

Ameren Illinois Voltage Optimization Low Income Prioritization Strategy

February 2019

Ameren Illinois' VO Plan is designed to serve all Ameren Illinois electric customers on cost-effective circuits, with prioritization given to circuits serving low and moderate income customers throughout the Ameren Illinois service territory. As part of the approved VO Plan, Ameren Illinois committed to prioritize implementing voltage optimization measures at locations where there are cost-effective circuits that serve low income communities, focusing first on the Top 20 Tier One Communities¹ as these serve as a proxy for geographic areas serving low-income customers. It also committed to investigating voltage optimization opportunities for low-income customers outside of its Tier One community designation and develop a prioritization strategy that incorporates and prioritizes investment in voltage optimization equipment for circuits serving primarily low-income customers, as best Ameren Illinois can determine.

As part of this investigation, Ameren Illinois further reviewed income data on individual customers that was available in Ameren's systems that could potentially provide more granularity beyond the Tier One community designation. Two additional pieces of data were identified to assist with the analysis of which circuit should be considered for prioritization.

The first piece of data included whether the customer had been designated as a participant in Low Income Home Energy Assistance Program (LiHEAP) and/or the Percent of Income Payment Plan (PIPP). Ameren Illinois relied on internal "flagging" on the customer's account in the Ameren Illinois customer information system. A current flag identifies if a bill account has received a pledge for LiHEAP or PIPP funds. When coupled with the LiHEAP and PIPP program requirements, this indication of participation appeared to be useful in identifying which customers were tied to circuits that could be candidates for prioritization.

The second piece of information included a review of household income level data, which was provided as part of the demographic data from the third party research company Experian. From this Experian data, Ameren Illinois analyzed household income data on 93% of its residential bill accounts. While Ameren Illinois does not have

¹ Ameren Illinois defines Tier One communities as "Low-income communities, mostly single-family areas that are underserved by residential (energy efficiency) programs." The December 2017 Opinion Dynamics report cited by Ameren further characterizes Tier One communities as having:

- Over 50 percent low-income households;
- Less than 10 percent multi-family households;
- Less than 10 percent of households participating in previous energy efficiency programs.

The Opinion Dynamics report estimates that the Tier One communities represent approximately 10% percent of Ameren's customers, or approximately 106,000 of Ameren's total 1.06 million electric residential customers.

data on the size of each household, the income levels are broken down into 12 categories:

- a. \$1,000-\$14,999
- b. \$15,000-\$24,999
- c. \$25,000-\$34,999
- d. \$35,000-\$49,999
- e. \$50,000-\$74,999
- f. \$75,000-\$99,999
- g. \$100,000-\$124,999
- h. \$125,000-\$149,999
- i. \$150,000-\$174,999
- j. \$175,000-\$199,999
- k. \$200,000-\$249,999
- l. \$250,000 +

After considering the household income categories above, and comparing to 2017 federal poverty guidelines, it appears that the \$50,000 and below income level would be the appropriate income level to use to help define a "low income" household for this VO deployment prioritization. As illustrated in Figure 1 below, this income threshold will allow for the inclusion of those households at (a) the poverty level for household sizes well in excess of 5 (up to 10); (b) up to 200% of poverty level for household sizes up to 4; as well as other income levels including up to 300% of the poverty level for household sizes up to 2.

Dropping to the next lower household income category of \$35,000 will unnecessarily limit the definition to households that may not be reflective of Ameren Illinois' customers and may result in dilution of the low income prioritization.

Household Size	Yearly Income Federal Poverty Line	Yearly Income (200% of Federal Poverty Line)	Yearly Income (300% of Federal Poverty Line)
1	\$12,060	\$24,120	\$36,180
2	\$16,240	\$32,480	\$48,720
3	\$20,420	\$40,840	\$61,260
4	\$24,600	\$49,200	\$73,800
5	\$28,780	\$57,560	\$86,340

Figure 1 – Federal Poverty Guidelines²

It should be noted that as of a June 2018 snapshot, approximately 6% (63,160) of Ameren Illinois customers are flagged as receiving LiHEAP or PIPP funds, and approximately 43% of Ameren Illinois customers (456,768) are flagged as having a household income <= \$50,000. See data below:

² Source = [//www.illinoislegalaid.org/legal-information/federal-pverty-levels](http://www.illinoislegalaid.org/legal-information/federal-pverty-levels)

Income Related Residential Bill Account Data				
		LiHEAP or PIPP		Total
		N	Y	
HH Inc < \$50K				
Missing	Frequency	69860	3355	73215
	Percent	6.61	0.32	6.93
	Row Pct	95.42	4.58	
	Col Pct	7.03	5.31	
N	Frequency	511895	15196	527091
	Percent	48.43	1.44	49.86
	Row Pct	97.12	2.88	
	Col Pct	51.5	24.06	
Y	Frequency	412159	44609	456768
	Percent	38.99	4.22	43.21
	Row Pct	90.23	9.77	
	Col Pct	41.47	70.63	
Total	Frequency	993914	63160	1057074
	Percent	94.03	5.97	100

Figure 2 – Income Related Bill Account Data

Because every bill account can be tied to a distribution circuit, Ameren Illinois is able to identify how many bill accounts (I.E. customers) are flagged as LiHEAP / PIPP and with a household income level < \$50,000 / year by distribution circuit. After reviewing this available data in detail for the cost-effective VO circuits, and considering that 71% of bill accounts with the LiHEAP/PIPP flag also have a household income < \$50,000, Ameren Illinois believes the most appropriate and accurate way to identify circuits that serve low-income customers is by using a combination of LiHEAP/PIPP and household income < \$50,000. Therefore, for the purposes of prioritizing VO circuit deployment based on income levels, Ameren Illinois will define a low-income customer as a bill account with the LiHEAP/PIPP flag and/or a household income < \$50,000. This approach will supersede using the Top 20 Tier One community data as it should more precisely identify the prioritized customers by circuit.

Using the above approach, from the data available in June 2018 there are approximately 475,319 bill accounts that have either the LiHEAP/PIPP flag and/or a household income < \$50,000. Of those, approximately 253,932 are on VO cost-effective circuits. With these numbers in mind, and after reviewing the distribution of these customers on VO cost-effective circuits, Ameren Illinois will prioritize circuit deployment based on the number of low income bill accounts on a circuit as defined above, subject to the following considerations:

- It is reasonable to proceed with circuit implementation after initial review in circuit analysis software.
- Will keep energy savings in line with yearly program goals.
- Will consider geography (work split across all divisions and operating centers).
- Preferably work all units/circuits out of a substation in the same year.
- Will consider Substation LTC configurations vs individually regulated circuits.
- Will consider level of difficulty of substation and circuit work involved.
- Will consider impact of DER (community solar) on circuit.
- Subject to field engineering review and local circuit considerations.

Further, implementing the above approach, Ameren Illinois will use best efforts to reach the following percentages of identified low-income customers on cost-effective VO circuits constructed by the end of the following years:

- 2018 – 2% (19 circuits identified and constructed in 2018 prior to this strategy development)
- 2019 – 20% (an additional 130 circuits identified and engineered prior to this strategy development)
- 2020 – 50%
- 2021 – 70%
- 2022 – 85%
- 2023 – 93%
- 2024 – 100%

It is important to note that the strategy and commitment above is based on the data available at the time this document was created. Changing customer demographics and premise locations, as well as circuit configurations, amount of line conditioning work required, and other circuit specific conditions will need to be considered over the life of the plan. Ameren Illinois reserves the right to appropriately revise this prioritization strategy as the available data changes, but will remain committed to prioritizing VO cost-effective deployment based on the analysis set forth in this document throughout the life of the plan. Any substantial changes to this VO Low Income Prioritization Strategy will be shared with the Stipulating Parties for review and comment. Any comments received will be reasonably considered prior to any revisions to this VO Low Income Prioritization Strategy.