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AMEREN ILLINOIS COMPANY

2025 BUSINESS PROGRAM IMPACT EVALUATION REPORT

APPENDIX E: 2025 LUMINAIRE-LEVEL LIGHTING CONTROLS MARKET PROGRESS EVALUATION REPORT

FINAL
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1. EXECUTIVE SUMMARY

This report presents results from the second annual market progress evaluation of Ameren Illinois Company's (AIC) Luminaire Level Lighting Controls (LLLC) Market Transformation Initiative (MTI), covering the 2025 program year. AIC completed its fourth year of LLLC MTI implementation during 2025.

1.1 BACKGROUND

AIC's energy efficiency (EE) portfolio has historically focused on resource acquisition (RA) programs. In RA programs, the program implementer directly influences the decision-making and behaviors of individual market actors (i.e., program participants), encouraging them to take energy-saving actions they would not have taken in the absence of program interventions. In contrast to RA incentives, MTIs affect an array of market actors, such as those in the supply chain for a particular product, thereby indirectly influencing purchasing decisions.

AIC offers LLLC RA rebates concurrently with the LLLC MTI through the Business Program's Standard and Small Business Initiatives. In the context of MTIs, rebates help build market adoption quickly and yield short-term energy savings, while MTI activities are intended to foster structural changes in markets that manifest enduring savings that continue after rebates cease.

AIC's LLLC MTI intends to influence all LLLC manufacturers, LLLC distributors, general contractors/installers (e.g., commercial lighting designers), and commercial customers in its territory. The MTI logic model presented in Section 2.1 illustrates the three barriers the initiative is working to address through its activities and outputs: a lack of value proposition for LLLCs (low awareness and familiarity), high upfront costs for LLLCs, and a lack of skilled contractors/installers. To date, AIC's main activities to drive the diffusion of LLLCs are in-person training sessions, online training models called NXT Level, rebates, and the dissemination of marketing materials.

1.2 RESEARCH OBJECTIVES AND METHODS

Our 2025 evaluation included both process and impact evaluation components, as well as market-monitoring activities to document overall market changes. Our objectives were to complete the following:

- Gauge Implementation
- Track Market Progress
- Monitor Commercial Lighting Markets
- Measure Savings

Data collection encompassed general population surveys of AIC's business customers and trade allies; pre- and post-training surveys of training participants; post-training interviews conducted at least six months after training completion; program materials review; and web searches. All data collection instruments were originally administered as part of the 2024 evaluation, with limited revisions in 2025 to preserve continuity.

We used the MTI's Market Progress Indicators (MPIs) to track progress since 2024. Table 1 shows the MPIs and their 2027 target values.

Table 1. LLLC MPI Summary

MPI Number	MPI Description	2027 MPI Target
MPI I	Increased awareness of LLLCs among the target market	▪ 50% customer awareness ▪ 95% installer awareness
MPI II	Increased familiarity with LLLCs among the target market	▪ 3.5/5 (70%) familiarity across target markets
MPI III	Increased recommendation of LLLCs among the target market	▪ 65% of the applicable target market recommends LLLCs
MPI IV	Increased installation of LLLCs among end-use customers	▪ 65% of customers install LLLCs when recommended by contractors or installers
MPI V	Increased number of trained contractors and installers	▪ 25% of program allies can explain, describe, and sell LLLCs
MPI VI	Increased stocking of LLLC equipment among distributors	▪ A minimum of three key distributors stock LLLCs as a business practice
MPI VII	Increased LLLC listing in the DesignLights Consortium (DLC) Qualified Products List (QPL)	▪ Five additional manufacturers list their products on the DLC QPL

A key feature of MTI evaluations is their attention to year-over-year changes in program and market activities, as well as to changes since the MTI's Natural Market Baseline (NMB) was created. As such, we include data from the NMB and 2024 evaluation where relevant.

1.3 KEY FINDINGS

The evaluation team distilled the following key findings from across all data collection activities. The AIC LLLC MTI continued its implementation activities from 2024, with positive feedback from participants. The MTI achieved milestones in its MPIs that suggest market transformation is beginning to occur. Rebates, however, drove market adoption.

1.3.1 IMPLEMENTATION

- During 2025, AIC's key implementation activities included four in-person training sessions, NXT Level online training modules, offering the RA incentives, and the annual AIC EE Program Business Symposium.
- 101 unique individuals participated in the in-person training sessions. Each of the four sessions covered essentially the same introductory content about LLLCs that was developed and first delivered at the four in-person training sessions held in 2024.
- The in-person training improved participants' self-reported knowledge of networked lighting controls (NLCs) and LLLCs. Before the training, the majority of respondents considered themselves to have no knowledge or very little knowledge about NLCs and LLLCs. After the training, all participants rated themselves at least somewhat knowledgeable about LLLCs, with one-quarter being very knowledgeable. Respondents' confidence in all LLLC-related tasks increased after the training. Similarly, respondents were on average 45% more confident in their ability to sell LLLCs to customers after attending the training.
- The majority (75%) of post-training survey respondents were either extremely satisfied or satisfied with the in-person training. Two of the dissatisfied respondents stated they would have found the training more beneficial if it included more hands-on programming and commissioning. One respondent mentioned that more immediate access to the online NXT Level training would have been useful, as they received access several months after the first training, while another suggested in-depth, role-specific LLLC courses.

- Our general population survey of AIC business customers revealed 11 out of the 352 surveyed customers (3%) had LLLCs installations that had been installed during any year, with 7 reporting an installation specifically during 2025. The 7 LLLC installations in 2025 were in offices, warehouses, and retail locations.
- Over three-quarters (76%) of the 11 respondents with LLLCs gave the performance of the LLLCs the two highest ratings. More than three-quarters (82%) of respondents reported reduced energy use, while over half (55%) noted reduced energy cost. Nearly half (45%) indicated better occupant comfort. However, three respondents (27%) were somewhat dissatisfied with the cost of purchasing and installing LLLCs.
- Although only 11 customers had LLLC installations in their facilities, 76 of the 354 customer survey respondents (21%) had heard about LLLCs. About one-quarter first heard about LLLCs from a contractor or electrician (24%), just under one-quarter heard from AIC (22%), and fewer than one-fifth heard via word-of-mouth from another business owner (13%).
- During 2025, 164 of the 964 lighting projects completed by surveyed trade allies included LLLCs (17%). On average, trade allies who completed projects with LLLCs did 27 LLLC projects during 2025. For those projects including LLLCs, on average, 53% of the fixtures were LLLCs.

1.3.2 MARKET PROGRESS

Based on analysis of the MPIs (Table 2), the LLLC Pilot is on its way to achieving the 2027 targets for MPIs I and III, and has already reached targets set for MPIs II, IV and V.

Table 2. 2024 and 2025 LLLC Pilot Results Against 2027 MPI Targets

MPI Description	2024 MPI Results	2025 MPI Results	2027 MPI Target
MPI I: Increased awareness of LLLCs among the target market	▪ 36% customer awareness ▪ 92% installer awareness	▪ 41% customer awareness ▪ 91% installer awareness	▪ 50% customer awareness ▪ 95% installer awareness
MPI II: Increased familiarity with LLLCs among the target market	▪ 3.72/5 (74%) familiarity across target markets	▪ 3.66/5 (73%) familiarity across target markets	▪ 3.5/5 (70%) familiarity across target markets
MPI III: Increased recommendation of LLLCs among the target market	▪ 51% of the target market surveyed recommends LLLCs	▪ 55% of the target market surveyed recommends LLLCs	▪ 65% of the applicable target market recommends LLLCs
MPI IV: Increased installation of LLLCs among end-use customers	▪ 5 of 7 customers (71%) followed through on LLLC recommendations	▪ 12 of 17 customers (71%) followed through on LLLC recommendations	▪ 65% of customers install LLLCs when recommended by contractors or installers
MPI V: Increased number of trained contractors and installers	▪ 46% of program allies can explain, describe, and sell LLLCs	▪ 46% of program allies can explain, describe, and sell LLLCs	▪ 25% of program allies can explain, describe, and sell LLLCs

1.3.3 MARKET MONITORING

Interoperability of LLLCs with other devices has begun to improve and achieved a significant milestone in late 2025 with the Digital Addressable Lighting Interface (DALI) Alliance's announcement of a new test and certification specification for Wireless to DALI Gateways, which allows interoperability between wired DALI devices, Bluetooth®, and Zigbee wireless systems.

Our literature review also identified additional barriers to LLLC adoption beyond those included in AIC's LLLC MTI logic model:

- LLLC system limitations, such as a lack of interoperability with other building systems
- Lack of collaboration between different disciplines (e.g., IT support staff and lighting installers do not typically work together, but LLLC installations require both skill sets)
- Uncertainty about the amount of savings (customers hesitated to choose LLLCs because savings weren't guaranteed)
- Building characteristics (e.g., LLLCs can be challenged by building layouts that limit wireless connectivity)
- Equipment availability/lead time
- Preference for wired systems (customers felt wired lighting was more secure)

1.3.4 MARKET TRANSFORMATION SAVINGS

Although we estimate that LLLCs generated more than 9 million kWh of savings in AIC's service territory in 2025, we find that none of these savings can be attributed to market transformation activities; we attribute estimated savings to RA incentives and expected naturally occurring market adoption. The number of verified incented LLLC fixtures increased from 23,644 in 2024 to 50,936 in 2025.

1.4 CONCLUSIONS AND RECOMMENDATIONS

Based on these key findings, the evaluation team has the following conclusions and recommendations for AIC's consideration.

- **Conclusion**: AIC's in-person training sessions are effective at providing an introduction to LLLCs and NLCs. Trade allies in particular requested additional, more in-depth training that would ideally include hands-on opportunities to work with LLLCs and exposure to LLLCs available from a variety of manufacturers.
  - **Recommendation**: Continue offering the in-person introductory LLLC trainings. In parallel, develop and offer additional in-person and online training targeted to trade allies who need to know how to install and set up LLLC systems. Online training is especially valuable to build LLLC awareness and knowledge at market scale. Based on our market monitoring literature review, AIC could also consider addressing interoperability, working with IT systems and staff, and wireless system security. Gather input about training needs from field staff who have been supporting LLLC systems, as well. To the extent possible, co-locate in-person training sessions with industry events where lighting designers and installers will be present or partner with manufacturers and distributors to co-deliver training with them.
  - **Recommendation**: Add additional metrics to MPI V, specifically to track the number and proportion of trade allies in AIC's territory who have attended AIC or other high-quality LLLC trainings. This change will allow MPI V to indicate not only the quality of learning (as currently suggested by the 2027 target), but also the quantity of trade allies in the whole market who are getting trained in LLLCs.
- **Conclusion**: Adoption of LLLCs appears to be accelerating in AIC's territory. However, acceleration to date is dependent on LLLC incentives, and adoption may falter when rebates end.
  - **Recommendation**: Continue LLLC rebates while introducing additional upstream and general population market transformation activities that promote LLLCs at market scale. For instance, consider creating and broadly sharing case studies that articulate the features, benefits, and overall value proposition for LLLCs in

specific facility types, highlighting local AIC LLLC success stories that document energy savings, cost savings, and comfort improvements from LLLC installations. Build relationships with distributors and orient them to these value propositions for LLLCs, so they are prepared to provide nuanced recommendations for LLLCs to contractors in their networks. Expand marketing about LLLCs to AIC business customers in general.

- **Recommendation**: Consider additional marketing directed to businesses in the facility types that are leading LLLC adoption based on our survey results or are generating the most savings, based on program data. If resources allow, also consider outreach to understand why LLLC adoption lags in some facility types and what marketing tactics and additional supports could begin to push these businesses toward LLLC adoption.
- **Recommendation**: Consider developing and tracking additional MPIs to measure market changes higher in the supply chain, such as with distributors. Another option is to begin measuring MPI VI—the only MPI specifically addressing distributors—as soon as feasible, given the Initiative's ability to deepen engagement with these highly influential market actors.

2. INTRODUCTION

Ameren Illinois Company (AIC) completed its fourth year of Luminaire Level Lighting Controls (LLLC) Market Transformation Initiative (MTI) implementation in 2025. LLLCs are a subset of Networked Lighting Controls that have been available for approximately a decade but are still in the early stages of market adoption. AIC and Illinois stakeholders recognized significant untapped energy savings potential from LLLCs, and in late 2021, AIC launched an LLLC Pilot MTI to accelerate the adoption of LLLCs within its service territory. During 2022 and 2023, Opinion Dynamics worked with AIC and its consultant, Resource Innovations, to review and finalize foundational MTI materials, including a logic model, Market Progress Indicators (MPIs) and associated targets, a Natural Market Baseline (NMB) forecast, and a multi-year evaluation plan for the LLLC Pilot. These materials were memorialized and approved by the Illinois Stakeholder Advisory Group (SAG) in the 2023 AIC LLLC MTI Business Plan.[1] The MTI continued in 2024, including its first program evaluation.[2] This report is the second evaluation of the LLLC MTI, covering the initiative's 2025 program year.

AIC's energy efficiency portfolio has historically focused on resource acquisition (RA) programs. In RA programs, the program implementer directly influences the decision-making and behaviors of individual market actors (i.e., program participants), encouraging them to take energy-saving actions they would not have taken in the absence of program interventions. The classic RA tactic is to incentivize purchases of energy-efficient technologies through rebates.

Combining MTIs with RA rebates is a common strategy. AIC offers LLLC rebates concurrently with the LLLC MTI through its Standard and Small Business Initiatives. In the context of MTIs, rebates help build market adoption quickly and yield short-term energy savings, while other MTI activities foster structural changes in markets that manifest enduring savings. MTIs tend to phase out rebates once market shifts begin and rebates are no longer needed to drive adoption. In fact, continued adoption of energy-efficient technologies after rebates end is often considered a sign an MTI has successfully removed market barriers that limited market adoption before the initiative began.

Because MTIs focus on removing markets rather than on influencing individual rebate recipients, program design, evaluation, and savings estimations are more complex than for RA programs. MTIs affect an array of actors, including those working in the supply chain for a particular product, thereby indirectly influencing purchasing decisions. Such indirect influence generally requires much longer-term implementation than an RA program to realize savings. Outcomes and savings are harder to measure, and attribution claims are more complicated and uncertain when initiative influence must cascade across supply chains before arriving at customers. Despite these complexities, MTIs have the potential to provide substantial benefits to society by leveraging market dynamics to influence the actions of a much broader pool of market actors than is possible with RA programs.

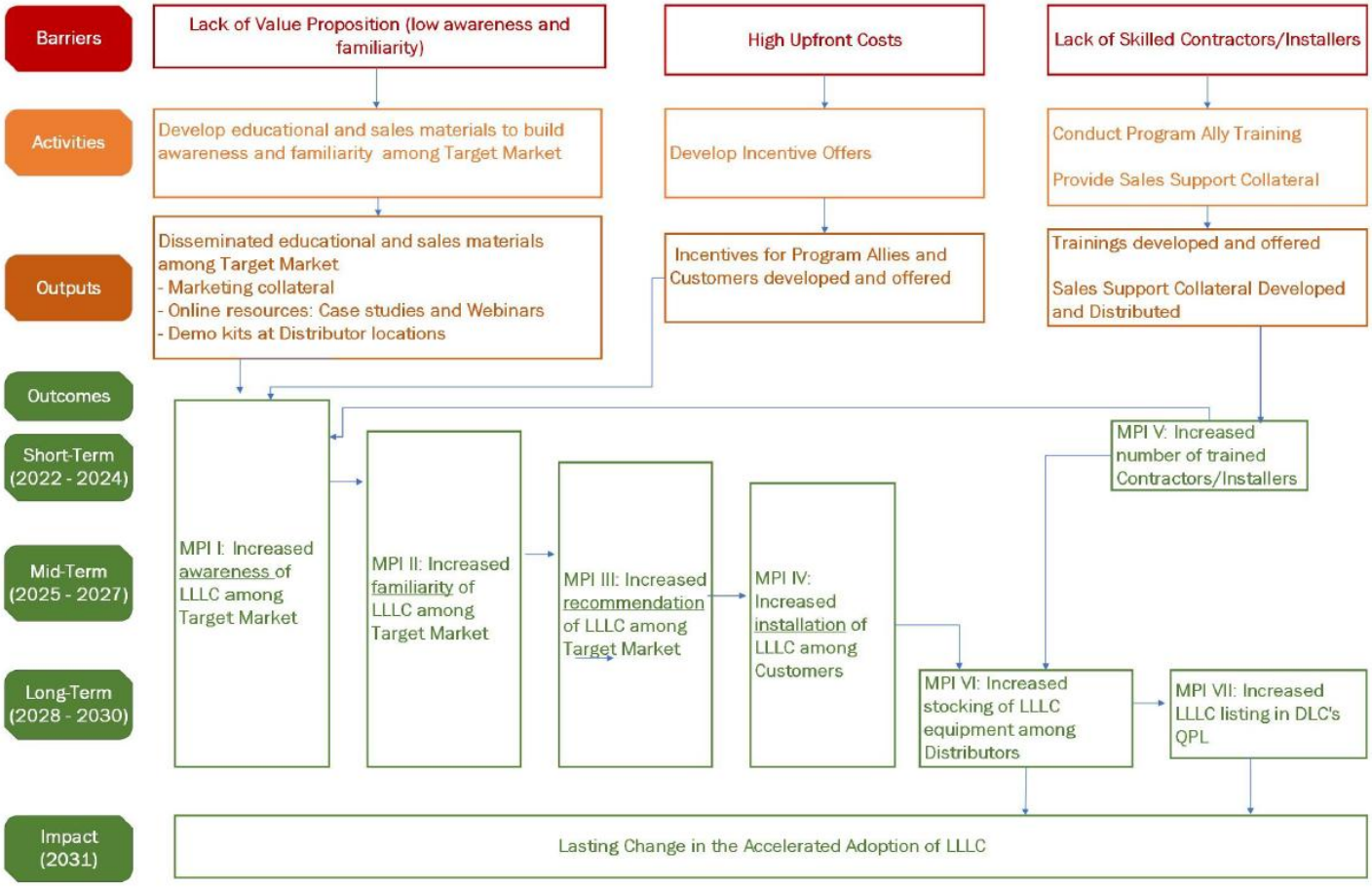
2.1 AIC LLLC MTI

Per the AIC LLLC MTI business plan, the Initiative has a broad target market it intends to influence: all LLLC manufacturers, LLLC distributors, general contractors/installers (e.g., commercial lighting designers), and commercial customers in its territory. The MTI logic model illustrates the three barriers the Initiative is working to address through its activities and outputs, as well as the short-, mid-, and long-term outcomes it hopes to achieve (Figure 1).

[1] AIC. *Ameren Illinois Luminaire Level Lighting Controls (LLLC) Market Transformation Initiative Business Plan* (November 1, 2023). Retrieved from https://www.ilsag.info/wp-content/uploads/AIC-LLLC-MTI-Business-Plan-11.01.23-Final-Draft.pdf

[2] Opinion Dynamics. *2024 Business Program Impact Evaluation Report, Appendix E: Luminaire-Level Lighting Controls Market Transformation Pilot - 2024 Market Progress Evaluation Report* (April 29, 2025). Retrieved from https://www.ilsag.info/wp-content/uploads/AIC-2024-Business-Program-Impact-Evaluation-Report-Appendix-E-FINAL-2025-04-29.pdf

Figure 1. AIC LLLC MTI Logic Model



Source: AIC. *Ameren Illinois Luminaire Level Lighting Controls (LLLC) Market Transformation Initiative Business Plan* (November 1, 2023).

Table 3 summarizes the MPIs established by the AIC LLLC MTI Business Plan to track anticipated outcomes, along with their 2027 targets.

Table 3. LLLC Pilot MPI Summary

MPI Number	MPI Description	2027 MPI Target
MPI I	Increased awareness of LLLCs among the target market	▪ 50% customer awareness ▪ 95% installer awareness
MPI II	Increased familiarity with LLLCs among the target market	▪ 3.5/5 (70%) familiarity across target markets
MPI III	Increased recommendation of LLLCs among the target market	▪ 65% of the applicable target market recommends LLLCs
MPI IV	Increased installation of LLLCs among end-use customers	▪ 65% of customers install LLLCs when recommended by contractors or installers
MPI V	Increased number of trained contractors and installers	▪ 25% of program allies can explain, describe, and sell LLLCs
MPI VI	Increased stocking of LLLC equipment among distributors	▪ A minimum of three key distributors stock LLLCs as a business practice
MPI VII	Increased LLLC listing in the DesignLights Consortium (DLC) Qualified Products List (QPL)	▪ Five additional manufacturers list their products on the DLC QPL

2.2 EVALUATION OBJECTIVES

Our 2025 evaluation included both process and impact evaluation components, as well as market-monitoring activities to track overall market changes. Our objectives were to complete the following:

- Gauge Implementation
- Track Market Progress
- Monitor Commercial Lighting Markets
- Measure Savings

A key feature of MTI evaluations is their attention to year-over-year changes in program and market activities, as well as to changes since the MTI's NMB was created. As such, we include data from the NMB and 2024 evaluation where relevant.

2.3 METHODS

2.3.1 GAUGING IMPLEMENTATION

The first step to understanding program outcomes is to examine program implementation. The evaluation team completed process evaluation activities to document what was implemented—MTI activities and outputs—and their quality, as perceived by program participants.

The evaluation team reviewed program materials provided by the AIC LLLC MTI team and those identified via web searches to document completed activities and outputs, as well as possible points of market influence (e.g., program staff engagement with key market actors). The evaluation team tabulated program outputs and requested that the AIC LLLC team members carefully examine the table to ensure the evaluation included a complete accounting of implementation efforts that occurred during 2025.

We also administered online pre- and post-training surveys with training participants and completed in-depth interviews with a targeted sample of participants at least six months after they had attended both the in-person and online training. The pre- and post-training surveys were virtually identical to allow comparisons before and after training (e.g., to show differences in self-reported confidence installing LLLCs after training). These surveys included a few open-ended items, for which we completed qualitative thematic analysis. Sixty-three of the 101 training participants completed the pre-training survey (62%), while 12 completed the post-training survey (12%). Eleven participants attended the in-person training in both 2024 and 2025; these respondents were screened out in the 2025 pre-training survey.

The final piece of our effort to gauge implementation was post-training phone interviews. We conducted post-training interviews with participants who had completed both the in-person and online NXT Level training modules. Interview questions were mostly open-ended items for which the evaluation team completed qualitative thematic analysis. The interview sample included training participants from 2024 who had finished training at least six months prior to the interview, which enabled the interviewer to probe about longer-term changes in training participant practices. Very few training participants (five) completed both the in-person and online trainings; we had sufficient contact information to invite four of them to participate in an interview. We completed two post-training interviews.

2.3.2 TRACKING MARKET PROGRESS

To understand market progress to date, we utilized two general population online surveys: an AIC business customer survey and a trade ally survey. We received 354 completed customer surveys (354 of 16,244, 2.2% response rate) and 52 completed trade ally surveys (52 of 753, 6.9% response rate) of all known lighting tradespeople (e.g., lighting designers, distributors, lighting installers) working in AIC territory. The evaluation team administered these surveys to the same samples in 2024; in consultation with AIC, we revised a small number of survey items between the 2024 and 2025 evaluations. We identify changes to survey items when presenting findings below.

We used the customer and trade ally surveys to provide a year-over-year look at these market actors' use of LLLCs, facilities in which they work, plans to purchase or recommend LLLCs in the future, and other topics to illustrate shifts in perceptions and behaviors related to LLLCs. We also used these surveys and the post-training survey to formally assess initiative outcomes to date by measuring the short-term MPIs in the logic model, specifically MPIs I through V (Table 4). These were the same MPIs addressed by the 2024 evaluation.

The two general population surveys included items specifically designed to address MPIs I–IV, which tracked market-level changes. MPI V measures the impact of MTI training on contractors and installers who attended training. Therefore, our data collection tool for MPI V was the post-assessment survey (n = 12). We completed descriptive statistics for all surveys.

Table 4. LLLC MTI MPIs Assessed to Date

MPI Description	Assessed in 2024	Assessed in 2025
MPI I: Increased awareness of LLLCs among the target market	✓	✓
MPI II: Increased familiarity with LLLCs among the target market	✓	✓
MPI III: Increased recommendation of LLLCs among the target market	✓	✓
MPI IV: Increased installation of LLLCs among end-use customers	✓	✓
MPI V: Increased number of trained contractors and installers	✓	✓
MPI VI: Increased stocking of LLLC equipment among distributors		
MPI VII: Increased LLLC listing in the DLC QPL		

MPIs VI and VII are associated with long-term outcomes in the Initiative's logic model. Currently, AIC anticipates measuring these MPIs beginning in 2028.

2.3.3 MONITORING COMMERCIAL LIGHTING MARKETS

To supplement our primary data collection, the evaluation team monitored the LLLC and commercial lighting markets via periodic, systematic web searches for LLLC-related reports, presentations, and industry news since our first evaluation report. We completed qualitative thematic analysis of 21 sources, including industry blog posts, conference presentations, evaluation reports, market research reports, webinars, and program documents. We also scanned utility websites from across the US to document changes in LLLC rebates or programs.

2.3.4 MEASURING MARKET TRANSFORMATION SAVINGS

During 2025, the evaluation team searched for LLLC and full-category sales data for commercial lighting sales in the AIC service territory to assist with savings calculations. We also sought proprietary industry and market research reports

that could have relevant data. Unfortunately, none of the datasets or reports we located included adequate data to assist with our analyses.

Instead, as in 2024, the evaluation team calculated savings by taking the total energy savings associated with all LLLC units installed in AIC territory and then subtracting NMB-forecasted savings and LLLC savings from RA programs implemented by AIC. To estimate the number of LLLCs purchased in the AIC service territory during 2025, we relied on data from the customer and trade ally surveys. We then multiplied the estimated number of LLLCs purchased by the Unit Energy Savings (UES) rate established by the 2023 AIC LLLC MTI Business Plan using savings assumptions recommended by the Illinois Technical Reference Manual (IL-TRM). Next, we subtracted the portion of those savings forecasted by the NMB estimate and the portion of savings associated with incentivized LLLCs already claimed by AIC RA offerings. Table 5 lists the annual NMB-forecasted LLLC market share from 2023 to 2027:

Table 5. LLLC Market Share Forecasted by Natural Market Baseline

Year	NMB-Forecasted Market Share
2023	0.49%
2024	0.66%
2025	0.90%
2026	1.23%
2027	1.66%

Equation 1 summarizes our calculation.

Equation 1. MT Savings Estimation Framework

$$MT\ Savings = (LLLC\ Units \times UES) - NMB\ Savings - RA\ Savings$$

Where:

$MT\ Savings$ = Total MT Savings Claimable by the LLLC Initiative

$LLLC\ Units$ = Total Units of LLLCs in AIC Territory

UES = Unit Energy Savings (Baseline Unit Energy Consumption Minus EE Unit Energy Consumption)

$NMB\ Savings$ = LLLC Savings Forecasted by NMB

$RA\ Savings$ = LLLC Savings Associated with RA Offerings

We present the 2025 evaluation findings in the remainder of this report.

3. GAUGING IMPLEMENTATION

Changes within target markets usually occur gradually and are generally diffuse and difficult to observe. MTI implementers define their program theory, illustrated via a logic model, to outline the actions they will take to reduce specific market barriers. MTI evaluations depend on the logic model to pinpoint which MTI implementation activities will occur and to suggest the kinds of evidence that can be gathered to demonstrate that the MTI fulfilled its planned activities and generated market outcomes. Demonstrating the MTI's influence on the market is essential and depends upon accumulating a "preponderance of evidence" that the MTI drove market changes beyond what would have occurred organically.[3]

3.1 PROGRAM ACTIVITIES AND OUTPUTS

Per discussions with AIC's LLLC team, the MTI planned to carry out all four overarching activities from the logic model during 2025. AIC also conducted all four activities during 2024. Table 6 shows these activities and their corresponding outputs since 2024.

During 2025, AIC's key implementation activities included four in-person training sessions, NXT Level online training modules, offering RA incentives, and the annual AIC EE Program Business Symposium, during which the MTI team presented about LLLC and HVAC integration. In addition to presentations, the Symposium featured an exposition hall with numerous booths. In 2025, several booths included LLLC demonstration boards provided by the MTI. AIC touted the availability of LLLC incentives during in-person trainings and the Symposium presentation.

Beyond these formal implementation activities, AIC's LLLC team documented 512 unique touchpoints about advanced lighting controls, including in-person meetings, phone calls, and emails with customers or trade allies during 2025. Although informal, these interactions can meaningfully contribute to market transformation efforts. For example, when influencers, such as manufacturer representatives and distributors, who influence lighting purchasing decisions, are engaged and then recommend LLLCs to multiple designers and installers, who themselves become more comfortable with and inclined to recommend LLLCs to their customers. AIC LLLC team members told the evaluation team:

> *"Numerous conversations with manufacturer reps, distributors, customers, and program allies occur as a result of this work."*

Similarly, the LLLC team reported holding impromptu meetings with staff to answer technical questions about LLLCs as they arose in the field. They described how information flows from these informal exchanges to an additional layer of 14 Energy Advisors, who engaged with customers and trade allies in different portions of AIC's service territory. An Energy Advisor is a trained expert who assesses commercial properties to uncover opportunities for energy savings and then offers tailored technical support and help securing incentives to fund building improvements.[4]

[3] See Attachment C in the IL-TRM V13.0. Retrieved from https://www.ilsag.info/wp-content/uploads/IL-TRM_Effective_010125_v13.0_Vol_4_X-Cutting_Measures_and_Attach_09202024_FINAL.pdf

[4] See description on https://amerenillinoissavings.com/business/resource-center/find-an-energy-advisor/

Table 6. LLLC Implementation Activities and Outputs

Activities	1. Develop Educational and Sales Materials			2. Develop Incentive Offers	3a. Conduct Program Ally Training	3b. Provide Sales Support Collateral
Outputs	**Disseminate Marketing Collateral**	**Share Online Resources**	**Demo Kits at Distributor Locations**	**Offer Incentives**	**Trainings Developed and Offered**	**Sales Support Collateral Distributed**
2024	Emailed training participants links to BetterBricks LLLC materials Made phone calls to alleviate concerns about LLLC security Distributor Days/Counter Days	Publicly posted AIC EE Program Business Symposium presentation slides "Illuminating the Future with LLLC"[5]		Offered $1.50 per connected or controlled watt for LLLCs, capped at $75 per fixture 16 Trade Allies installed incentivized LLLCs 23,644 verified incentivized LLLCs	Held 4 in-person training sessions ▪ 87 unique participants ▪ 51 unique firms Provided NXT Level 1 & 2 Online Training 1 AIC EE Program Business Symposium presentation, "Illuminating the Future with LLLC" ▪ 59 unique attendees	LLLC flyers with program information
2025	Emailed training participants links to BetterBricks LLLC materials Emailed training participants, manufacturer representative, and distributor contact information Provided information to the RA program Energy Advisors to share during their work Organic outreach Held 6 Distributor Days/Counter Days	Publicly posted animated video "What are LLLCs?" on Vimeo[6] Publicly posted AIC EE Program Business Symposium presentation slides, "Beyond Lighting: LLLC Integration for Smart, Connected Buildings"[7]	Placed demo boards at several booths during the AIC EE Program Business Symposium	Standard Lighting Application: Offered $1.50 per watt controlled, capped at $75 per fixture Small Business Direct Install: Offered $1.75 per watt controlled, capped at $75 per fixture 34 Trade Allies installed Incentivized LLLCs 50,936 verified incentivized LLLCs	Held 4 in-person training sessions ▪ 108 unique participants ▪ 57 unique firms Provided NXT Level 1 & 2 Online Training 1 AIC EE Program Business Symposium presentation, "Beyond Lighting: LLLC Integration for Smart, Connected Buildings"	Distributed animated video, "Beyond Lighting: LLLC Integration for Smart, Connected Buildings" presentation slides, and other information to Public Sector, Industrial/Manufacturing, and Small Business Customer segments via newsletters

[5] Evergreen Energy Partners. "Illuminating the Future with LLLC" (2024). Retrieved from https://amerenillinoissavings.com/wp-content/uploads/2024/11/Illuminating-the-Future-With-LLLC.pdf
[6] Ameren Illinois. "What are LLLCs?" (August 2025). Retrieved from https://vimeo.com/1101638138?msockid=06e4d065e36064b72e6ec68be2ee6574
[7] Evergreen Energy Partners. "Beyond Lighting: LLLC Integration for Smart, Connected Buildings (2025). Retrieved from https://amerenillinoissavings.com/wp-content/uploads/2025/10/3A-Beyond-Lighting-FINAL.pdf

Participant lists provided to the evaluation team by AIC showed both customers and trade allies participated in the in-person training sessions. As described by AIC's team, **each of the four sessions covered essentially the same introductory content about LLLCs that was developed and first delivered at the four in-person training sessions held in 2024.** AIC held each of the four sessions in a different part of its territory between August and September 2025. The NXT Level online modules provided more fundamental information that would be useful to people with little to no experience with LLLCs. NXT Level modules were self-paced and optional for in-person training participants; in fact, AIC staff did not expect most lighting professionals to need the NXT Level content. Also, AIC's team followed up with training participants via email, providing links to educational and marketing materials created by BetterBricks and listing contract information for local LLLC manufacturer representatives and distributors (AIC provided the evaluation team with copies of these email messages). Table 7 shows training attendance to date.

Table 7. Training and Symposium Attendance

Year	In-Person Training Participants	
	Unique Individuals	Unique Firms
2024	87	51
2025	101	57
Total	**188**	**108**

Source: Training attendance data provided by AIC.
Note: Individuals who took training in 2024 and 2025 are counted only in 2024.

For context, AIC's business customer list included 16,244 unique customers, and its trade ally list included 753 unique individuals, representing 659 unique firms.

3.2 TRAINING PARTICIPATION FINDINGS

As a first step before in-person training, new training participants took the pre-training assessment survey; all repeat training participants were excluded from the pre-training assessment survey, as they had completed it in 2024. The pre-training survey established a baseline estimate of program allies' understanding of and experience with LLLC technology prior to their exposure to the training content. Two to three months after completing the in-person training, AIC's LLLC team emailed the post-training assessment survey to training participants. The post-training survey assessed their knowledge, key takeaways, and comfort recommending LLLC equipment. The evaluation team also used the post-survey to gauge participant satisfaction and to solicit feedback on the training experience.

3.2.1 TRAINING PARTICIPANT CHARACTERISTICS

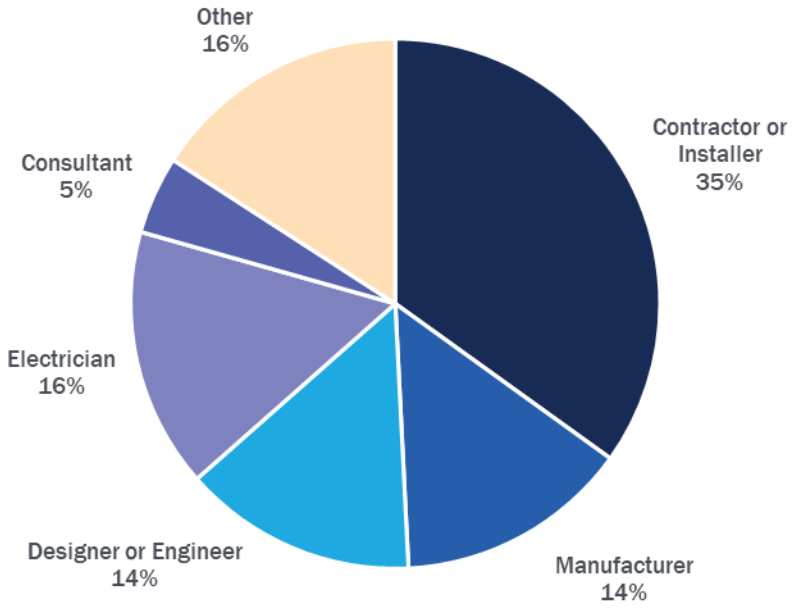
In 2025, 63 participants completed the in-person training and the pre-training survey, an increase from 50 in 2024. Twelve participants (nine trade allies and three customers) completed the post-training assessment survey two to three months after the in-person workshop, compared to seven respondents in 2024. Table 8 summarizes the pre- and post-training assessment survey fielding.

Table 8. Training Assessment Survey Fielding Summary

Year	Number of Unique In-Person Attendees	Number of Pre Survey Responses	Number of Post Survey Responses
2024	87	50	7
2025	101	63	12
Total	**188**	**113**	**19**

Training participants represented a diverse group of trade allies. A plurality of 35% of respondents worked for contractors or installers (Figure 2). In addition to the pre-defined categories respondents chose in the survey, three respondents represented universities, one was a project manager, two worked for distributors, three were sales representatives, one worked for a municipality, two for energy companies, one for a hospital, and one for an industrial company. Two end users also attended the training.

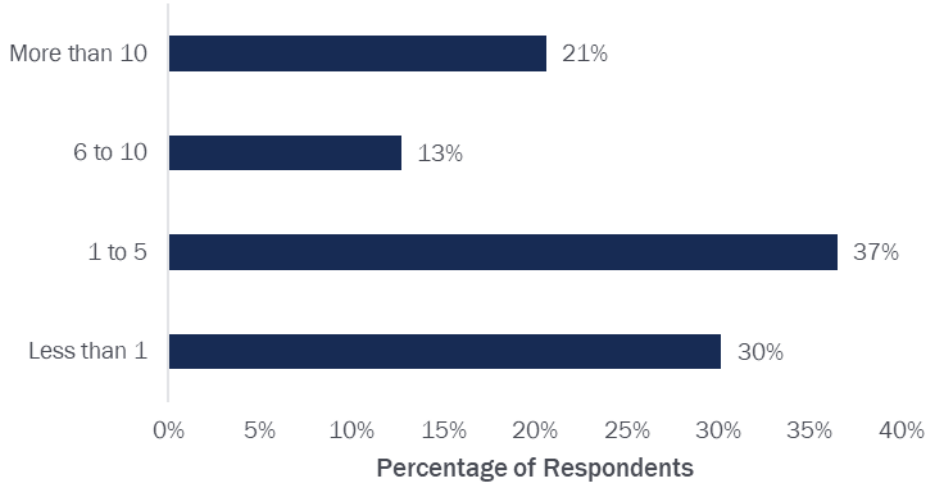
Figure 2. Pre-Training Survey Respondent Business Types (n=63)



Pre-training survey question 21: Which best describes your company?

Participants worked for companies of varying sizes, ranging from fewer than 10 employees to over 500 employees. A plurality of respondents worked at companies with 100–499 employees, while 3% weren't sure about their company's size. Over half worked at priority target market facility types (education, office, retail, warehouse, or health). As demonstrated in Figure 3, the majority of respondents were in their role for over one year, with a third for over five years.

Figure 3. Years of Experience in Respondents' Current Role (n=63)



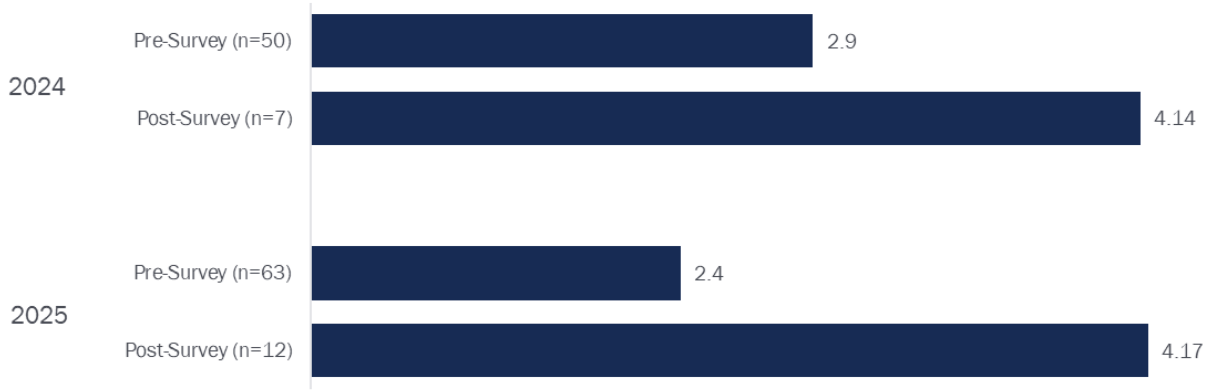
Pre-training survey question 23: How long have you been in this role?

Over half learned about the AIC LLLC training from an AIC communication or AIC staff, while one-quarter heard about the training from word of mouth. Few respondents learned about the training from the AIC website or an online advertisement.

3.2.2 TRAINING OUTCOMES

The training improved participants' self-reported knowledge of network lighting controls (NLCs) and LLLCs. Before the training, the majority of respondents considered themselves to have no knowledge or very little knowledge about NLCs and LLLCs. After the training, all participants rated themselves at least somewhat knowledgeable about LLLCs, with one-quarter being very knowledgeable. In 2025, training participants reported a 74% increase in LLLC knowledge after completing the in-person LLLC training. Respondents rated their knowledge on a scale of 1 to 6, with 6 being the highest rating. The average knowledge level increased from 2.4 on the pre-training survey to 4.17 on the post-training survey, as shown in Figure 4. This is larger than the average increase in LLLC knowledge (43%) reported in 2024.

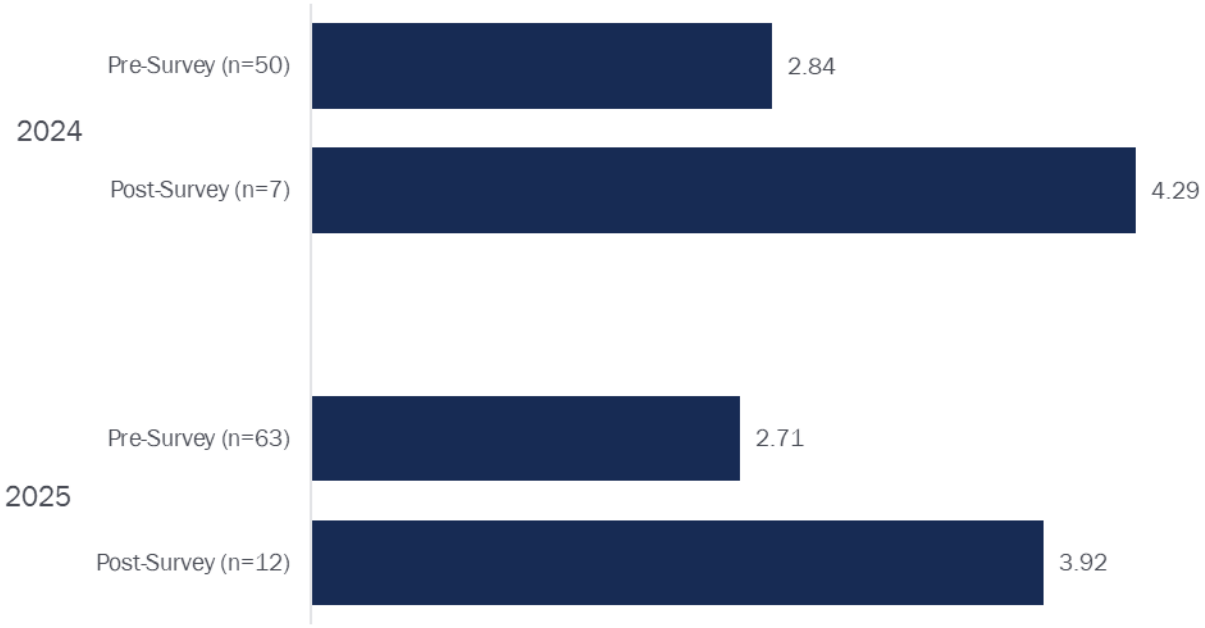
Figure 4. Average Increase in LLLC Knowledge After Training



2024 and 2025 pre-training survey question 2: How would you rate your current level of knowledge of Luminaire Level Lighting Controls, or LLLCs?

Similarly, training participants were 45% more confident in their ability to sell LLLCs to their customers after completing LLLC training (Figure 5). Respondents rated their confidence on a scale of 1 to 6, with 6 being the highest rating. Respondents averaged 2.71 in their confidence level on the pre-training survey and 3.92 in the post-training survey. While a 51% increase was reported in 2024, this datapoint still demonstrates an increased number of trained contractors and installers with confidence in their ability to sell LLLCs to customers.

Figure 5. Average Increase in Confidence in Respondents' Ability to Sell LLLCs to Customers



2024 and 2025 pre- and post-training survey question 7: How would you rate your confidence in your ability to sell LLLCs to your business customers?

Knowledge about NLCs increased 53% from the pre-training survey to the post-training survey, from an average of 2.62 to 4.00. An increased percentage of respondents (92% versus 54%) were able to correctly identify whether configuring LLLCs required access to every fixture, and were aware of specific qualification requirements for AIC LLLC incentives (67% versus 52%). All pre- to post-training survey comparisons reflect feedback from a sample of only 12 post-training survey respondents and, therefore, may not reliably represent the perspectives of all training participants.

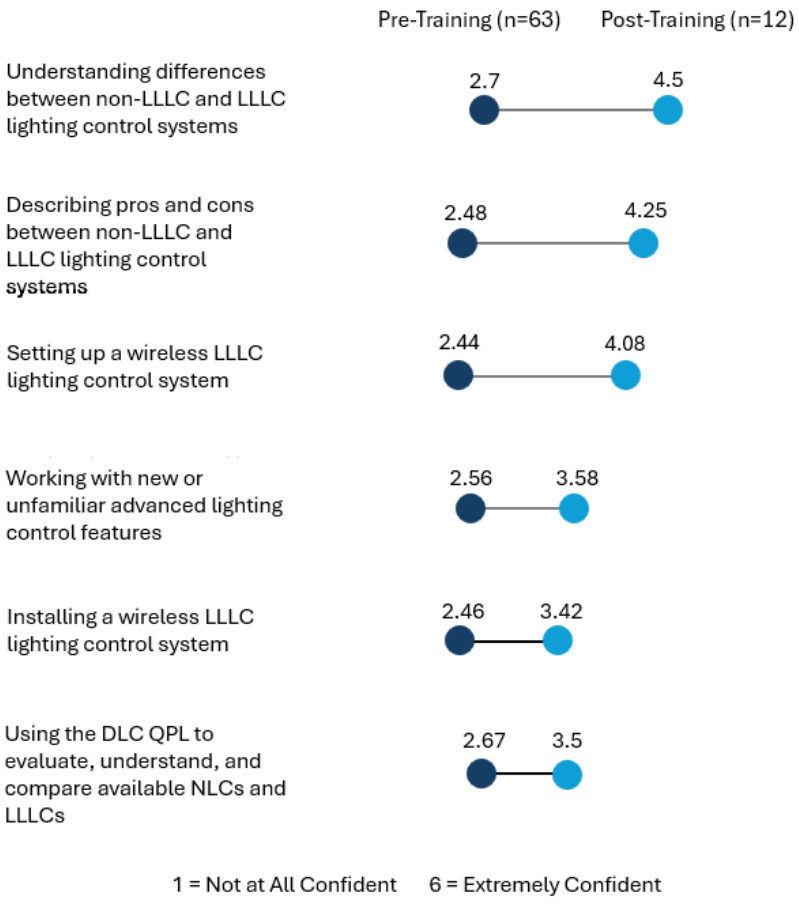
The evaluation team asked respondents to provide their best description of LLLCs in the pre- and post-training surveys. We grouped these responses into three categories: no knowledge, some knowledge, and knowledgeable. On the pre-training survey, one-third of respondents fell into each category. An example of a knowledgeable response includes:

> *"LLLC (Luminaire-Level Lighting Control) integrates occupancy and daylight sensors, dimming control[s], and wireless communication directly into each light fixture. This enables independent sensing & control per fixture, wireless networking for zone changes without rewiring, daylight harvesting, occupancy-based dimming, scheduling & task tuning, energy monitoring & space utilization analytics, easy installation (ideal for retrofits) and scalability. These systems typically deliver around 60% energy savings, flexible layouts, and smart-building integration capabilities."*

Post-training survey responses demonstrated improvement, with approximately 42% providing "knowledgeable" responses and 42% providing "somewhat knowledgeable" responses. However, nearly one-fifth (17%) of responses did not indicate knowledge of LLLCs.

Respondents' confidence in all LLLC-related tasks increased post-training. In the pre- and post-training surveys, respondents rated their confidence in understanding LLLCs and carrying out a few LLLC-related tasks on a scale of one to six, with one being not at all confident and six being extremely confident (Figure 6). Post-training survey respondents were most confident, on average, in understanding differences between non-LLLC and LLLC lighting control systems. Respondents were, on average, least confident installing a wireless LLLC lighting control system. Respondents' confidence in describing the pros and cons between non-LLLC and LLLC lighting control systems increased on average as well. While respondents are on average more confident in their ability to use the DesignLights Consortium (DLC) qualified products list (QPL) after completing the training, average respondent confidence in completing this task increased the least.

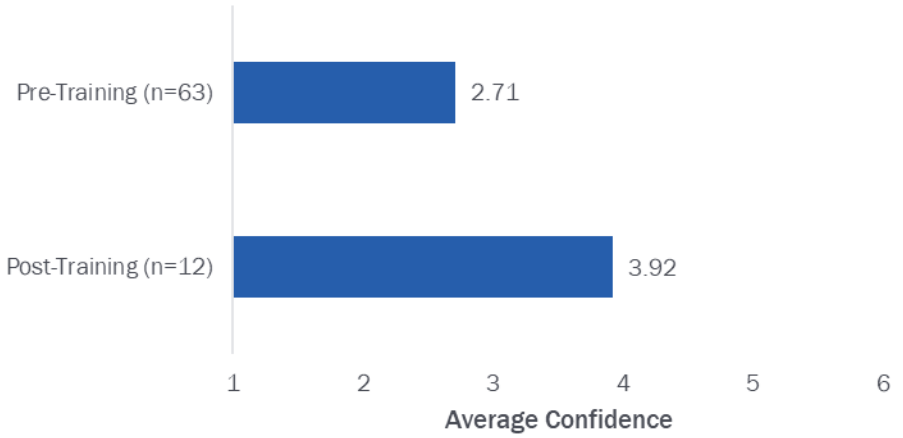
Figure 6. Pre- and Post-Training Survey Respondents' Average Confidence with Each Task



Pre-training survey question 15 and post-training survey question 10: How would you rate your confidence with each of the following?

Similarly, respondents were on average 45% more confident in their ability to sell LLLCs to customers after attending the training, as demonstrated in Figure 7. While almost half of the respondents (48%) expressed little confidence before the training, only 17% felt this way afterward. The percentage of respondents who felt some confidence or were fully confident increased from 53% to 83%.

Figure 7. Respondents' Average Pre- and Post-Training Survey Confidence



Pre- and post-training survey question 7: How would you rate your confidence in your ability to sell LLLCs to your business customers?

The pre-training survey also included a few items about respondents' practices related to lighting projects. On average, respondents completed 38 lighting control projects in the past five years, with 18 (47%) of those projects involving LLLCs. Over the same period, respondents recommended any lighting controls to an average of 22 clients. Eight (36%) of those clients were recommended LLLC projects.[8] Finally, post-training survey respondents sold on average 17 LLLC projects since completing the in-person training. Their anticipated number of LLLC installation projects also increased, on average, from 21 to 27 over the coming five years.

3.2.3 TRAINING FEEDBACK

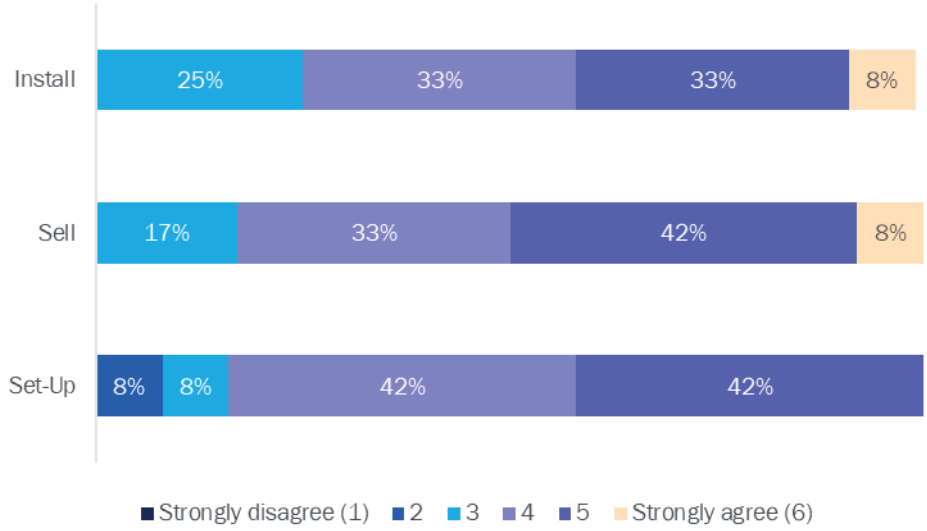
As mentioned above, only 12 training participants responded to the post-training assessment survey. Training feedback findings reflect feedback from this small sample and, therefore, may not reliably represent the perspectives of all training participants.

The majority (75%) of post-training survey respondents were either extremely satisfied or satisfied with the in-person training. 17% were somewhat satisfied, while 8% were somewhat dissatisfied. The survey allowed respondents to describe improvements they would like. **Two respondents stated they would have found the training more beneficial if it included more hands-on programming and commissioning. One respondent mentioned that more immediate access to the online NXT Level training would have been useful, as they received access several months after the first training. Another suggested in-depth role-specific LLLC courses.**

Pluralities of post-training survey respondents agreed the training improved their ability to install, sell, or set up LLLCs (ratings of 5 and 6 in Figure 8). Forty-one percent of post-training survey respondents agreed that in-person training improved their ability to install LLLCs, while 50% agreed that the training improved their ability to sell LLLCs. Forty-two percent agreed that the training improved their ability to set up LLLCs, with 8% disagreeing (ratings of 1 and 2).

[8] The evaluation team dropped two outliers. We defined outliers as the two highest frequencies with a single response each.

Figure 8. Respondents' Level of Agreement on Their Ability to Sell, Install, and Set Up LLLCs After Training (n=12)



Post-training survey question 11: How strongly do you agree that the in-person training course improved your ability to sell LLLC systems? Question 12: How strongly do you agree that the in-person training course improved your ability to install LLLC systems? Question 13: How strongly do you agree that the in-person training course improved your ability to set up LLLC systems? Some values do not add up to 100% due to rounding.

Open-ended items showed that respondents most appreciated knowledgeable trainers and subject matter experts who were able to tailor their explanations to participants' levels of expertise. Respondents found it useful to gain clarification on the differences between NLCs and LLLCs and get access to online resources, hands-on training, and networking opportunities. They enjoyed comparing products side by side, the diversity of product examples, and learning from on-site vendor demonstrations, although one respondent would have enjoyed more time to learn about each vendor.

We conducted interviews with two 2024 post-training survey respondents to gather feedback on the training at least six months after it was completed. Both respondents had experience recommending LLLCs. One interviewee learned how to describe LLLC lighting systems and how they could be useful in her building, a public library. She recommended that the training include more extensive information on different lighting systems, the organizations that have them, and how they can be implemented in such buildings. Another respondent noted it was very helpful to compare manufacturers side by side, instead of viewing each company's products individually. This respondent specialized in recommending LLLCs to customers and believed the information presented in the training was redundant for specialists like herself, noting that it would be more beneficial for those with less experience.

4. TRACKING MARKET PROGRESS

In this section, the evaluation team provides insights into changes observed in AIC's commercial lighting market in general and the LLLC MTI's MPIs in particular. First, we delve into general findings from the evaluation's two general population market actor surveys: the customer survey and trade ally survey. Then, we closely examine progress on the MPIs as a reflection of market barrier removal and diffusion of LLLCs across AIC's target market.

4.1 MARKET ACTOR SURVEY FINDINGS

The customer and trade ally surveys included mostly identical and sometimes analogous items tailored to reflect differences in their respective roles. For instance, the customer survey asked respondents to provide details specific to LLLCs installed in their facilities, while the trade ally survey asked for estimates about all LLLC projects the trade ally undertook during 2025. Below, we offer findings by topic area, leading with customer survey findings and concluding with trade ally findings.

4.1.1 DEMOGRAPHICS AND FIRMOGRAPHICS

Among customers, respondents had on average three business locations, with over half having only one location. On average, 12 employees worked at each facility, with three-quarters of businesses employing fewer than 10 people. The majority of respondents (84% and 82% respectively) had total annual business revenue under $10 million and paid all their electric bills. Survey respondents indicated a range of job titles, with the most common being the business owner or other chief executive (Table 9).

Table 9. Respondent Job Function (n=354)

Job Function	Percentage of Respondents
Business owner, president, or CEO	58%
Property owner or manager	27%
Administrative or office manager	5%
Vice president or executive	4%
Facilities, operations, or maintenance	2%
Non-management employee	2%
Finance/treasurer	1%
Energy manager or engineer	0%
Not sure	1%

Customer survey screening question 8: What is your job function?

The evaluation team designed the survey sample and survey instrument such that each customer survey respondent was asked about a specific facility. Survey respondents confirmed the facility address and then selected the facility type from a list. Nearly one-third of respondents worked at a retail facility; an additional quarter worked at an office (Table 10).

Table 10. Respondent Facility Type (n=354)

Facility Type	Facility Description	Percentage of Respondents
Retail	Department stores, hardware stores, specialty stores, pharmacies	31%
Office	Office buildings, industrial parks	25%
Warehouse	Storage rentals, cold storage and delivery, bulk sales	15%
Health or medical services	Medical, dental, veterinarian, counseling offices, hospitals, laboratories	5%
Education	Colleges, trade schools, universities, pre-K, K-12, nurseries	1%
Other	Includes food service, mixed-use, residential	16%
Unknown		7%

Customer survey screening question 3B: Which type of facility is at this address? Other responses were recategorized as applicable.

Customers' facilities ranged widely in size, from 40 to 900,000 square feet, with a median of 3,000 square feet. The total facility square footage represented by customer survey respondents was approximately 3.9 million square feet.

Ninety customer survey respondents indicated they participated in at least one AIC energy efficiency (EE) program, with Instant Incentives, the Small Business Direct Install Program, and the Small Business Energy Performance Program being the most common (Table 11).

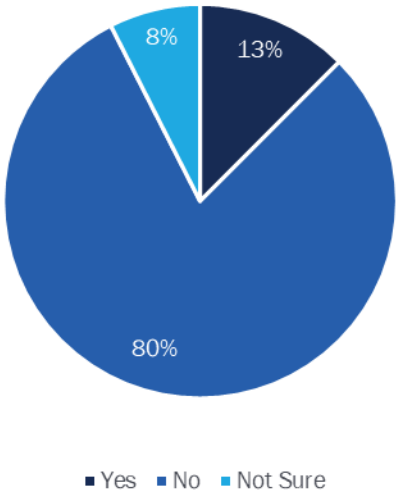
Table 11. Respondent Participation in AIC Energy Efficiency Programs (n=90)

Ameren Illinois Energy Efficiency Program	Percentage of Businesses/Organizations Who Have Participated
Instant Incentives	16%
Small Business Direct Install Program	14%
Small Business Energy Performance Program	12%
Custom Incentives Program	10%
Standard/Prescriptive Incentives Program	7%
Online Marketplace	6%
Streetlighting Program	3%
Retro-Commissioning Program	2%
Commercial Food Service Rebate Program	2%
Virtual Strategic Energy Management Program	1%
Virtual Commissioning Program	0%
BOC Training	0%
Not Sure	27%
Other	17%

Customer survey screener question 6: What Ameren Illinois energy efficiency programs has your business or organization participated in? Select all that apply.

Additionally, five (13%) of the Customer Survey respondents said they had received an AIC incentive for LLLCs (Figure 9). Note that these installations could have occurred in any year, including 2025.

Figure 9. Percentage of Respondents Who Installed LLLCs with an AIC Incentive (n=40)



Customer survey screening question 7: Has your business or organization installed any Luminaire-Level Lighting Controls (LLLC) equipment that received an incentive from Ameren Illinois?

Respondents to the trade ally survey represented a variety of roles at their companies (Table 12), from distributors (35%), lighting contractors/installers (27%), electricians (15%), energy services contractors (15%), and sales representatives (15%). A smaller percentage of respondents worked as consultants (12%), in other roles (10%), and as manufacturers (6%).[9] On average, trade allies reported working 20 years with their company, with tenure ranging from one year to over 60 years. Company sizes varied, with an average of 257 employees per company, ranging from one or two employees up to over 1,000. The majority of businesses provided lighting/lighting controls and electrical products/services to their customers, while a few provided building envelope retrofits and other services.

Table 12. Products/Services Provided by Trade Ally Respondent Businesses (n=52)

Products/Services Provided	Percentage of Respondents
Lighting/Lighting Controls	96%
Electrical	60%
Energy Audits	37%
Engineering/Design	33%
HVAC/Mechanical	23%
Building Controls/Maintenance	21%
Building Envelope Retrofits	2%
Other	6%

Trade ally screening question 4: What products or services do you provide? Please select all that apply.

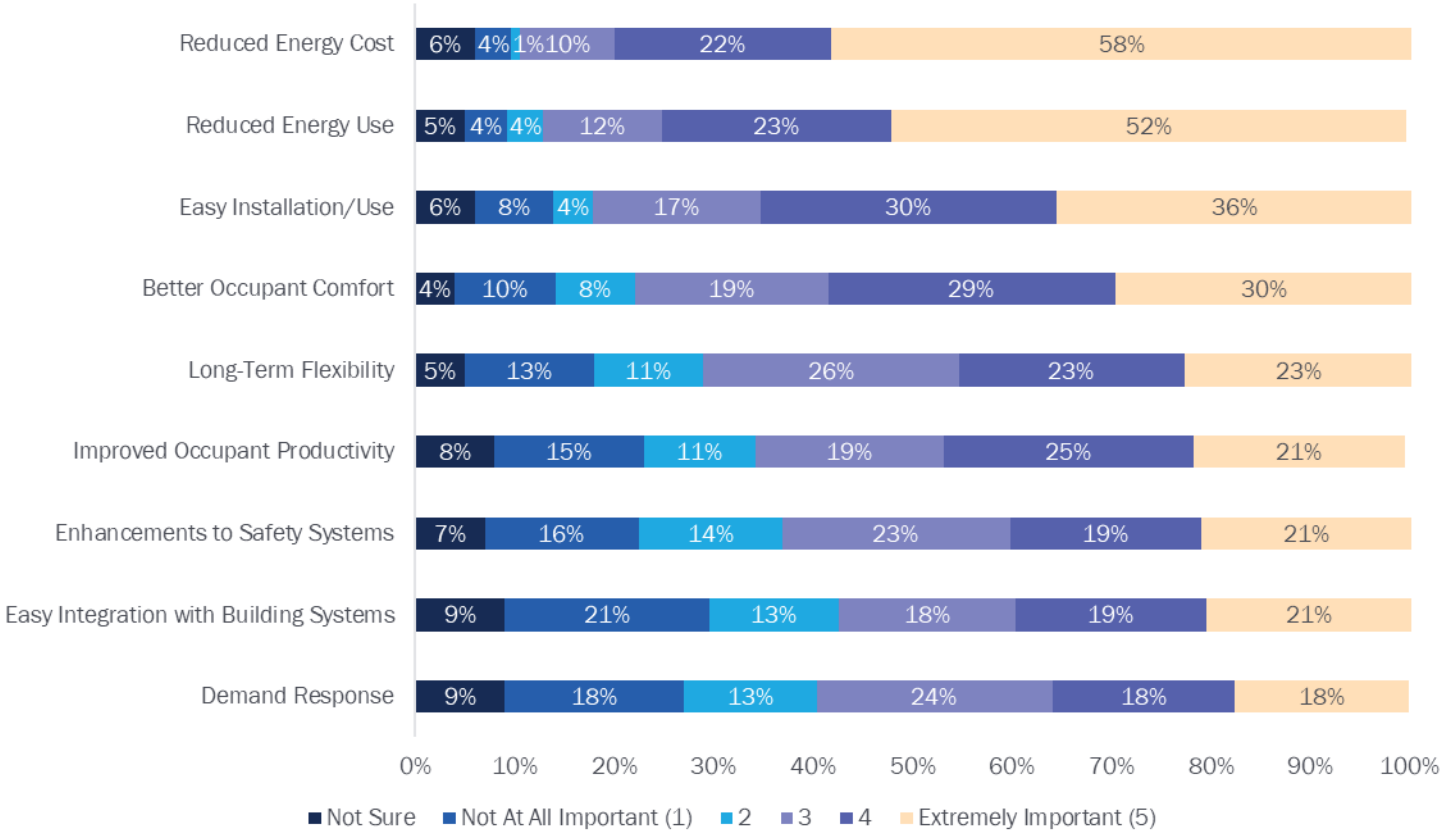
The majority of trade allies were involved with selling and recommending commercial lighting/lighting controls, while almost half (48%) were involved with their installation. A small percentage (13%) of respondents previously participated in AIC-sponsored trainings or workshops focused on LLLCs.

[9] Percentages add up to more than 100% because respondents were able to select multiple options.

4.1.2 KEY FACTORS FOR LIGHTING PROJECTS

The customer and trade ally surveys both included survey items about the importance of various factors with respect to customer lighting needs. **Customers' top three most important factors for their company lighting were reduced energy cost (58% rated extremely important), reduced energy use (52%), and easy installation and use** (36%; Figure 10).

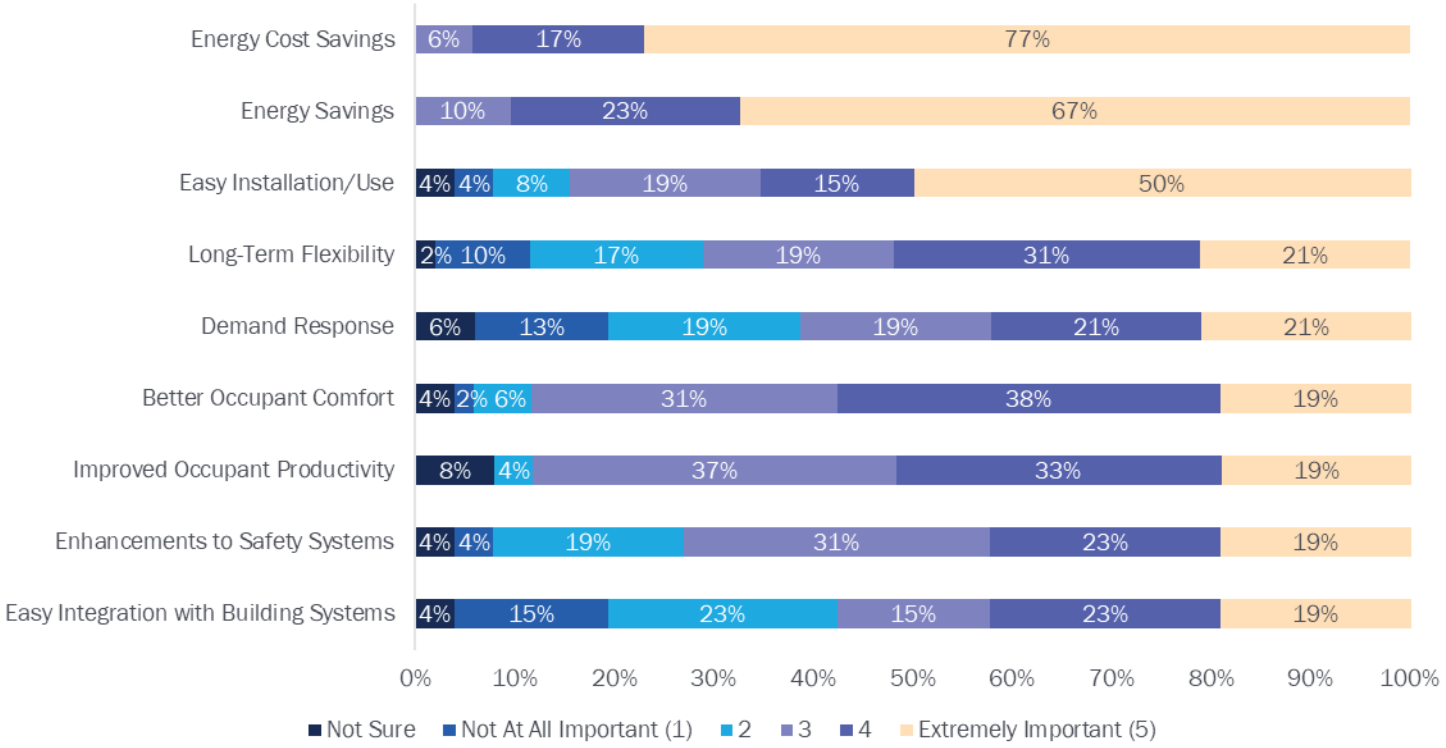
Figure 10. Customers' Importance Ratings for Company Lighting Needs (n=354)



Customer survey question 22: How important are each of the following factors for your company's lighting needs?

The trade ally survey asked respondents to rate the importance of the same factors to their clients' lighting needs (Figure 11). **The top three highest rated factors matched the top three reported by customers in their survey: energy cost savings (77% rated extremely important), energy savings (67%), and easy installation and use (50%).** Interestingly, trade allies perceived occupant comfort as extremely important to only 19% of their clients, whereas 30% of customers rated it as extremely important.

Figure 11. Perceived Importance of Each Factor for End User Lighting Needs (n=52)



Trade ally survey question 25: How important are each of the following factors to your clients' lighting needs?

4.1.3 LIGHTING INSTALLATIONS

Surveyed customers had a total of 21,511 lighting fixtures in their facilities, with an average of 371 fixtures per facility. Roughly one-third (34%) had facilities with lighting controls installed beyond basic on/off switches, while two-thirds (65%) did not. Among the customers with more than basic on/off switches, over half (51%) had motion sensors installed in their facilities. Less than half had dimmer switches (36%), occupancy sensors (28%), timing devices (11%), daylight sensors (11%), or NLCs (8%). Other lighting controls (8%) included photocells, smart switches, and parking light sensors.

Eleven customers reported LLLCs installations during any year, with seven reporting an installation during 2025. Most LLLC installations during 2025 were into offices (43%) or warehouses (43%), with 14% in retail (Table 13).

Table 13. Customer Reported LLLC Projects Installed in 2025 by Facility Type (n=7)

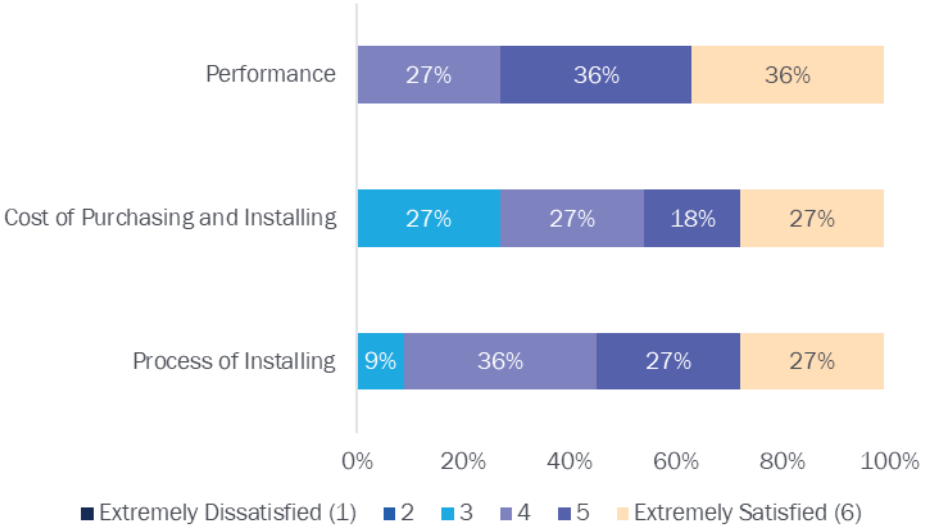
Facility Type	Percent of LLLC Installations in 2025
Offices	43%
Warehouse	43%
Retail	14%
Education or childcare	0%
Health or medical services	0%
Other	0%
Unknown	0%

Customer survey question S3B: In which type of facility is at this address? *Select one.* Question 15B: Did you install any LLLCs in your facility so far in 2025?

On average, 47% of total lighting fixtures reported by customers were controlled by LLLCs installed in any year. On average, 42% of luminaires installed in 2025 had LLLCs, covering 111,740 square feet in customers' facilities.

The majority of the 11 respondents with LLLCs (76%) gave the performance of the LLLCs in their facility the two highest ratings (5 and 6 on the 6-point scale, Figure 12).

Figure 12. Satisfaction with LLLCs (n=11)



Customer survey question 18: How satisfied were you with the process of installing LLLCs at your facility? Question 19: How satisfied were you with the cost of purchasing and installing LLLCs at your facility? Question 20: How satisfied were you with the performance of the LLLCs at your facility? Note that rounding accounts for a total that is slightly smaller than 100%.

The survey asked dissatisfied customers to provide details about their unhappiness with LLLCs. **The three respondents (27%) who were somewhat dissatisfied with the cost of purchasing and installing LLLCs felt this way because of the high cost compared to conventional controls.** The one respondent (9%) who was somewhat dissatisfied with the process of installing LLLCs said they were installed as part of a construction project.

The survey also asked customers to reveal any benefits they had realized since installing LLLCs (Table 14). **A large majority of customers (82%) reported reduced energy use, while over half (55%) noted reduced energy cost. Nearly half**

(45%) indicated better occupant comfort. No customers affirmed they had experienced a few of the possible benefits listed in the survey.

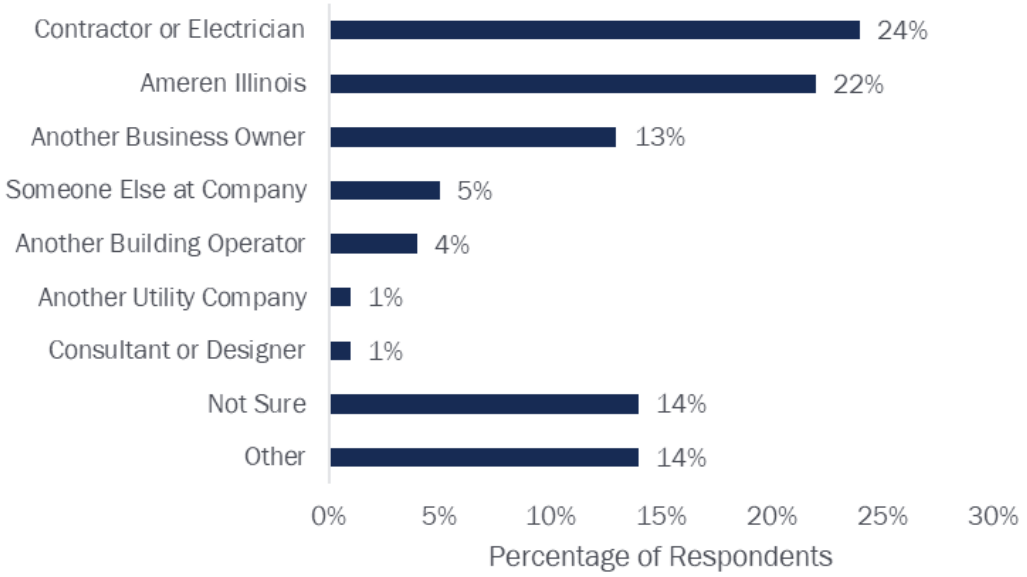
Table 14. Benefits Experienced by Respondents Since Installing LLLCs (n=11)

Benefits of LLLCs	Percentage of Respondents Experiencing Each Benefit
Reduced energy use	82%
Reduced energy cost	55%
Better occupant comfort	45%
Improved occupant productivity	36%
Easy installation	36%
Enhancements to safety systems	18%
Integration with building systems	9%
Asset tracking	0%
Demand response capabilities	0%
Space utilization	0%
None	0%
Not sure	9%
Other	0%

Customer survey question 21: Which of the following benefits have you experienced since installing LLLCs? Select all that apply. Note that respondents could select multiple responses.

Although only 11 customers had LLLC installations in their facilities, 76 respondents had heard about LLLCs. About one-quarter first heard about LLLCs from a contractor or electrician (24%), followed by AIC (22%) and word-of-mouth from another business owner (13%, Figure 13).

Figure 13. Source of First Hearing About LLLCs (n=76)



Customer survey question 7: How did you first hear about LLLCs? Note that rounding accounts for a total that is slightly smaller than 100%.

Only a few customer survey respondents (2%) had ever requested LLLCs for a lighting retrofit project, but 5% of customers reported that a contractor/installer had recommended LLLCs to them.

Trade allies completed 964 lighting projects in 2025, with 164 (17%) of those projects including LLLCs. On average, trade allies who installed LLLCs did so in 27 projects. For those projects including LLLCs, on average, 53% of the fixtures were LLLCs. Trade allies reported LLLC installations in a broader array of facility types than customers reported, including offices (42% of trade ally projects, on average), warehouses (26%), and retail (14%, Table 15).

Table 15. Trade Ally Reported LLLC Projects Installed in 2025 by Facility Type (n=9)

Facility Type	Average % of LLLC Installations in 2025
Offices	42%
Warehouse	26%
Retail	14%
Education or childcare	9%
Health or medical services	8%
Other	2%
Unknown	0%

The trade ally survey also asked if any changes in the coming year would influence whether they recommend LLLC systems to their clients. Responses to this open-ended question fell into seven categories:

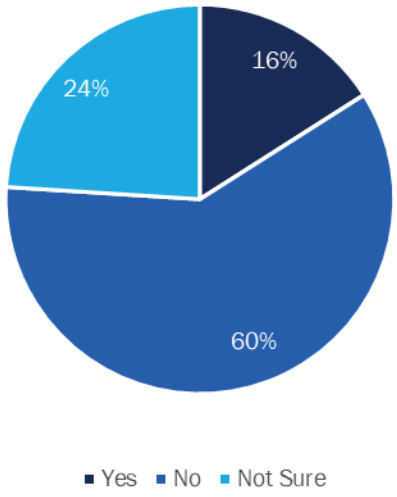
- 58% (14 out of 24 respondents) mentioned they expect additional incentives or higher incentive levels.
- 21% (5 out of 24 respondents) expected increased awareness, knowledge, and familiarity around LLLC systems.
- 17% (4 out of 24 respondents) expected nothing to change in the coming year that would influence whether they recommend LLLC systems to their clients.
- 8% (2 out of 24 respondents) expected new products or technology.
- 8% (2 out of 24 respondents) believed that the growing number of clients with energy-efficient lighting influences whether they'll recommend LLLCs to clients.
- 4% (1 out of 24 respondents) believed that energy codes will become even more complex.
- 4% (1 out of 24 respondents) stated that strain on the grid will require large facilities to become better managers of their wattage consumption, which influences whether they will recommend LLLCs in the coming year.

The survey asked trade allies who reported ever installing LLLCs (n = 12) to rate the difficulty of installing LLLCs "compared to other types of lighting controls." **Most trade allies (7, or 58%) said LLLCs were neither easier nor harder to install than other types of lighting controls, but 33% (4) said LLLCs were much easier to install.** One trade ally felt LLLCs were somewhat harder to install.

4.1.4 FUTURE LIGHTING AND RENOVATION PLANS

The customer survey probed customers' plans for lighting projects and building renovations in the future. Sixteen percent planned to renovate, retrofit, or install new lighting in the next two years (Figure 14).

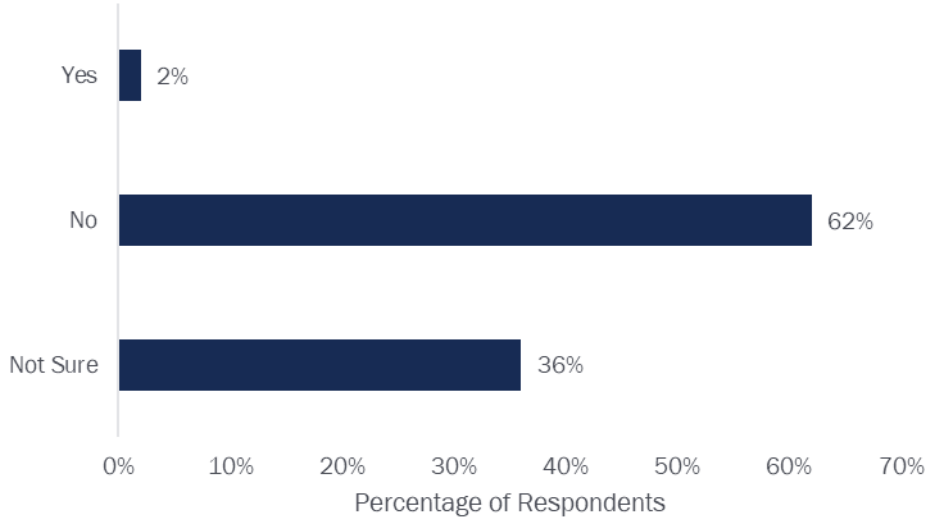
Figure 14. Respondents Planning to Renovate, Retrofit, or Install New Lighting Between Late 2025 and the End of 2027 (n=354)



Customer survey question 23: Are you currently planning to renovate, retrofit, or install new lighting at your facility between now and the end of 2027?

Furthermore, 12% of customers planned to install new lighting controls by the end of 2027. However, only 2% or five individuals were planning to install LLLCs within that timeframe, with over one-third of respondents not sure if they would (Figure 15). Among the five customers who planned to install LLLCs, one planned to install them by the end of 2025, one by the end of 2026, and three by the end of 2027.

Figure 15. Percentage of Respondents Planning to Install New LLLCs Between Now and the End of 2027 (n=330)



Customer survey question 25: Are you currently planning to install new LLLCs at your facility between now and the end of 2027?

4.1.5 BARRIERS TO LLLC ADOPTION

Finally, trade allies provided insight into key barriers limiting further adoption of LLLCs in the commercial lighting market: upfront cost, customer and trade ally awareness, and familiarity.

- 68% (26 out of 38 respondents) mentioned the high cost of fixtures as the largest barrier to adoption.
- 37% (14 out of 38 respondents) believe that customer knowledge and awareness of LLLC technology and its benefits act as a barrier to adoption as well.
- 29% (11 out of 38 respondents) also mentioned that trade ally awareness and familiarity were barriers, as it is challenging to find time to learn how to install and troubleshoot the new technology. One respondent mentioned that lighting companies want to use existing staff, instead of hiring additional technicians who are familiar with LLLCs.

Upfront cost and awareness and familiarity were both highlighted in 2024 as barriers; however, a 2025 survey respondent emphasized that barriers to LLLC adoption are decreasing over time.

> *"Barriers have gotten lower recently for a couple of reasons. First, electric prices have risen significantly and should continue to increase. Second, payback on LLLCs has become much better after incentives/rebates. Third, customers are becoming more comfortable with [LLLCs], as [they] become more of a baseline case, rather than an expensive add-on option."*

4.2 MPI ASSESSMENT

MPIs provide directional, quantitative data to illustrate market barrier removal or changes in LLLC adoption among the target market. In 2025, the evaluation team calculated MPIs I–V and compared them to the 2024 results. The LLLC MTI is not yet implementing or collecting data on MPIs VI and VII, as they are long-term indicators of market change. As an MTI, most of AIC's LLLC MPIs measure market-wide changes, rather than narrowly focusing on touchpoints with direct program participants. The exception is MPI V, which defines desired outcomes specific to training attendees. The evaluation team used data from the post-training evaluation survey (n=12) for MPI V, and the customer (n=354) and trade ally (n=52) survey data to calculate MPIs I–IV.

Table 16 provides a summary of progress towards LLLC Pilot MPIs from 2024 and 2025 relative to targets set for 2027. **The LLLC Pilot is on its way to achieving the 2027 targets for MPIs I and III, and has already reached targets set for MPIs II, IV, and V.** We provide additional details on each MPI following the table.

Table 16. 2024 and 2025 LLLC Pilot Results Against 2027 MPI Targets

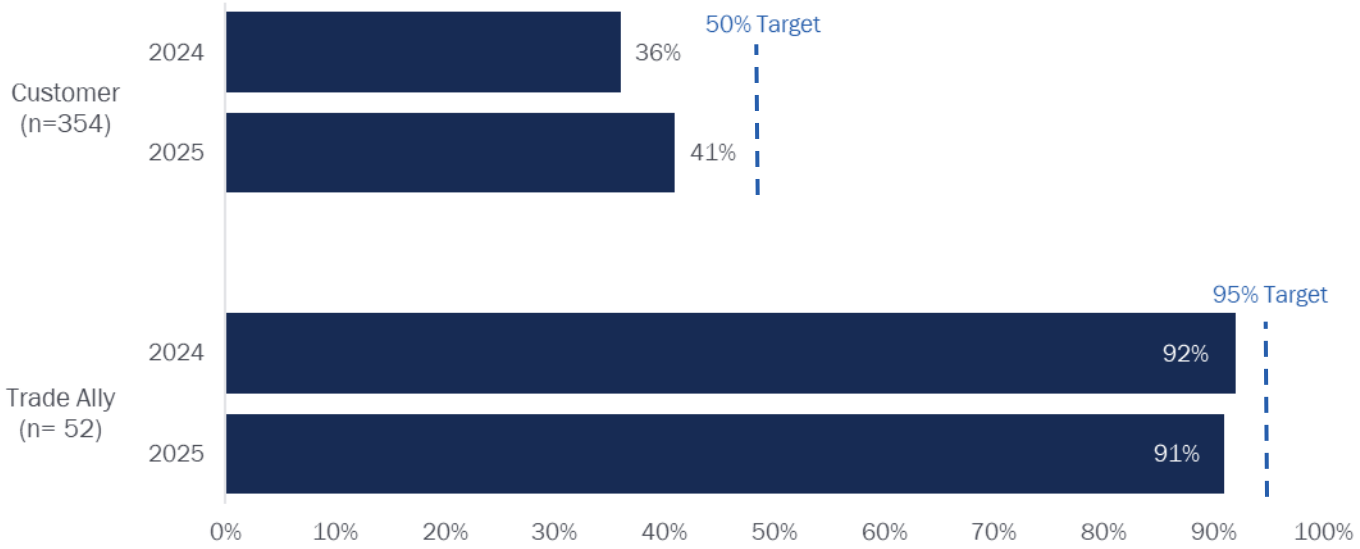
MPI Description	2024 MPI Results	2025 MPI Results	2027 MPI Target
MPI I: Increased awareness of LLLCs among the target market	▪ 36% customer awareness ▪ 92% installer awareness	▪ 41% customer awareness ▪ 91% installer awareness	▪ 50% customer awareness ▪ 95% installer awareness
MPI II: Increased familiarity with LLLCs among the target market	▪ 3.72/5 (74%) familiarity across target markets	▪ 3.66/5 (73%) familiarity across target markets	▪ 3.5/5 (70%) familiarity across target markets
MPI III: Increased recommendation of LLLCs among the target market	▪ 51% of the target market surveyed recommends LLLCs	▪ 55% of the target market surveyed recommends LLLCs	▪ 65% of the applicable target market recommends LLLCs
MPI IV: Increased installation of LLLCs among end-use customers	▪ 5 of 7 customers (71%) followed through on LLLC recommendations	▪ 12 of 17 customers (71%) followed through on LLLC recommendations	▪ 65% of customers install LLLCs when recommended by contractors or installers
MPI V: Increased number of trained contractors and installers	▪ 46% of program allies can explain, describe, and sell LLLCs	▪ 46% of program allies can explain, describe, and sell LLLCs	▪ 25% of program allies can explain, describe, and sell LLLCs

4.2.1 MPI I: AWARENESS

For MPI I, awareness is defined by having at least some familiarity with LLLCs.[10] In 2025, 41% of customers were aware of LLLCs, a five-percentage-point increase from 2024, as demonstrated in Figure 16. This aligns with the goal of 50% customer awareness by 2027, shown by the dotted line in the figure. Trade ally awareness decreased from 92% to 91% among the target market in 2025, but is in line with the 2027 target of 95% installer awareness.

[10] Question five in the customer and trade ally surveys.

Figure 16. LLLC Awareness Among the Target Market in 2024 and 2025



2024 and 2025 customer and trade ally survey question 5: How familiar are you with Luminaire-Level Lighting Controls, or LLLCs?

4.2.2 MPI II: FAMILIARITY

In the case of MPI II, we defined familiarity as the mean score from an index of items covering different facets of LLLC knowledge.[11] Survey respondents rated their knowledge on a scale of 1 to 5, with 5 being the highest rating. Average customer familiarity with LLLCs decreased slightly from 2024 to 2025, while trade ally familiarity moderately increased, as shown in Figure 17. Customer familiarity decreased from an average of 3.31 to 3.11, while trade ally familiarity increased from an average of 4.12 to 4.2. Nonetheless, when averaging the customer and trade ally familiarity scores (3.66/5), the LLLC Pilot has already achieved its target of 3.5/5 (70%) familiarity across target markets by 2027.

Figure 17. Average Customer and Trade Ally Familiarity with LLLCs in 2024 and 2025

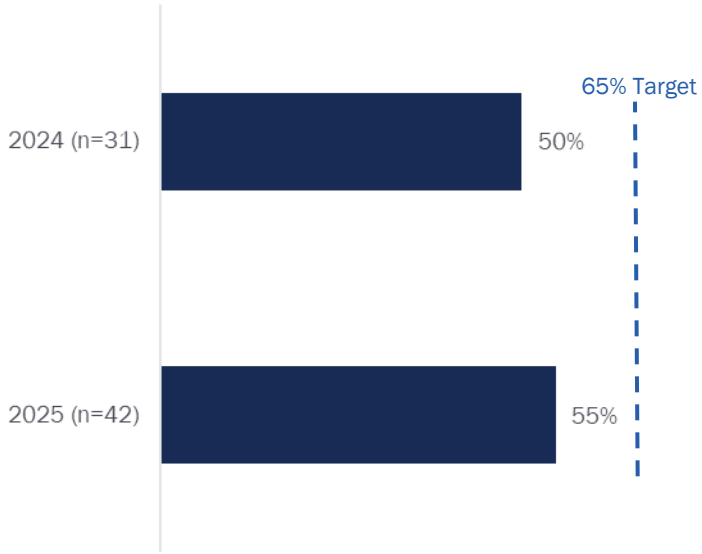
2024 and 2025 customer and trade ally survey question 1: How familiar are you with each of the following lighting control features?

[11] Question one in the customer and trade ally surveys.

4.2.3 MPI III: RECOMMENDATION

We calculated MPI III from trade allies alone, as they are responsible for recommending LLLCs to end-use customers. We divided the number of trade allies who recommended LLLC systems in 2025 by the number of trade allies who indicated it was their role to recommend commercial lighting or lighting controls. In 2025, 55% of trade allies recommended LLLCs to their clients (Figure 18), while 50% of trade allies recommended LLLCs to their clients in 2024. If this trend continues, the MTI will meet its 2027 target on time.

Figure 18. Percentage of Trade Allies Who Recommended LLLCs



2024 calculation – trade ally survey question 21: How many clients have you recommended LLLC systems to in the past year? And question S5: Are you involved with installing, selling, or recommending commercial lighting and/or lighting controls? 2025 calculation – trade ally survey question 21: How many clients have you recommended LLLC fixtures to so far in 2025? And question S5: Are you involved with installing, selling, or recommending commercial lighting and/or lighting controls? Note that the wording of question 21 is slightly different from 2024 to 2025.

4.2.4 MPI IV: INSTALLATION AFTER RECOMMENDATION

MPI IV focuses on the installation of LLLCs among end-use customers and therefore uses the customer survey as the sole data source. As demonstrated in Figure 19, 71% of end-use customers who received LLLC recommendations from their contractor/installer followed through with installation in 2024 and 2025. The 2027 target of 65% customer installation was achieved in 2024 and 2025.

Figure 19. Percentage of End Users Who Installed LLLCs After Receiving Trade Ally Recommendation

2024 calculation – Customer survey question 9: Did you follow through with the recommendation to install LLLCs?
2025 calculation – Customer survey question 9: Did you install LLLCs after your contractor/installer recommended them?
Note question wording is slightly different from 2024 to 2025.

4.2.5 MPI V: TRAINED CONTRACTORS AND INSTALLERS

Finally, MPI V is measured using the pre- and post-training surveys taken by LLLC training participants. To compare MPI V to the 2027 target, the evaluation team calculated an index using the four post-training survey items from question 10 (a, b, e, and f), identical to the 2024 post-training survey. MPI V is the average percentage of respondents who answered 5 (very confident) or 6 (extremely confident). In 2025, on average, 46% of program allies could explain, describe, and sell LLLCs. This satisfies the program's 2027 target of 25% of program allies and matched the average for 2024.

5. MONITORING COMMERCIAL LIGHTING MARKETS

The evaluation team completed a targeted web search and literature review to discover new information relevant to LLLC adoption that could influence market transformation in Illinois or inform work of the LLLC MTI team. We limited our search to publications produced since Opinion Dynamics' first AIC LLLC MTI evaluation, published in 2024. In addition, we identified changes to LLLC utility programs across the US during 2025.

5.1 COMMERCIAL LIGHTING MARKET TRENDS

A frequent topic in commercial lighting literature is the prevalence of LEDs in existing buildings. By one estimate, LED retrofits in existing buildings have reached 40%–50% of all retrofits, and LEDs became the primary source of lighting in new construction in 2019.[12] Another slightly more recent national study reported that in commercial and industrial settings, LEDs are 60% of existing linear fixtures and 75% of sales, on average.[13] The 2023-24 Illinois Statewide Nonresidential Baseline and Potential Study reported 90% of commercial and industrial facilities in the state had at least one non-linear LED fixture, and 86% of all installed bulbs in such facilities were LEDs.[14]

There are two main implications of LED market dominance for LLLCs. First, most of the energy savings opportunities from upgrading to LEDs have already occurred.[15] Second, the remaining facilities are likely the hardest to upgrade, due to building characteristics, owner preferences, lack of capital for lighting projects, and more. LLLC programs, though, could benefit from market familiarity with LEDs and tap into another market trend: integration with other building systems.

AIC's LLLC MTI is already touting the benefits of LLLC and HVAC integration. One caveat is that for this integration to work, the HVAC system must be capable of variable operations as well as receiving signals from the LLLC sensors.[16] Effective HVAC and LLLC integrations save substantial energy.[17] One source described three successful manufacturing and warehouse installations in the US.[18] Ford Motor Company's Rouge Complex reduced lighting-related energy costs by 50% by using LLLCs with motion sensors to adjust HVAC loads, optimize workflow layouts, and predict maintenance needs. Amazon fulfillment facilities used LLLCs to track occupancy patterns, air quality, and temperature and adjust HVAC systems in response, which saved 30% on HVAC energy costs. Wal-Mart used LLLCs in distribution centers to track lighting, HVAC, and equipment status, and leveraged both AI and remote monitoring dashboards for facility managers to adjust facility systems, which reduced energy costs by 20%.

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[12] Carol Jones and Michael Myer. *Digitization, Standards, and Interoperability: Lighting as a Team Player* (ACEEE Summer Study, 2024). Retrieved from https://www.aceee.org/sites/default/files/proceedings/ssb24/assets/attachments/20240722163153672_c19e8020-f906-4eaa-a220-71a7c749c92f.pdf

[13] DNV. *LightingPlus Market Characterization: A Joint Program Administrator Study* (December 2024). Retrieved from https://assets.focusonenergy.com/production/02-pdf/future-focus/LightingPLUS_Report_December-2024.pdf

[14] GDS Associates. *2023-2024 Illinois Baseline Study: Nonresidential Baseline Study Results* (October 31, 2024). Retrieved from https://www.ilsag.info/wp-content/uploads/2023-2024-IL-Nonresidential-Baseline-Study-FINAL.pdf

[15] DNV. *LightingPlus Market Characterization: A Joint Program Administrator Study* (December 2024). Retrieved from https://assets.focusonenergy.com/production/02-pdf/future-focus/LightingPLUS_Report_December-2024.pdf

[16] Jones and Myer.

[17] Levin F. Nock et al. *2030 Goals Require Long Term Efficiency Plans that Specify Networked Lighting Controls* (ACEEE Summer Study, 2024). Retrieved from https://www.aceee.org/sites/default/files/proceedings/ssb24/pdfs/2030_Goals_Require_Long_Term_Efficiency_Plans_that_Specify_Networked_Lighting_Controls.pdf

[18] Fabio Zaniboni. *Luminaire Level Lighting Control: The Key to Smart Manufacturing* (IoT Insider, March 5, 2025). Retrieved from https://www.iotinsider.com/iot-insights/technical-insights/luminaire-level-lighting-control-the-key-to-smart-manufacturing/

> *"By analyzing motion patterns and equipment usage, facilities can anticipate when machines need servicing, reducing downtime. Cleaning schedules can be adjusted dynamically based on actual space usage, rather than fixed schedules, optimizing operational expenses."*[19]

Currently, interoperability of HVAC and lighting systems can be challenging, as these systems can depend on proprietary platforms or communication protocols. Additionally, lighting and HVAC tradespeople have not traditionally worked together.[20]

Interoperability of LLLCs with other devices, though, has begun to improve and achieved a significant milestone in late 2025. In December 2025, the Digital Addressable Lighting Interface (DALI) Alliance announced a new test and certification specification for Wireless to DALI Gateways, which allows (1) seamless control of wired DALI devices from the industry's leading wireless platforms, Bluetooth® NLCs and Zigbee wireless systems, and (2) access to data from DALI systems.[21] Even before this change, DALI had improved interoperability by introducing wireless capacity to its existing wired interface. In mid-2025, "more than 5,000 devices—from drivers to sensors—were guaranteed to work together."[22] Improved interoperability reduces a key technical barrier to LLLC adoption.

As described by manufacturer MaxLite, LLLC's integration capabilities are "pushing the industry away from centralized systems and toward distributed intelligence," a paradigm shift in which lighting is building infrastructure instead of just illumination.[23] In the words of an industry blogger,

> *"Traditionally, lighting has been seen as a basic necessity, but with LLLC, it is transforming into a wireless communication network that enables energy savings, HVAC optimization, space utilization tracking, and predictive maintenance."*[24]

5.2 LLLC PROGRAMS

According to LLLC incentive tracker Encentiv, there were 16 states with LLLC programs in 2025 (Figure 20).[25] However, web searches by the evaluation team suggest additional locations where LLLC programs may have existed during 2025, including Colorado, New Mexico, Indiana, Kentucky, Montana, Minnesota, Oklahoma, California, Maryland, Vermont, Wyoming, Utah, Michigan, and the District of Columbia. There was sparse public documentation for these programs, and some may be for NLCs rather than LLLCs specifically. Nonetheless, the geographic spread of LLLC incentive

[19] Fabio Zaniboni. *Luminaire Level Lighting Control: The Key to Smart Manufacturing* (IoT Insider, March 5, 2025). Retrieved from https://www.iotinsider.com/iot-insights/technical-insights/luminaire-level-lighting-control-the-key-to-smart-manufacturing/

[20] Maddie Hansen-Connell. *LLLC Market Insights Report: Lighting Designers* (MN ETA, 2025). Retrieved from https://www.mncee.org/sites/default/files/report-files/Market%20Insights%20Report_Lighting%20Specifiers%20FINAL%20%281%29.pdf

[21] Globe Newswire. *DALI Alliance Launches Test and Certification Specifications for Wireless to DALI Systems* (December 22, 2025). Retrieved from https://www.globenewswire.com/news-release/2025/12/22/3209219/0/en/DALI-Alliance-Launches-Test-and-Certification-Specifications-for-Wireless-to-DALI-Gateways.html

[22] Randy Reid. *ArchLIGHT Roundtable: Future of Luminaire Level Lighting Control* (Edison Report, September 17, 2025). Retrieved from https://edisonreport.com/2025/09/17/archlight-summit-roundtable-luminaire-level-lighting-controls/

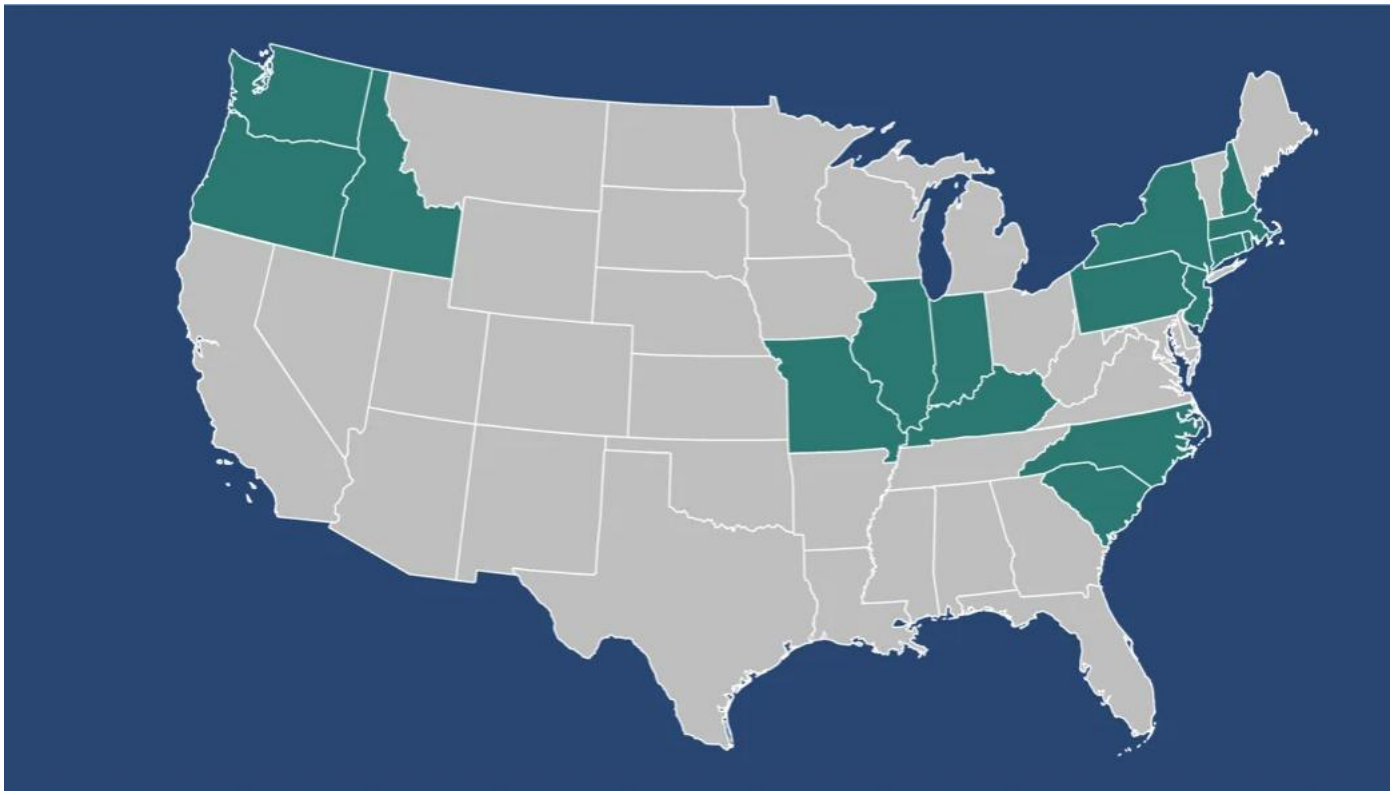
[23] Randy Reid. *ArchLIGHT Summit: Vision for Luminaire Level Lighting Controls* (Edison Report, September 17, 2025). Retrieved from https://edisonreport.com/2025/09/17/archlight-summit-vision-for-luminaire-level-lighting-controls/

[24] Fabio Zaniboni. *Luminaire Level Lighting Control: The Key to Smart Manufacturing* (IoT Insider, March 5, 2025). Retrieved from https://www.iotinsider.com/iot-insights/technical-insights/luminaire-level-lighting-control-the-key-to-smart-manufacturing/

[25] Kelli deThomas. *Analysis: 2025 Utility Business, Commercial & Industrial Rebate Trends for LED* (No Date). Retrieved from https://blog.encentivenergy.com/news/analysis-2025-utility-rebate-trends-led

programs suggests market adoption may be poised to accelerate nationally, rather than in isolated regions. Interestingly, one program, Mass Save, eliminated non-controlled LED incentives for large commercial and industrial customers to encourage shifts to NLCs and LLLCs.

Figure 20. Encentiv Map of Programs with LLLC Incentives in 2025



Source: Analysis: 2025 Utility Business, Commercial & Industrial Rebate Trends for LED

5.3 LLLC ADOPTION ESTIMATES

As mentioned previously, the evaluation team sought LLLC market share data specific to 2025 and to AIC's territory, but was unable to obtain it. However, we located other estimates that could provide useful context when interpreting our evaluation findings.

In 2024, AIC and other Illinois utilities sponsored the 2023–2024 Illinois Statewide Nonresidential Baseline and Potential Study.[26] The research team for that study conducted two different surveys to detect EE equipment in commercial and industrial facilities in Illinois. The first survey, a large-scale online survey of utility customers, showed that 2.1% of commercial and industrial facilities had LLLCs, with 1.7% having non-LLLC NLCs. The second survey, the Willingness to Participate Survey, included a subset of the respondents to the large-scale survey. Using this smaller sample of customers willing to take an additional survey, the research team found 9% of facilities had LLLCs, and 8% had NLCs. Both surveys covered the entire state of Illinois, rather than just AIC's service territory, and captured LLLC installations only through spring 2024. The lower estimate, 2.1% of facilities with LLLCs, is in line with our market share estimate for all of 2024, 3.72% (Note: our estimate was installed LLLC fixtures, not facilities with LLLCs, which should be correlated but not identical metrics.)

[26] GDS Associates. *2023–2024 Illinois Baseline Study: Nonresidential Baseline Study Results* (October 31, 2024). Retrieved from https://www.ilsag.info/wp-content/uploads/2023-2024-IL-Nonresidential-Baseline-Study-FINAL.pdf

Other sources we reviewed provided various other metrics that could shed light on LLLC adoption nationally:

- In 2023, MN CEE estimated that less than 1% of all luminaires in the US were connected.[27]
- The *LightingPlus Market Characterization* estimated that "customer uptake" of NLCs could be 2%, but LLLCs could achieve a "higher uptake."[28]
- NEEA's *2025 LLLC Market Progress Evaluation Report* found that in the Northwest, the average number of LLLC projects per installer was about nine projects per year.[29]
- During the ArchLIGHT Summit, an executive from manufacturer MaxLite stated lighting controls "…used to be a low single-digit percentage of sales. Now, those numbers are climbing higher, sometimes double-digit growth. This is a huge opportunity for the industry."[30]

5.4 BARRIERS TO ADOPTION

AIC's LLLC MTI logic model pinpoints three priority barriers the Initiative seeks to address. However, our literature review identified additional barriers AIC may consider addressing as the LLLC MTI matures and the local commercial lighting market evolves:

- LLLC system limitations, such as a lack of interoperability with other building systems
- Limited lighting styles or form factors (LLLCs are not typically available in popular styles like downlights or in many decorative fixtures)[31]
- Lack of collaboration between different disciplines (e.g., IT support staff and lighting installers do not typically work together, but LLLC installations require both skill sets)[32]
- Uncertainty about the amount of savings (customers hesitated to choose LLLCs because savings weren't guaranteed)
- Concerns about negative impacts on product quality or preservation
- Building characteristics (e.g., LLLCs can be challenged by building layouts that limit wireless connectivity)
- Equipment availability/lead time[33]
- Lack of product readiness[34]
- Preference for wired systems (customers felt wired lighting was more secure)[35]

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[27] Center for Energy and Environment. *Luminaire Level Lighting Controls Market Transformation Plan* (Minnesota Emerging Technology Accelerator, Fall 2023). Retrieved from https://www.etamn.org/sites/default/files/research-papers/LLLC%20Market%20Transformation%20Plan_FINAL.pdf

[28] DNV.

[29] Amy Ellsworth et al. *Luminaire Level Lighting Controls : Market Progress Evaluation Report #3* (Northwest Energy Efficiency Alliance, October 14, 2025). Retrieved from https://neea.org/wp-content/uploads/2025/10/Luminaire-Level-Lighting-Controls-Market-Progress-Evaluation-Report-3.pdf

[30] Reid, *ArchLIGHT Summit: Vision for Luminaire Level Lighting Controls*

[31] Center for Energy and Environment.

[32] Jones and Myer

[33] GDS Associates

[34] Elder Calderon, Kanchan Swaroop, and Rick Tonielli. *ComEd Lighting Controls* (Illinois SAG, September 29, 2025). Retrieved from https://www.ilsag.info/wp-content/uploads/SAG-NLC-Presentation_ComEd_09_29_05_FINAL-v2.pdf

[35] Maddie Hansen-Connell. *LLLC Market Insights Report: Lighting Designers* (MN ETA, 2025). Retrieved from https://www.mncee.org/sites/default/files/report-files/Market%20Insights%20Report_Lighting%20Specifiers%20FINAL%20%281%29.pdf

6. MARKET TRANSFORMATION SAVINGS

As described in Section 2.3.4, the evaluation team used data from the customer and trade ally surveys, NMB forecasts, and 2025 AIC RA program tracking data to estimate energy savings attributable to the LLLC MTI's activities in 2025. Using AIC customer and trade ally surveys as our key data sources ensures our calculations are based on buildings and projects in AIC's service territory. Customers provided details specific to their facilities (seven with LLLC installations), while trade allies gave estimates across all their commercial lighting projects in 2025 (nine with LLLC installations). These data may not be typical of LLLC installations among survey nonrespondents, and we were unable to account for possible duplication across the surveys (e.g., it is possible that trade allies and customers reported the same LLLC installations in their respective surveys).

We used Equation 2 to calculate market transformation (MT) savings:

Equation 2. MT Savings Estimation

$$MT\ Savings = (LLLC\ Units\ X\ UES) - NMB\ Savings - RA\ Savings$$

To arrive at LLLC units sold in AIC territory during 2025, we estimated the proportions of facilities with new LLLC installations per the customer and trade ally surveys, relative to the number of commercial facilities with new lighting fixtures forecasted in the 2023 AIC LLLC MTI Business Plan. We took the mean of these customer-derived and trade-ally-derived estimates, arriving at 12.64% of buildings in AIC service territory with LLLC installations during 2025. In the absence of full category sales data, this is our best proxy for LLLC market share in 2025.

Next, we calculated the percentage of buildings' fixtures controlled by LLLCs when LLLCs are present, again taking the mean of the average values self-reported by customers and trade allies in the surveys (47.50%). We then multiplied the percentage of buildings in AIC service territory with LLLCs (12.64%) by the percentage of fixtures in those buildings with LLLCs (47.50%) by the Business Plan's estimated number of new commercial lighting fixtures installed during 2025 (737,701 fixtures). This resulted in our estimate of the number of LLLC units in AIC territory in 2025: 44,292 units. Per the Business Plan, each LLLC fixture saves 207.8 kWh. Thus, the overall savings for LLLCs in AIC's service territory is 9,203,788 kWh. From this overall amount, we subtracted the NMB forecasted savings from 6,639 units and the savings from each LLLC RA offering (15,249 units and 35,687 units). As summarized in Table 17, **although LLLCs generated more than 9 million kWh of savings in 2025, none of these savings can be attributed to market transformation; savings came from RA incentives and the NMB.**

Table 17. 2025 LLLC MTI Savings Summary

	%	Units	kWh Savings
2025 Overall Market Share	12.64%	44,292	9,203,788
NMB Forecasted Market Share	0.90%	6,639	1,379,620
Standard Initiative RA	N/A	15,249	3,168,742
Small Business Initiative RA	N/A	35,687	7,415,759
2025 MT Savings		**0**	**0**

7. CONCLUSIONS AND RECOMMENDATIONS

Based on our findings, the evaluation team has the following conclusions and recommendations for AIC's consideration.

- **Conclusion**: AIC's in-person training sessions are effective at providing an introduction to LLLCs and NLCs. Trade allies in particular requested additional, more in-depth training that would ideally include hands-on opportunities to work with LLLCs and exposure to LLLCs available from a variety of manufacturers.
  - **Recommendation**: Continue offering the in-person introductory LLLC trainings. In parallel, develop and offer additional in-person and online training targeted to trade allies who need to know how to install and set up LLLC systems. Online training is especially valuable to build LLLC awareness and knowledge at market scale. Based on our market monitoring literature review, AIC could also consider addressing interoperability, working with IT systems and staff, and wireless system security. Gather input about training needs from field staff who have been supporting LLLC systems, as well. To the extent possible, co-locate in-person training sessions with industry events where lighting designers and installers will be present or partner with manufacturers and distributors to co-deliver training with them.
  - **Recommendation**: Add additional metrics to MPI V, specifically to track the number and proportion of trade allies in AIC's territory who have attended AIC or other high-quality LLLC trainings. This change will allow MPI V to indicate not only the quality of learning (as currently suggested by the 2027 target), but also the quantity of trade allies in the whole market who are getting trained in LLLCs.
- **Conclusion**: Adoption of LLLCs appears to be accelerating in AIC's territory. However, acceleration to date is dependent on LLLC incentives, and adoption may falter when rebates end.
  - **Recommendation**: Continue LLLC rebates while introducing additional upstream and general population market transformation activities that promote LLLCs at market scale. For instance, consider creating and broadly sharing case studies that articulate the features, benefits, and overall value proposition for LLLCs in specific facility types, highlighting local AIC LLLC success stories that document energy savings, cost savings, and comfort improvements from LLLC installations. Build relationships with distributors and orient them to these value propositions for LLLCs, so they are prepared to provide nuanced recommendations for LLLCs to contractors in their networks. Expand marketing about LLLCs to AIC business customers in general.
  - **Recommendation**: Consider additional marketing directed to businesses in the facility types that are leading LLLC adoption based on our survey results or are generating the most savings, based on program data. If resources allow, also consider outreach to understand why LLLC adoption lags in some facility types and what marketing tactics and additional supports could begin to push these businesses toward LLLC adoption.
  - **Recommendation**: Consider developing and tracking additional MPIs to measure market changes higher in the supply chain, such as with distributors. Another option is to begin measuring MPI VI—the only MPI specifically addressing distributors—as soon as feasible, given the Initiative's ability to deepen engagement with these highly influential market actors.

APPENDIX A. PRE-TRAINING SURVEY

INTRODUCTION

On behalf of Ameren Illinois, thank you for taking this survey. This short assessment should take only a few minutes and must be completed before beginning the LLLC training. Your responses will be kept strictly confidential.

INTRO1. Please enter your full name and company name:

1. Full name: [OPEN END]
2. Company name: [OPEN END]

INTRO2. Have you previously attended an Ameren Illinois-sponsored in-person workshop on LLLC equipment?

1. Yes
2. No

[IF INTRO2=1]
INTRO3. Do you recall completing a survey as part of the recent LLLC workshop?

1. Yes [TERMINATE]
2. No

[IF INTRO3=1, SHOW THE FOLLOWING THEN REDIRECT TO ONLINE TRAINING COURSE: Thank you for taking the time to complete the survey. Please click the button below to return to the training.]

LLLC KNOWLEDGE AND EXPERIENCE

Q1. How would you rate your current level of knowledge of networked lighting controls, or NLCs?
Note: NLCs are lighting systems with a combination of sensors, network interfaces, and controllers that affect lighting changes in luminaires, retrofit kits, or lamps.

1	2	3	4	5	6
No knowledge at all					Extremely knowledgeable

Q2. How would you rate your current level of knowledge of Luminaire Level Lighting Controls, or LLLCs?

1	2	3	4	5	6
No knowledge at all					Extremely knowledgeable

Q3. Please provide your best description of LLLCs, including system capabilities and/or requirements to be considered LLLCs. [OPEN END]

Q4. True or false: Configuring or reconfiguring a luminaire-level lighting control system requires physical access to each fixture.

1. True
2. False
98. Not sure

Q5. True or false: Ameren Illinois does NOT give incentives for NLCs or LLLCs if the existing fixtures are already controlled using occupancy sensors.

1. True
2. False
98. Not sure

Q6. What are some of the possible benefits of LLLCs? [OPEN END]

Q7. How would you rate your confidence in your ability to sell LLLCs to your business customers?

1	2	3	4	5	6
Not at all confident					Extremely confident

Q8. To how many clients have you recommended any lighting controls over the past five years? *Your best estimate is fine.* [NUMERIC OPEN END]

Q9. To how many clients have you recommended LLLCs in the past five years? *Your best estimate is fine.* [NUMERIC OPEN END]

Q10. Have you previously installed any LLLCs?
1. Yes
2. No
98. Not sure

[IF Q9>1 AND Q10=2]
Q11A. If you have recommended but not yet installed LLLCs for a client, what barriers do you think prevented LLLC sales or installations? [OPEN END]

Q11. How many projects involving lighting or lighting controls have you completed in the last five years? *Your best estimate is fine.* [NUMERIC OPEN END]

[ASK IF Q10=1]
Q12. How many projects involving LLLC systems have you completed in the last five years? *Your best estimate is fine.* [NUMERIC OPEN END]

[ASK IF Q10=1]
Q13. Have you installed any LLLC equipment that received an incentive from Ameren Illinois?
1. Yes
2. No
98. Not sure

Q14. About how many LLLC projects do you anticipate installing in the coming five years? [NUMERIC OPEN END]

Q15. How would you rate your confidence with each of the following?

	Not at All Confident					Extremely Confident
a. Understanding differences between non-LLLC and LLLC lighting control systems.	1	2	3	4	5	6
b. Describing pros and cons between non-LLLC and LLLC lighting control systems	1	2	3	4	5	6
c. Working with new or unfamiliar advanced lighting control features	1	2	3	4	5	6
d. Using the DesignLight Consortium (DLC) qualified product list, a new publicly-available tool to evaluate, understand, and compare available NLCs and LLLCs	1	2	3	4	5	6
e. Installing a wireless LLLC lighting control system	1	2	3	4	5	6
f. Setting up a wireless LLLC lighting control system	1	2	3	4	5	6

SOURCES OF TRAINING AWARENESS

Q16. Where did you first hear about the Ameren Illinois LLLC training? [RANDOMIZE 1-8]
1. Word-of-mouth

2. Online search
3. Online advertisement
4. Ameren Illinois in-person workshop
5. Ameren Illinois website
6. Ameren Illinois communication or program staff
7. Social media
8. Other, please specify: [OPEN END]
98. Not sure

FIRMOGRAPHICS

Q17. Which of the following best describes your company? [RANDOMIZE 1-5]
1. Contractor or installer
2. Manufacturer
3. Designer or engineer
4. Electrician
5. Consultant
0. Other, please specify: [OPEN END]

Q18. What is your current job title? [OPEN END]

Q19. How long have you been in this role?
1. Less than 1 year
2. 1 to 5 years
3. 6 to 10 years
4. More than 10 years
98. Not sure

Q20. Approximately how many employees are at your company?
1. Less than 10
2. 10-49
3. 50-99
4. 100-499
5. 500 or more
98. Not sure

Q21. Which of the following types of facilities do you typically work with? Select all that apply. [MULTIPLE RESPONSE, RANDOMIZE 1-5]
1. Education
2. Office
3. Retail
4. Warehouse
5. Health
0. Other, please specify: [OPEN END]
98. Not sure [EXCLUSIVE RESPONSE]

CLOSING

Thank you for taking the time to complete this survey. Please click the button below to submit your responses and return to the training.

[REDIRECT TO ONLINE TRAINING COURSE]

APPENDIX B. POST-TRAINING SURVEY

INTRODUCTION

On behalf of Ameren Illinois, thank you for taking this survey and participating in the LLLC training. This short assessment should take only a few minutes, and your responses will be kept strictly confidential.

INTRO1. Please enter your full name and company name:

1. Full name: [OPEN END]
2. Company name: [OPEN END]

INTRO2. Please indicate which Ameren Illinois-sponsored LLLC trainings you have participated in, even if you did not complete them fully: [Select all that apply]

1. In-person training
2. Online Next Level training modules

LLLC KNOWLEDGE

Q1. How would you rate your current level of knowledge of networked lighting controls, or NLCs?
Note: NLCs are lighting systems with a combination of sensors, network interfaces, and controllers that affect lighting changes in luminaires, retrofit kits, or lamps.

1	2	3	4	5	6
No knowledge at all					Extremely knowledgeable

Q2. How would you rate your current level of knowledge of Luminaire Level Lighting Controls, or LLLCs?

1	2	3	4	5	6
No knowledge at all					Extremely knowledgeable

Q3. Please provide your best description of LLLCs, including system capabilities and/or requirements to be considered LLLCs. [OPEN END]

Q4. True or false: Configuring or reconfiguring a luminaire-level lighting control system requires physical access to each fixture.

1. True
2. False
98. Not sure

Q5. True or false: Ameren Illinois does NOT give incentives for NLCs or LLLCs if the existing fixtures are already controlled using occupancy sensors.

1. True
2. False
98. Not sure

Q6. What are some of the possible benefits of LLLCs? [OPEN END]

Q7. How would you rate your confidence in your ability to sell LLLCs to your business customers?

1	2	3	4	5	6
Not at all confident					Extremely confident

Q8. About how many LLLC projects have you sold since completing the in-person LLLC training provided by AIC? [NUMERIC OPEN END]

Q9. About how many LLLC projects do you anticipate installing in the coming five years? [NUMERIC OPEN END]

Q10. How would you rate your confidence with each of the following?

99.	Not at All Confident					Extremely Confident
a. Understanding differences between non-LLLC and LLLC lighting control systems.	1	2	3	4	5	6
b. Describing pros and cons between non-LLLC and LLLC lighting control systems	1	2	3	4	5	6
c. Working with new or unfamiliar advanced lighting control features	1	2	3	4	5	6
d. Using the DesignLights Consortium (DLC) qualified product list, a new publicly-available tool to evaluate, understand, and compare available NLCs and LLLCs	1	2	3	4	5	6
e. Installing a wireless LLLC lighting control system	1	2	3	4	5	6
f. Setting up a wireless LLLC lighting control system	1	2	3	4	5	6

IN-PERSON TRAINING COURSE FEEDBACK

Q11. How strongly do you agree that the in-person training course improved your ability to **sell** LLLC systems?

1	2	3	4	5	6
Strongly disagree					Strongly agree

Q12. How strongly do you agree that the in-person training course improved your ability to **install** LLLC systems?

1	2	3	4	5	6
Strongly disagree					Strongly agree

Q13. How strongly do you agree that the in-person training course improved your ability to **set-up** LLLC systems?

1	2	3	4	5	6
Strongly disagree					Strongly agree

Q14. How satisfied were you with the in-person training course?

1	2	3	4	5	6
Extremely dissatisfied					Extremely satisfied

[ASK IF Q11 OR Q12 OR Q13=1,2,3]
Q15. Please briefly explain what could have made the training more beneficial. [OPEN END]

[ASK IF Q11 OR Q12 OR Q13=4,5,6]
Q16. Please briefly explain what you appreciated most about the training. [OPEN END]

Q17. Do you have any other feedback about the in-person training you would like to share? [OPEN END, RESPONSE NOT REQUIRED]

ONLINE TRAINING COURSE FEEDBACK

[ASK THIS SECTION IF INTRO2=2]

Q18. How strongly do you agree that the online training course improved your ability to **sell** LLLC systems?

1	2	3	4	5	6
Strongly disagree					Strongly agree

Q19. How strongly do you agree that the online training course improved your ability to **install** LLLC systems?

1	2	3	4	5	6
Strongly disagree					Strongly agree

Q20. How strongly do you agree that the online training course improved your ability to **set-up** LLLC systems?

1	2	3	4	5	6
Strongly disagree					Strongly agree

Q21. How satisfied were you with the online training course?

1	2	3	4	5	6
Extremely dissatisfied					Extremely satisfied

[ASK IF Q18 OR Q19 OR Q20=1,2,3]
Q22. Please briefly explain what could have made the training more beneficial. [OPEN END]

[ASK IF Q18 OR Q19 OR Q20=4,5,6]
Q23. Please briefly explain what you appreciated most about the training. [OPEN END]

Q24. Do you have any other feedback about the online training you would like to share? [OPEN END, RESPONSE NOT REQUIRED]

CLOSING

Thank you for taking the time to complete this survey. Please click the button below to submit your responses.

APPENDIX C. POST-TRAINING INTERVIEW GUIDE

INTRODUCTION

Thank you for taking the time to talk today. I work with Opinion Dynamics, an independent research company hired by Ameren Illinois to gather feedback regarding their Luminaire Level Lighting Controls (or LLLC) training. This conversation is meant as a 6-month follow-up focused on your takeaways from the in-person training. If you completed the online training, you will also be prompted to share your thoughts on it. [INTERVIEWER NOTE: If needed, refer to post-training survey responses for whether they took part in a November 2024 in-person workshop and if/when online training was completed.] We are interested to learn how this training may have influenced your process of recommending, selling, or installing LLLCs, and how future training or support can be most impactful. We anticipate this interview will take 15 to 30 minutes, and we will provide a $30 gift card to thank you for your time. Your responses will be kept strictly confidential and never reported with your name or company name.

Is it all right if we record this conversation for note-taking purposes? [BEGIN RECORDING IF APPROVED]

First, I want to confirm some details about you and your company's role in the lighting industry.

Q1. What type of work does your company do? [PROBE FOR CONTRACTOR, DESIGNER, CONSULTANT, ETC.]

Q1A. [IF NEEDED] Is your company primarily involved in recommending, selling, or installing lighting equipment? [PROBE FOR WHICH OF THE THREE]

Q2. In addition to the in-person training, did you participate in any of the Ameren Illinois-sponsored Next Level LLLC online trainings?

[FOR REMAINDER OF INTERVIEW, ASK ABOUT PRIMARY ROLE (RECOMMENDING, SELLING, OR INSTALLING)]

LLLC KNOWLEDGE

As a reminder, LLLCs are a specific subset of networked lighting controls (or NLCs) where each luminaire has embedded lighting control logic and sensors. I have a few initial questions where it would be helpful to get standardized or quantitative responses for comparison before we discuss in more detail.

Q3. How would you rate your current level of familiarity with Luminaire Level Lighting Controls (LLLCs) on a scale from one to six where one is "no knowledge at all" and six is "extremely knowledgeable?"

Q4. For each of the following statements, could you please rate your confidence on a scale from one to six where one is "not at all confident" and six is "extremely confident?"

Q4A. Understanding differences between non-LLLC and LLLC lighting control systems

Q4B. Describing pros and cons between non-LLLC and LLLC lighting control systems

Q4C. Identifying new types of advanced lighting controls to reduce complexity/cost of installation and setup

Q4D. Using a new publicly available tool to evaluate, understand, and compare available NLCs

Q4E. Recommending/selling/installing a wireless LLLC lighting control system

TRAINING IMPACT

Q5. How, if at all, has your process for recommending/selling/installing LLLC systems changed since participating in the training several months ago? [PROBE FOR SPECIFICS]

Q5A. [IF NEEDED] To what degree do you feel better equipped to recommend/sell/install LLLC systems now than you did before the training?

Q5B. [IF TRAINING IMPROVED ABILITY AND RESPONDENT COMPLETED THE ONLINE TRAINING] Between the in-person workshop and the online training, which most improved your ability to recommend/sell/install LLLC systems in the several months since participating? What aspects of each training were especially useful? What else may have been helpful to include?

Q5C. [IF TRAINING DID NOT IMPROVE ABILITY AND RESPONDENT COMPLETED THE ONLINE TRAINING] What about the in-person workshop or online training could have been more useful or impactful on your ability to recommend/sell/install LLLC systems?

Q6. Approximately how many projects/recommendations did you complete/provide in 2024 prior to any LLLC training that involved any lighting or lighting controls? How many of those projects/recommendations involved LLLCs? [IF NEEDED: Your best guess is fine.]

Q7. Since participating in the training, about how many projects/recommendations involving lighting or lighting controls have you completed/provided? How many of these projects/recommendations involved LLLCs? [IF NEEDED: Your best guess is fine.] [PROBE FOR AWARENESS/PROMOTION OF LLLC INCENTIVES]

Q7A. [IF NEEDED] How long does it typically take for projects to progress from initiation to completion? Thinking about projects that were planned or initiated since participating in the training, how many of those projects involved lighting or lighting controls? And how many of those projects involved LLLCs?

Q7B. Thinking about the portion of those lighting projects/recommendations that did not involve LLLCs, why were LLLCs typically not included? What were the primary reasons you or your client opted not to include them?

Q7C. On the flipside, what typically indicates that a project or client may be a good fit for LLLCs? What are some of the common project characteristics?

Q8. What other training or support might help you or your company recommend/sell/install more LLLC systems in the future? [PROBE: training, marketing materials, tech support line, customer-facing collateral, refresher courses, additional incentives, info on equipment availability]

Q8A. [IF NEEDED] What training format would you find most helpful for learning about LLLCs? [PROBE: in-person, remote, asynchronous, etc.]

Q8B. [IF NEEDED] What would be the best way to reach you about additional training opportunities?

[PROBE: email, mail, phone, etc.]

BARRIERS TO LLLC SALES AND INSTALLATION

Q9. Could you describe what you see as the primary barriers to LLLC adoption among commercial customers? [PROBE: financial, awareness, technological knowledge, regulatory, etc.]

Q9A. [IF NEEDED] Are there any other ways we haven't discussed that Ameren Illinois could help address those barriers specifically?

CLOSING

Q10. Is there anything else we didn't discuss that would be helpful to know about the trainings or your experience with LLLCs in the past six months?

[CONFIRM PREFERRED EMAIL FOR GIFT CARD DELIVERY]

Thank you for taking the time to speak with us. Have a great rest of your day.

APPENDIX D. CUSTOMER SURVEY

INTRODUCTION

On behalf of Ameren Illinois, thank you for taking this survey. Ameren Illinois has hired Opinion Dynamics, an independent third-party research firm, to conduct this study. Your responses will be kept strictly confidential. If you exit the survey before completing it, you can pick up where you left off by clicking the link from your email.

SCREENING AND BACKGROUND

S1. First, we want to confirm a few things about you and your business or organization. Ameren Illinois customer records indicate that your contact information is linked to a business or organization located at <ADDRESS>, <CITY>. Is this information correct?
1. Yes, I am affiliated with a business/organization at that location
2. No, I am affiliated with a business/organization in a different location
3. No, I am not affiliated with any business or organization served by Ameren Illinois

[ASK IF S1=2]

S2. What is the name and address of the business or organization you are affiliated with?
1. Business name: [OPEN END]
2. Street address: [OPEN END]
3. City: [OPEN END]

[TERMINATE IF S1=3: *Unfortunately, you do not qualify for this survey, but thank you for your time and have a nice day!*]

[IF S1=1, GENERATE ADDRESS_V=ADDRESS AND CITY_V=CITY]
[IF S1=2, GENERATE ADDRESS_V=S2_2 AND CITY_V=S2_3]

For the remainder of the survey, please refer to your business or organization located at <ADDRESS_V>, <CITY_V>.

S3A. Please confirm the zip code at this business or organization address.
1. Zip code: [5 DIGIT NUMBER]

S3B. In which type of facility is at this address? *Select one.* [RANDOMIZE 1-5]
1. Retail (department stores, hardware stores, specialty stores, pharmacies, etc.)
2. Health or medical services (medical, dental, veterinarian, counseling offices, hospitals, and laboratories)
3. Education (colleges, trade schools, universities, pre-K, K-12, nurseries, etc.)
4. Warehouse (storage rentals, cold storage and delivery, bulk sales, etc.)
5. Office (office buildings, industrial parks, etc.)
0. Other, please specify: [OPEN END]
97. Unknown

S3. We are interested in hearing from Ameren Illinois business customers involved in making decisions about replacing or installing lighting equipment. Are you involved in making these types of decisions for your company?
1. Yes, I am involved in **all** decisions regarding lighting equipment.
2. Yes, I am involved with **some** decisions regarding lighting equipment.
3. No, I am not involved with any decisions regarding lighting equipment.
98. Not sure

[ASK IF 0=3 OR 98]

S4. Please provide the name and email address of someone at your company who is involved in making decisions about replacing or installing lighting equipment.
1. Name: [OPEN END]

2. Email: [OPEN END]
3. Not available or prefer not to say [EXCLUSIVE RESPONSE]

[TERMINATE IF S3=3 OR 98: *Unfortunately, you do not qualify for this survey, thank you for your time and have a nice day!*]

S5. Has your business or organization participated in any Ameren Illinois energy efficiency programs or received any incentives from Ameren Illinois in the past?
1. Yes, my business or organization **has** previously participated in or received incentives from an Ameren Illinois energy efficiency program.
2. No, my business or organization **has not** previously participated in or received incentives from an Ameren Illinois energy efficiency program.
98. Not sure

[ASK IF S5=1]
S6. What Ameren Illinois energy efficiency programs has your business or organization participated in? *Select all that apply.* [MULTIPLE RESPONSE, RANDOMIZE 1-12]
3. Standard/Prescriptive Incentives Program
4. Custom Incentives Program
5. Small Business Direct Install Program
6. Instant Incentives
7. Online Marketplace
8. Retro-Commissioning Program
9. Virtual Commissioning Program
10. BOC Training
11. Commercial Food Service Rebate Program
12. Small Business Energy Performance Program
13. Virtual Strategic Energy Management Program
14. Streetlighting Program
0. Other, please specify: [OPEN END]
98. Not sure [EXCLUSIVE RESPONSE]

[ASK IF S6=1,2,3,0]
S7. Has your business or organization installed any Luminaire-Level Lighting Controls (LLLC) equipment that received an incentive from Ameren Illinois? *Note, LLLCs are a subset of lighting controls where each luminaire has its own embedded lighting control logic and sensors*.
1. Yes
2. No
98. Not sure

S8. What is your job function?
1. Business owner, president, or CEO
2. Property owner or manager
3. Vice president or executive
4. Administrative or office manager
5. Facilities, operations, or maintenance
6. Energy manager or engineer
0. Other, please specify: [OPEN END]
98. Not sure

AWARENESS AND FAMILIARITY

Lighting controls can help save energy (and money) by automatically turning lights off when not needed, dimming when full brightness isn't necessary, or otherwise controlling lighting in and around your facility.

We have some questions about your familiarity with different lighting control options and features.

Q1. As you may know, lighting systems can include a variety of control features to limit energy usage. Some common lighting control features are listed below. How familiar are you with each of the following lighting control features?

	Not at all familiar				Extremely familiar
a. Dimmer settings (alters current during the ON state to raise or lower brightness)	1	2	3	4	5
b. Occupancy sensor (automatically turns lights ON and OFF based on whether the space is occupied)	1	2	3	4	5
c. Motion sensor (automatically turns lights ON when motion is detected and OFF a short while later)	1	2	3	4	5
d. Daylight harvesting/photosensors (controls lighting output in response to available daylight)	1	2	3	4	5
e. High-end trim (reduces lighting in a space based on user preference for individual spaces)	1	2	3	4	5
f. Scheduled lighting/timers (adjusts the output of the lighting system based on a time event implemented using a time-clock)	1	2	3	4	5

Q2. How familiar are you with Networked Lighting Controls, or NLCs?
1. I have never heard of NLCs
2. I am slightly familiar with NLCs
3. I am somewhat familiar with NLCs
4. I am very familiar with NLCs

[ASK IF Q2=1 OR 2]

Q3. You indicated that you are not familiar with Networked Lighting Controls (NLCs). As a reference, NLCs are lighting systems that use a combination of sensors and network interfaces to control luminaires, retrofit kits, or lamps. Does that sound like something you have heard of?
1. Yes, I **have** heard of NLCs
2. No, I **have not** heard of NLCs
98. Not sure

[ASK IF Q2>1 AND Q3<>2 OR 98]

Q4. How did you first hear about NLCs?
1. Someone else at my company
2. Another business owner
3. Another building operator
4. Contractor or electrician
5. Consultant or designer
6. Ameren Illinois
7. Another utility company
0. Other, please specify: [OPEN END]
98. Not sure

[ASK IF Q4=4 OR 5]

Q4A. What company was the contractor or consultant that introduced you to NLCs affiliated with?
0. Business name: [OPEN END]
98. Not sure

Q5. How familiar are you with Luminaire-Level Lighting Controls, or LLLCs?
1. I have never heard of LLLCs
2. I am slightly familiar with LLLCs
3. I am somewhat familiar with LLLCs

4. I am very familiar with LLLCs

[ASK IF Q5=1 OR 2]
Q6. You indicated that you are not familiar with Luminaire-Level Lighting Controls (LLLCs). As a reference, LLLCs are a subset of Networked Lighting Controls (NLCs) consisting of one or more luminaires with embedded lighting control logic, occupancy/ambient light sensors, wireless networking capabilities, or local override switching capabilities. Does that sound like something you have heard of?
1. Yes, I **have** heard of LLLCs
2. No, I **have not** heard of LLLCs
98. Not sure

[ASK IF Q5>1 AND Q6<>2 OR 98]
Q7. How did you first hear about LLLCs?
1. Someone else at my company
2. Another business owner
3. Another building operator
4. Contractor or electrician
5. Consultant or designer
6. Ameren Illinois
7. Another utility company
0. Other, please specify: [OPEN END]
98. Not sure

[ASK IF Q7=4 OR 5]
Q7A. What company was the contractor or consultant that introduced you to LLLCs affiliated with?
0. Business name: [OPEN END]
98. Not sure

Q8. Have you ever been given a recommendation by your contractor/installer to install LLLCs?
1. Yes
2. No
98. Not sure

[ASK IF Q8=1]
Q9. Did you install LLLCs after your contractor/installer recommended them?
1. Yes
2. No
98. Not sure

Q10. Have you ever requested LLLCs for a lighting retrofit project?
1. Yes
2. No
98. Not sure

CURRENT INTEREST AND EXPERIENCE

Q11. What is the total number of lighting fixtures in your facility? *Your best estimate is fine.* [NUMERIC OPEN END, 999999=Prefer not to say]

Q11A. What is the total square footage within your facility? *Your best estimate is fine.* [NUMERIC OPEN END 1-900000, 999999=Prefer not to say]

Q12. Does your facility currently have any lighting controls installed that go beyond basic on/off switches?
1. Yes
2. No

99. Prefer not to say

[ASK IF Q12=1]
Q13. What types of lighting controls does your facility currently have installed? *Select all that apply.* [MULTIPLE RESPONSE, RANDOMIZE 1-4]
1. Occupancy sensors
2. Motion sensors
3. Dimmer switches
4. Networked Lighting Controls (NLCs) [SHOW IF Q3<>2]
0. Other, please specify: [OPEN END]
99. Prefer not to say

[ASK IF Q12=1 AND (Q5>2 OR Q6=1)]
Q14. Does your facility currently have any LLLCs installed?
1. Yes
2. No
99. Prefer not to say

[ASK IF Q14=1]
Q15. What percentage of total lighting fixtures in your facility are controlled by LLLCs? *Your best estimate is fine.* [NUMERIC OPEN END 1-900000, 999999=Prefer not to say]

[ASK IF Q14=1]
Q15B. Did you install any LLLCs in your facility so far in 2025?
1. Yes
2. No
99. Prefer not to say

[ASK IF Q14=1]
Q16. Roughly what percentage of luminaires that you've installed in your facility in 2025 have LLLCs? [NUMERIC OPEN END 0-100, 999999=Prefer not to say]

[ASK IF Q15B=1]
Q17. Approximately how many square feet within your facility are controlled by the LLLCs you've installed so far in 2025? [NUMERIC OPEN END 1-999997, 999999=Prefer not to say]

[ASK IF Q14=1]
Q18. How satisfied were you with the **process of installing** LLLCs at your facility?

1	2	3	4	5	6
Extremely dissatisfied					Extremely satisfied

[ASK IF Q18<4]
Q19A. Why did you give that rating? [OPEN END, 98=Not sure]

[ASK IF Q14=1]
Q19. How satisfied were you with the **cost of purchasing and installing** LLLCs at your facility?

1	2	3	4	5	6
Extremely dissatisfied					Extremely satisfied

[ASK IF Q19<4]
Q20A. Why do you give that rating? [OPEN END, 98=Not sure]

[ASK IF Q14=1]
Q20. How satisfied are you with **the performance** of the LLLCs at your facility?

1	2	3	4	5	6
Extremely dissatisfied					Extremely satisfied

[ASK IF Q20<4]
Q21A. Why do you give that rating? [OPEN END, 98=Not sure]

[ASK IF Q14=1]
Q21. Which of the following benefits have you experienced since installing LLLCs? *Select all that apply.* [MULTIPLE RESPONSE, RANDOMIZE 1-10]

1. Reduced energy use
2. Reduced energy cost
3. Better occupant comfort
4. Improved occupant productivity
5. Enhancements to safety systems (including environmental sensing systems)
6. Asset tracking (to understand usage)
7. Integration with building systems (including HVAC systems and predictive maintenance)
8. Space utilization
9. Demand response capabilities
10. Easy installation and use
0. Other, please specify: [OPEN END]
98. Not sure [EXCLUSIVE]
97. None [EXCLUSIVE]

Q22. How important are each of the following factors for your company's lighting needs?

Outcome	Not at all important				Extremely important	Not sure
a. Reduced energy use	1	2	3	4	5	98
b. Reduced energy cost	1	2	3	4	5	98
c. Better occupant comfort (increasing occupant comfort)	1	2	3	4	5	98
d. Improved occupant productivity (increasing occupant output)	1	2	3	4	5	98
e. Enhancements to safety systems (connecting the lighting to environmental sensing systems)	1	2	3	4	5	98
f. Asset tracking (real-time energy tracking and data collection)	1	2	3	4	5	98
g. Easy integration with building systems (connecting the lighting to HVAC systems and predictive maintenance)	1	2	3	4	5	98
h. Long-term flexibility (being adaptable for changes in space usage)	1	2	3	4	5	98
i. Demand response (automatically reducing, dim or turn off, in response to a price signal)	1	2	3	4	5	98
j. Easy installation and use (ordering lighting with the sensors and control programming integrated into the fixture)	1	2	3	4	5	98

FUTURE INTEREST AND DEMAND

Q23. Are you currently planning to renovate, retrofit, or install new lighting at your facility between now and the end of 2027?

1. Yes
2. No
98. Not sure

Q24. Are you currently planning to install new lighting controls at your facility between now and the end of 2027?

1. Yes
2. No

98. Not sure

[ASK IF Q24=1 AND IF Q5<> 1]
Q25. Are you currently planning to install new LLLCs at your facility between now and the end of 2027?
1. Yes
2. No
98. Not sure
99. Not applicable

[ASK IF Q25=1]
Q26. When would you expect to install the new LLLCs?
1. By the end of 2025
2. By the end of 2026
3. By the end of 2027
4. After 2027
98. Not sure

FIRMOGRAPHICS

You are almost finished. We have just a few final questions about your company and the facility at <ADDRESS_V>, <CITY_V>.

Q27. How many locations are affiliated with your business or organization?
[NUMERIC OPEN END 1-500, 998=Not sure, 999=Prefer not to say]

Q28. [Moved to earlier in the survey]

Q29. Including yourself, how many employees, full- and part-time, are employed at the facility at <ADDRESS_V>, <CITY_V>? *Your best estimate is fine*. [NUMERIC OPEN END 1-90000, 99998=Not sure, 99999=Prefer not to say]

Q30. During the past year, was the total annual revenue of your business or organization under $10 million?
1. Yes
2. No
98. Not sure
99. Prefer not to say

Q31. Which of the following best describes the handling of electric bills for the facility at <ADDRESS_V>, <CITY_V>?
1. My company pays **all** of the electric bill.
2. My company pays **most** of the electric bill.
3. My company pays **half** of the electric bill.
4. My company pays **some** of the electric bill.
5. My company pays **none** of the electric bill.
0. Other, please specify: [OPEN END]
98. Not sure
99. Prefer not to say

CLOSING

Thank you for taking the time to complete this survey. What is the best email to deliver your $15 Tango e-gift card to? The gift card will be delivered within the next 1-2 weeks.
0. Enter email here: [OPEN END]
99. I do not want the gift card

Please click the button below to submit your responses.

[REDIRECT TO https://amerenillinoissavings.com/business/incentives-services/]

APPENDIX E. TRADE ALLY SURVEY

INTRODUCTION

On behalf of Ameren Illinois, thank you for taking this survey. Ameren Illinois has hired Opinion Dynamics, an independent third-party research firm, to conduct this study. Your responses will be kept strictly confidential. If you exit the survey before completing it, you can pick up where you left off by clicking the link from your email.

SCREENING AND BACKGROUND

S1. Which of the following describes your role with <COMPANY>? *Please select all that apply.* [MULTIPLE RESPONSE; RANDOMIZE 1-8]
1. Electrician
2. Consultant
3. Manufacturer
4. Lighting contractor/installer
5. Distributor
6. Energy services contractor
7. Designer/engineer
8. Sales representative

0. Other, please specify: [OPEN END]

S2. How many years have you been working with <COMPANY>? [NUMERIC OPEN END 0-90, 99=Prefer not to say]

S3. How many employees work at <COMPANY>? [NUMERIC OPEN END 0-9000, 9999= Prefer not to say]

S4. What products or services do you provide? *Please select all that apply.* [MULTIPLE RESPONSE, RANDOMIZE 1-7]
1. Lighting/Lighting Controls
2. Building Envelope Retrofits
3. Energy Audits
4. Building Controls/Maintenance
5. HVAC/Mechanical
6. Engineering/Design
7. Electrical

0. Other, please specify: [OPEN END]

S5. Are you involved with installing, selling, or recommending commercial lighting and/or lighting controls? *Please select all that apply.* [MULTIPLE RESPONSE]
1. Yes, I am involved with **installing** commercial lighting/lighting controls.
2. Yes, I am involved with **selling** commercial lighting/lighting controls.
3. Yes, I am involved with **recommending** commercial lighting/lighting controls.
4. No, I am **not involved** with commercial lighting sales or installs

99. Prefer not to say [EXCLUSIVE]

[TERMINATE IF S5=4 OR 98: *Unfortunately, you do not qualify for this survey. Thank you for your time, and have a nice day!*]

S6. Have you previously participated in any Ameren Illinois-sponsored trainings or workshops specifically focused on Luminaire-Level Lighting Controls, or LLLCs? *Note, LLLCs are a subset of lighting controls where each luminaire has its own embedded lighting control logic and sensors.*
1. Yes
2. No

99. Prefer not to say

AWARENESS AND FAMILIARITY

Lighting controls can help save energy (and money) by automatically turning lights off when not needed, dimming when full brightness isn't necessary, or otherwise controlling lighting in and around facilities.

We have some questions about your familiarity with different lighting control options and features.

Q1. As you may know, lighting systems can include a variety of control features to limit energy usage. Some common lighting control features are listed below. How familiar are you with each of the following lighting control features?

	Not at all familiar				Extremely familiar
a. Dimmer settings (alters current during the ON state to raise or lower brightness)	1	2	3	4	5
b. Occupancy sensor (automatically turns lights ON and OFF based on whether the space is occupied)	1	2	3	4	5
c. Motion sensor (automatically turns lights ON when motion is detected and OFF a short while later)	1	2	3	4	5
d. Daylight harvesting/photosensors (controls lighting output in response to available daylight)	1	2	3	4	5
e. High-end trim (reduces lighting in a space based on user preference for individual spaces)	1	2	3	4	5
f. Scheduled lighting/timers (adjusts the output of the lighting system based on a time event implemented using a time clock)	1	2	3	4	5

Q2. How familiar are you with Networked Lighting Controls, or NLCs?
1. I have never heard of NLCs
2. I am slightly familiar with NLCs
3. I am somewhat familiar with NLCs
4. I am very familiar with NLCs

[ASK IF Q2=1]
Q3. You indicated that you are not familiar with Networked Lighting Controls (NLCs). As a reference, NLCs are lighting systems that use a combination of sensors and network interfaces to control luminaires, retrofit kits, or lamps. Does that sound like something you have heard of?
1. Yes, I **have** heard of NLCs
2. No, I **have not** heard of NLCs
98. Not sure

[ASK IF Q2=2,3,4]
Q4. How would you describe NLCs to someone who is unfamiliar with them? [OPEN END]

Q5. How familiar are you with Luminaire-Level Lighting Controls, or LLLCs?
1. I have never heard of LLLCs
2. I am slightly familiar with LLLCs
3. I am somewhat familiar with LLLCs
4. I am very familiar with LLLCs

[ASK IF Q5=1]
Q6. You indicated that you are not familiar with Luminaire-Level Lighting Controls (LLLCs). As a reference, LLLCs are a subset of Networked Lighting Controls (NLCs) consisting of one or more luminaires with embedded lighting control logic, occupancy/ambient light sensors, wireless networking capabilities, or local override switching capabilities. Does that sound like something you have heard of?
1. Yes, I **have** heard of LLLCs

2. No, I **have not** heard of LLLCs
98. Not sure

[ASK IF Q5=2,3,4]
Q7. How would you describe LLLCs to someone who is unfamiliar with them? [OPEN END]

[ASK IF Q2>1]
Q8. Have you ever recommended Networked Lighting Controls (NLCs) to a client?
1. Yes
2. No
99. Prefer not to say

[ASK IF Q5>1]
Q9. Have you ever recommended Luminaire-Level Lighting Controls (LLLCs) to a client?
1. Yes
2. No
99. Prefer not to say

INSTALLATION EXPERIENCE AND EXPECTATIONS

[ASK IF S5=1, ELSE SKIP TO NEXT SECTION]
Q10. Have you ever installed Networked Lighting Controls (NLCs)?
1. Yes
2. No
97. Unknown

Q11. Have you ever installed Luminaire-Level Lighting Controls (LLLCs)?
1. Yes
2. No
97. Unknown

Q12. How many <u>total lighting or lighting control projects</u> have you completed so far in 2025? *Your best estimate is fine.* [NUMERIC OPEN-END; 0-9000, 9999=Prefer not to say]

[ASK IF Q11=1]
Q13. How many projects involving <u>LLLC fixtures</u> did you complete so far in 2025? *Your best estimate is fine.* [NUMERIC OPEN-END; 0-<Q12>, 9999=Prefer not to say]

[ASK IF Q13>0 AND Q13<9999]
Q14. For those 2025 projects that included LLLC fixtures, what percentage of fixtures were LLLCs? *Your best estimate is fine.* [NUMERIC OPEN-END; 0-100, 999=Prefer not to say]

Q15. How many projects with LLLC fixtures do you anticipate installing in all of 2025, including projects you have already completed this year? *Your best estimate is fine.* [NUMERIC OPEN-END; 0-9000, 9999=Prefer not to say] [VALIDATION CRITERION: NUMBER SHOULD BE GREATER THAN OR EQUAL TO Q13 RESPONSE.]

[ASK IF Q13>0 AND Q13<9999]
Q16. Thinking about **the LLLC fixtures** you installed in 2025 so far…
1. What was the **total** square footage controlled by LLLC fixtures you installed? *Your best estimate is fine.* [NUMERIC OPEN END 0-900000, 999999=Prefer not to say]
2. [SHOW IF Q13>1] What was the **largest** square footage controlled by a single LLLC fixture you installed? *Your best estimate is fine.* [NUMERIC OPEN END 0-900000, 999999=Prefer not to say]
3. [SHOW IF Q13>1] What was the **smallest** square footage controlled by a single LLLC fixture you installed? *Your best estimate is fine.* [NUMERIC OPEN END 0-900000, 999999=Prefer not to say]

4. [SHOW IF Q13>1] What was the **average** square footage controlled by each LLLC fixture you installed? *Your best estimate is fine.* [NUMERIC OPEN END 0-900000, 999999=Prefer not to say]

[ASK IF Q13>0 AND Q13<9999]
Q17. Thinking about the LLLC fixtures you installed in 2025, approximately what percentage of those projects were for each of the following sectors? [NUMERIC OPEN END 0-100, MUST SUM TO 100]
1. Retail (department stores, hardware stores, specialty stores, pharmacies, etc.)
2. Health or medical services (medical, dental, veterinarian, counseling offices, hospitals, and laboratories)
3. Offices (industrial parks, office buildings, etc.)
4. Education or childcare (colleges, trade schools, universities, pre-K, K-12, nurseries, etc.)
5. Warehousing, distribution, or wholesale (storage rentals, cold storage and delivery, bulk sales, etc.)
0. Other
97. Unknown

[ASK IF Q17=0]
Q17A. In what other sector did you install LLLC fixtures in this past year? [OPEN END]

[ASK IF Q11=1]
Q18. Compared to other types of lighting controls, how easy or difficult is it to install an LLLC fixture?
1. LLLCs are **much easier** to install
2. LLLCs are **somewhat easier** to install
3. LLLCs are **neither easier nor harder** to install
4. LLLCs are **somewhat harder** to install
5. LLLCs are **much harder** to install

[ASK IF Q11=1 AND Q18<>3]
Q19. What makes LLLC fixtures easier or more difficult to install than other types of lighting controls? [OPEN END]

RECOMMENDATION AND SALES EXPERIENCE AND EXPECTATIONS

[ASK IF S5=2 OR 3, ELSE SKIP TO NEXT SECTION]

Q20. How many clients have you recommended lighting or lighting controls to so far in 2025? *Your best estimate is fine.* [NUMERIC OPEN-END; 0-9000, 9999=Prefer not to say]

[ASK IF Q7C=1]
Q21. How many clients have you recommended LLLC fixtures to so far in 2025? *Your best estimate is fine.* [NUMERIC OPEN END 0-9000, 9999=Prefer not to say]

[ASK IF Q21>0]
Q22. Of the <Q21 numeric response> clients you recommended LLLCs to so far in 2025, about how many installed LLLCs? [NUMERIC OPEN END 0-9000, 9999=Prefer not to say]

[ASK IF Q5>1 OR Q6=1]
Q23. How many clients do you anticipate recommending LLLC systems to in all of 2025, including clients you have already made recommendations to earlier in the year? *Your best estimate is fine.* [NUMERIC OPEN END 0-9000, 9999=Prefer not to say] [VALIDATION CRITERION: NUMBER SHOULD BE GREATER THAN OR EQUAL TO Q21 RESPONSE.]

[ASK IF Q5>1 OR Q6=1]
Q24. What, if anything, do you expect to change in the coming year that would influence whether you recommend LLLC systems to your clients? [OPEN END, 98=Not sure]

[SHOW ALL]
You are almost finished; we have just a few final questions.

[ASK ALL]
Q25. How important are each of the following factors to your clients' lighting needs?

Outcome	Not at all important				Extremely important	Not sure
a. Energy savings (using less energy)	1	2	3	4	5	98
b. Energy cost savings (spending less on energy)	1	2	3	4	5	98
c. Better occupant comfort (increasing occupant comfort)	1	2	3	4	5	98
d. Improved occupant productivity (increasing occupant output)	1	2	3	4	5	98
e. Enhancements to safety systems (connecting the lighting to environmental sensing systems)	1	2	3	4	5	98
f. Asset tracking (real-time energy tracking and data collection)	1	2	3	4	5	98
g. Easy integration with building systems (connecting the lighting to HVAC systems and predictive maintenance)	1	2	3	4	5	98
h. Long-term flexibility (being adaptable for changes in space usage)	1	2	3	4	5	98
i. Demand response (automatically reducing, dim or turn off, in response to a price signal)	1	2	3	4	5	98
j. Easy installation and use (ordering lighting with the sensors and control programming integrated into the fixture)	1	2	3	4	5	98

BARRIERS TO LLLC ADOPTION

Q26. In your opinion, what are the primary barriers limiting adoption of LLLCs in the commercial lighting market? [OPEN END, 98=Not sure]

CLOSING

Thank you for taking the time to complete this survey. Please enter the email address where you would like to receive your $25 Tango gift card below. The gift card will be delivered within the next 1-2 weeks.
0. Enter email here: [OPEN END]
99. I do not want the gift card
Please click the link below to submit your responses.

[REDIRECT TO https://www.amerenillinoissavings.com/business/find-incentives-on-energy-efficient-equipment/]

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