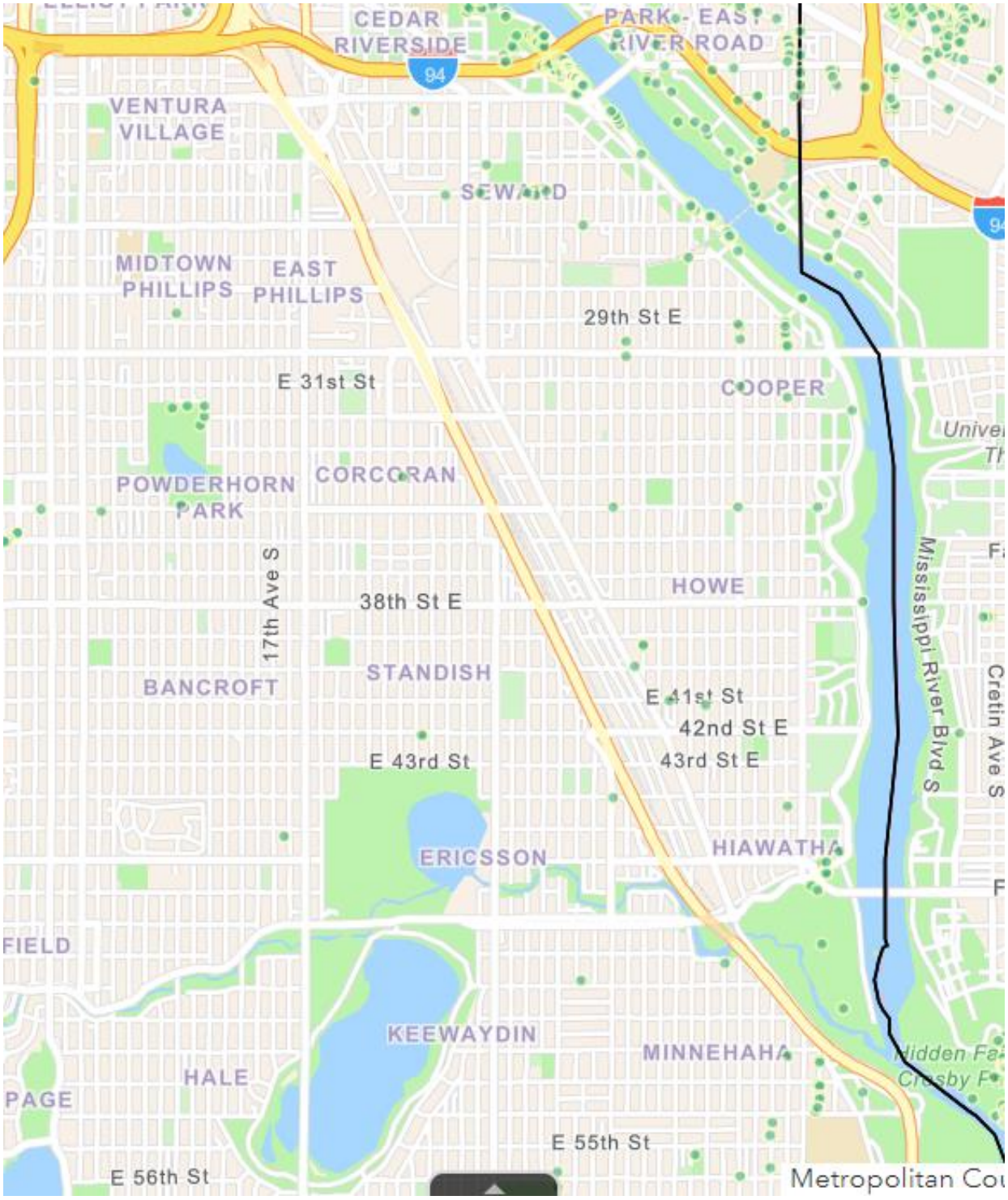
figure 2 shows the South Minneapolis cluster, and OAG Figure 3 shows the cluster "near downtown St. Paul."

OAG Figure 1 – North Minneapolis Area[26]

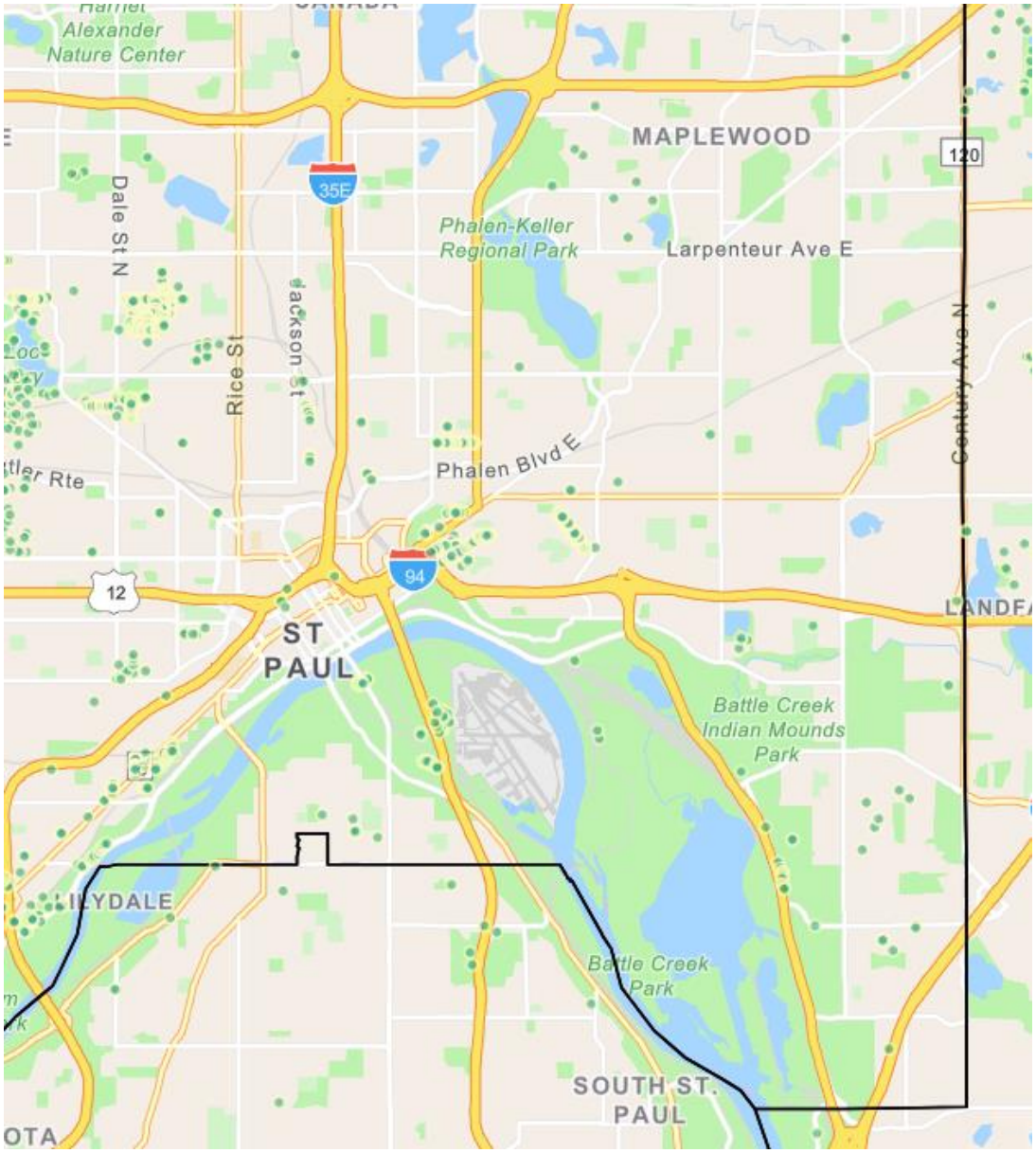


[26]Screenshot taken from https://mnag.maps.arcgis.com/apps/webappviewer/index.html?id=63ebb977e2924d27b9ef0787ecedf6e9.

OAG Figure 2 – South Minneapolis Area



OAG Figure 3 – St. Paul Area[27]

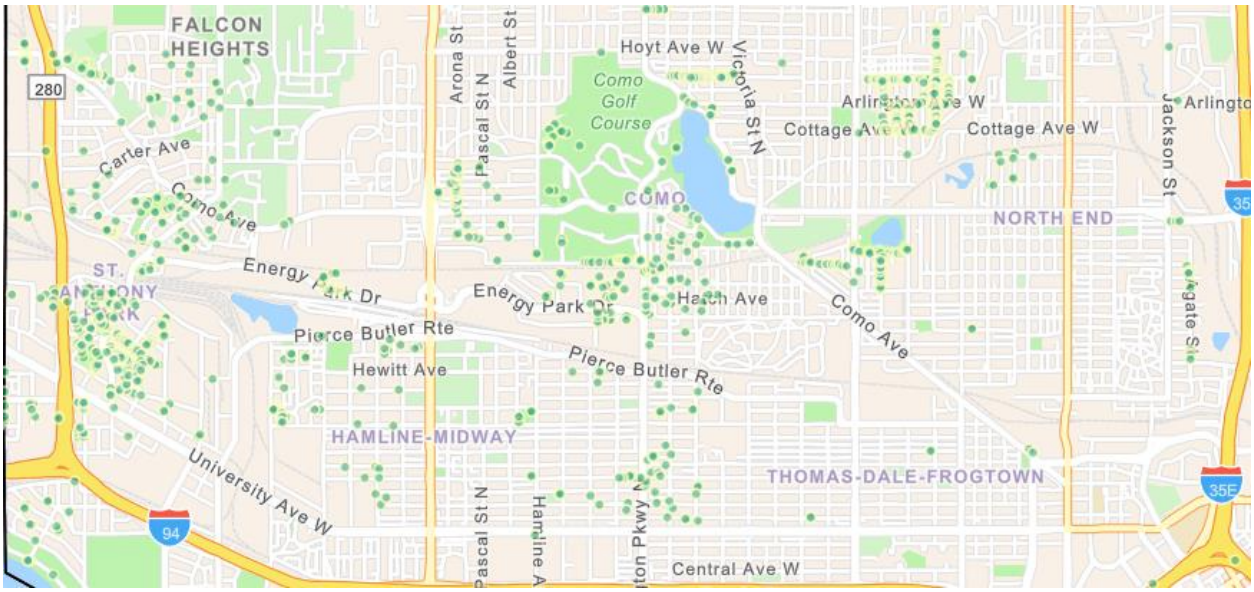


The Department of Agriculture's data suggests that many affluent neighborhoods have higher concentrations of emerald ash borer, likely due to generally reduced tree coverage in lower

[27] Screenshot taken from https://mnag.maps.arcgis.com/apps/webappviewer/index.html?id=63ebb977e2924d27b9ef0787ecedf6e9.

income areas. For comparison, the map below shows that St. Anthony Park and Como Park have significantly higher concentrations of infestation:

OAG Figure 4[28]



Xcel's apparent hypothesis that the disparity is influenced by trees infested by emerald ash borer that its customers in lower income neighborhoods are unable to afford to treat on their own[29] appears speculative.

Based on the TRC study, Xcel suggests that it could "evaluate enhanced vegetation management in these areas of concern."[30] Further evaluation is certainly necessary before proceeding with any enhanced vegetation management plan, given the lack of support provided by Xcel. For starters, Xcel should use its CBG data, combined with Department of Agriculture data, to determine if—or to what extent—the location of infested trees overlaps with the CBGs

[28] Screenshot taken from https://mnag.maps.arcgis.com/apps/webappviewer/index.html?id=63ebb977e2924d27b9ef0787ecedf6e9.
[29] 2023 SRSQ Part II at PDF Page 82.
[30] 2023 SRSQ Part II at PDF Page 82.

experiencing a disproportionate rate of CELI-12 outages. Xcel should also study whether the areas with identified CELI-12 disparities correlate to higher levels of tree canopy than other areas.

Finding a remedy to eliminate the CELI-12 disparity identified by Chan and Pradhan is paramount. But implementing a change that does not address the actual cause of the problem will needlessly increase costs for many of the same ratepayers experiencing the disparity. That said, the OAG does acknowledge that reducing outages, even if not of extended duration, is beneficial, especially when accomplished through a program such as vegetation management that is more likely to be cost effective than other options. In contrast, Xcel's other proposal to reduce outages and increasing reliability, targeted undergrounding of overhead lines, appears to impose extraordinary costs.

II. TARGETED UNDERGROUNDING APPEARS LIKELY TO BE TOO EXPENSIVE TO JUSTIFY ITS POTENTIAL BENEFITS.

While Xcel's proposal of an enhanced vegetation management program appears ill calibrated to rectify the identified disparities in CELI-12 outages, enhanced vegetation management could still incidentally reduce outage duration simply by reducing outage frequency,[31] and likely at a relatively lower cost than Xcel's other proposal. Xcel's second proposal is to target undergrounding of overhead distribution lines.[32] This carries the risk of enormous costs engulfing any ratepayer benefits of improved system reliability. First, like Xcel's enhanced-vegetation-management proposal, the benefits of undergrounding are largely related to reducing the frequency of outages from vegetation, rather than reducing the duration of individual outages. Second, given the tremendous variation in Xcel's current cost estimates for

[31] Even though Chan and Pradhan's study did not find outage *frequency* to be a problem in the high percent POC neighborhoods with older housing vintage. *See* Chan and Pradhan at 4.

[32] Xcel discusses targeted undergrounding as a possible way to reach systemwide 1st quartile reliability performance, and not only as a remedy to the identified CELI-12 disparity.

undergrounding, between $500,000 to $5 million per mile,[33] it is currently not possible to determine whether system reliability improvements of targeted undergrounding—whether reducing the CELI-12 outage disparity or even helping Xcel achieve overall 1st quartile reliability performance[34]—would justify the costs. For the reason discussed regarding targeted undergrounding, but believes it would be a poor use of resources for Xcel to file a more formal plan or pilot proposal at this time.

Xcel proposes rectifying the CELI-12 outage disparity experienced in high percentage POC neighborhoods through targeted undergrounding, which may "bring stronger reliability to older vintage homes served by an older vintage of our distribution network."[35] Targeted undergrounding, as the name implies, is a process that would identify and target the sections of Xcel's overhead distribution lines most susceptible to vegetation impacts and other hazards and convert them to underground equipment, reducing reliability risks.[36] In its preliminary analysis of targeted undergrounding, Xcel identified 1,157 miles of overhead distribution lines with an average of over 300,000 customer interruptions per year and 21 percent of customers experiencing outages lasting 24 hours or longer (CELI-24).[37] Notably, for purposes of these comments, Xcel does not identify the percent of customers served by these overhead distribution line miles experiencing CELI-12 outages.

The benefits of undergrounding are largely related to reducing the frequency of outages from vegetation, and therefore suffer from the same limitations as Xcel's proposal to use enhanced vegetation management to solve the CELI-12 outage disparities. If Xcel is directed to develop an

[33] 2023 SRSQ Part II at PDF Page 70.
[34] 2023 SRSQ Part II at PDF Page 69.
[35] 2023 SRSQ Part II at PDF Page 83.
[36] 2023 SRSQ Part II at PDF Page 69.
[37] 2023 SRSQ Part II at PDF Page 69.

official plan for targeted undergrounding, which the OAG does not recommend, Xcel should be required to closely examine whether undergrounding will significantly reduce the identified disparities identified by Chan and Pradhan and TRC.

Xcel also acknowledges that costs for targeted undergrounding are highly variable based on location (e.g., rural or urban) and the associated obstacles (e.g., route obstructions).[38] Xcel advises that targeted undergrounding can range from $500,000 to $5 million per mile depending on location, with urban locations tending to be more expensive than rural.[39] Xcel further advises that a program designed to bring Xcel to overall 1st quartile reliability performance would cost between $1 to $2 billion.[40] It is not clear at this time how Xcel arrived at this estimate—i.e., how Xcel made a preliminary determination of more expensive urban miles of targeted undergrounding and less expensive rural miles—but the OAG agrees that the range of potential undergrounding costs is wide. In rural North Dakota, for example, a 5.5-mile undergrounding project was completed following a storm in 1996 by non-profit cooperative Dakota Energy for approximately $11,570[41] per mile.[42] On the opposite end of the spectrum of undergrounding cost, the California Public Utilities Commission recently approved a proposal submitted by Pacific Gas & Electric

[38] 2023 SRSQ Part II at PDF Page 69-70.
[39] 2023 SRSQ Part II at PDF Page 70.
[40] 2023 SRSQ Part II at PDF Page 70.
[41] Using the consumer price index this amount would be $23,195.25 in 2024 dollars. *See* Inflation Calculator, Fed. Reserve Bank of Minneapolis, https://www.minneapolisfed.org/about-us/monetary-policy/inflation-calculator.
[42] Federal Emergency Management Agency, *From Overhead to Underground: It Pays to Bury Power Lines*, (Feb. 11, 2021), https://www.fema.gov/case-study/overhead-underground-it-pays-bury-power-lines. The cost to Dakota Energy's customers was further reduced by receipt of funds provided by the Hazard Mitigation Grant Program of the Federal Emergency Management Agency. *Id.* Although businesses cannot apply for these specific type of funds, Xcel should provide information on any potential offsetting costs if the Commission determines it should file a more specific proposal. Federal Emergency Management Agency, *Hazard Mitigation Grant Program (HMGP)*, (Nov. 2, 2023), https://www.fema.gov/grants/mitigation/hazard-mitigation.

(PG&E) to underground 2,000 miles of overhead lines at a 2023 per-mile cost of $3.3 million, with the expectation that undergrounding costs will trend downward over time to a forecasted 2026 per-mile cost of $2.8 million, and a four-year average cost of $2.97 million per mile.[43]

Given the tremendous variability in the costs of targeted undergrounding, it is not currently possible to determine whether it is a viable method of addressing Xcel's CELI-12 disparity. But the California undergrounding example should give the Commission pause. Before exploring this path any further, Xcel should file revised and more specific cost estimates tailored to Xcel's service territory of the cost per mile for targeted undergrounding in the impacted areas. The OAG does not support Xcel filing a formal plan or pilot project proposal at this time.

III. REPLACING OLDER-VINTAGE DISTRIBUTION EQUIPMENT IN THE COMMUNITIES EXPERIENCING CELI-12 OUTAGE DISPARITY WITHOUT UNDERGROUNDING MAY BE A MORE VIABLE SOLUTION.

The TRC study indicates that there may be opportunity for Xcel to assess distribution equipment vintage in high-percent POC communities that could be causing longer outages.[44] The OAG interprets this statement to mean that distribution equipment in the CELI-12-disparity communities could be of sufficient age that it is more prone to failure than distribution equipment in other areas of Xcel's service territory. The implication that older-vintage distribution equipment may be concentrated in higher-percent POC communities with older housing is concerning. In reply comments, Xcel should clarify TRC's indication of a disparity in equipment vintage in high-percent POC communities. Specifically, Xcel should provide a narrative explanation of how "distribution equipment vintage that could lead to longer outages" could be concentrated in any

[43] California Public Utilities Commission, Application 21-06-021, *Application of Pacific Gas and Electric Company for Authority, Among Other Things, to Increase Rates and Charges for Electric and Gas Service Effective on January 1, 2023,* Decision on Test Year 2023 General Rate Case for Pacific Gas and Electric Company at 266 (Nov. 17, 2023) https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M520/K896/520896345.pdf.
[44] *See, e.g.*, 2023 SRSQ Part II at PDF Page 82.

one area such that it could cause a disparity in CELI-12 outages. Xcel should also discuss what other options it may have to modernize the relevant distribution equipment such that it would not be so susceptible to extended outages. This information could help identify alternative methods that could better target CELI-12 disparities than Xcel's proposals would. The Commission should also direct Xcel to study and report on any viable alternatives.

IV. XCEL SHOULD EXPLORE POTENTIAL OPERATIONAL CHANGES TO REMEDY THE IDENTIFIED DISPARITIES.

The OAG is also concerned by the possibility that restoration efforts in these communities may be consistently receiving lower priority for restoration than other areas within Xcel's service territory. If this is occurring in any way, for any reason, it cannot be allowed to continue.

When describing the possible benefits of targeted undergrounding, Xcel notes that preventing some outages this way may allow for faster restoration of other outages during large weather events. According to Xcel, "Those large events are generally what lead to long duration outages because the number of outage jobs significantly exceed the capacity of available field restoration crews."[45] But there is a gap in this reasoning. A disparity in CELI-12 outages in high-percent POC communities would only exist if Xcel prioritized dispatching its limited number of field restoration crews to address outages in other communities. That is, a limited number of technicians would explain why CELI-12 outages are high due to large weather events, but not why they are higher in areas with higher concentrations of People of Color and older housing vintages. Given the statistically significant pattern observed by Chan and Pradhan and TRC, there remains the possibility that problematic, if unintentional, prioritization may be occurring.

Given, however, that there are identified communities that are experiencing much higher rates of CELI-12 outages than other communities, the OAG recommends that Xcel propose

[45] 2023 SRSQ Part II at PDF Page 70.

potential operational changes in its outage-response efforts that would ensure more equitable distribution of repair efforts. Some options include, but are not limited to, work crews being assigned in a more equitable fashion and increased field crew workstations in high-impact areas. In its analysis and proposals, Xcel should be mindful that it is not proposing operational changes that simply move resources from one impacted community to another.

CONCLUSION AND SUMMARY OF RECOMMENDATIONS

As Chan and Pradhan state in their February 2024 report, their findings "do not necessarily imply deliberate racial bias on the part of energy system planners."[46] The OAG is not suggesting that Xcel is willfully discriminating against high POC neighborhoods. However, evidence presented by Chan and Pradhan, as well as Xcel's TRC study, shows racial disparities in certain communities' experience with extended outages. Accordingly, corrective action is urgently needed to prevent further harm to these communities. At the same time, Xcel has not shown that targeted undergrounding of overhead distribution lines or enhanced vegetation management are likely to resolve the disparities. Although these proposals should continue to be explored, with varying levels of attention, Xcel should also study the potential impact of Xcel's distribution equipment vintage in the affected communities. Further, the OAG recommends that Xcel propose potential operational changes that could reduce these disparities.

The OAG recommends the Commission take the following actions:

A. Direct Xcel to file an enhanced vegetation management plan with a cost–benefit analysis. In its filing, Xcel should also explain its analysis of the following to determine whether insufficient vegetation management was a causal factor in the identified disparities:

[46] Chan and Pradhan at 3.

1. Using Xcel data combined with Department of Agriculture data, Xcel should explain whether it found a correlation of CELI-12 problem areas with the location of infected trees
2. Xcel should also study whether the areas with identified CELI-12 disparities correlate to higher levels of tree canopy than other areas.
3. Xcel should explain whether, in its review of its records, vegetation outages actually caused the larger number of outages in the identified clusters of CELI-12 outages identified in Figure 4 of the TRC study.

B. Direct Xcel to file revised and more specific cost estimates tailored to Xcel's service territory of the cost per mile for targeted undergrounding in the impacted areas.

C. Direct Xcel to provide study and analyze distribution equipment vintages in the affected CELI-12 communities and analyze whether upgrading this equipment would be cost effective.

D. Direct Xcel to propose potential operational changes in its outage-response efforts that would ensure more equitable distribution of repair efforts

Dated: August 27, 2024

Respectfully submitted,

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