

OPPORTUNITIES IN CONTROLLED ENVIRONMENTAL AGRICULTURE EXECUTIVE SUMMARY

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ERS, Resource Innovation Institute, D+R International, and American Council for
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I.0 EXECUTIVE SUMMARY

This report documents key findings, challenges and opportunities for the Commonwealth Edison Company (ComEd) within the growing controlled environmental agriculture (CEA) market. CEA is an emerging industrial sector that is energy intensive and rapidly evolving as a result of the recent legalization of recreational cannabis use in Illinois.

The research team completed the following key objectives:

- Determine the current equipment and standard practices in use today in the CEA sector in Illinois for lighting, HVAC, dehumidification and irrigation
- Identify and outline potential non-energy benefits (NEBs) of energy efficiency in indoor agriculture
- Decipher which communication channels are most trusted by indoor growers
- Describe how CEA facilities are impacting utility distribution systems

Research Approach

To address these objectives, the research team conducted 44 in-depth interviews across four groups: indoor growers with operations in Illinois (n=10), Illinois or regional supply chain actors (n=25), academic experts (n=3) and utility program managers (n=6). The team also conducted a literature review, bringing together roughly 60 existing resources, to identify knowledge gaps and inform this research.

Recommendations

Based on our research findings, the team has developed the following recommendations.

Program:

1. Become a trusted source of information on energy efficiency strategies that exceed the standards outlined in House Bill 1438 (H.B. 1438) and improve cannabis yield.
2. There is confusion among even sophisticated cannabis growers and supply chain actors in Illinois about the requirements in H.B. 1438 for lighting, HVAC, dehumidification and irrigation. There is also a wide range of understanding across market actors about NEBs from growing with LEDs. These two areas present an opportunity for ComEd to help growers interpret the law and grow more cost-effectively. In any future program, ComEd should develop clear communication on these topics through a program website, trainings to growers and local vendors, and technical assistance for new license recipients.

Equipment:

1. Facilities that use mini-splits and variable refrigerant flow (VRF) systems for heating and cooling will need dehumidifiers. Consider incentives for standalone dehumidifiers, using Energy Star criteria as an assessment of better-than-standard energy consumption.
2. Offer technical support that specifically helps growers meet or go beyond the HVAC designs stipulated by H.B. 1438. As a matter of supporting their design selection, provide an independent assessment that fairly compares energy efficiency of their HVAC/dehumidification options, which can serve as evidence to support their claim of compliance with H.B. 1438 using the pathway stipulated as “or other more energy efficient equipment.”
3. Incorporate technical assistance and incentives for lighting controls into a future program offering, particularly modulation of light levels.
4. Cannabis growers generally lack access to low-cost capital. Due to the risks associated with lending to indoor agriculture, the utility may not be able to help. But if a service such as on-bill financing was to be offered to cannabis growers, it would likely encourage them to incorporate higher efficiency technologies, such as integrated HVAC systems and lighting controls. This will support customers in implementing efficiency who typically do not have access to low-cost capital.

Communication:

1. Engaging the CEA sector will take time. Develop relationships with member organizations trusted by growers such as those listed in Table 2 in this report. For cannabis specifically, reaching out to growers individually will not be cost-effective.
2. Include NEBs as part of efficiency program marketing and savings analysis for all CEA customers as measures are evaluated and incentivized.
3. Because cannabis growers and non-cannabis growers may prioritize energy efficiency differently, when marketing a program offering, be specific about how energy efficiency measures or design could impact crop yield in addition to lowering operational expenses.
4. Acknowledge historical injustices. The cannabis industry has transitioned from an illegal to a legal market, and with that transition existing social forces like structural racism allows new profiteers to benefit from an industry

that has a long history of criminalizing people of color for the same market actions.¹ Reach out to and develop partnerships with organizations such as GROmentum and Cannabis Equity Coalition of Illinois who are supporting social equity program applicants. Consider offering an introductory training that helps new growers go beyond compliance when they design their facility. Appreciate that it may take time and patience to break down historical barriers that have limited communication between regulated bodies and growers.

5. Develop a website with a splash page including helpful information for new growers. Offer quick explainers on H.B. 1438. Create an online webform and make it easy for growers to get in touch with someone. Additional resources that could be included are site selection and project hookup services, tools such as energy management calculators, and information on time of use rates, incentive ceilings and incentive approval timelines.

Distribution Impact:

1. Establish a relationship with the Illinois Department of Agriculture, which handles licensing for new facilities, so the utility can better anticipate new load growth. This may also provide an opportunity for ComEd to be involved in the licensing process. This could help the utility learn about new planned facilities and their approximate square footage, while also offering feedback to growers on where the distribution system can accommodate more capacity.
2. Help connect growers with existing demand management resources within ComEd.
3. Create a questionnaire for all new growers to learn about their capacity needs and assist them with H.B. 1438 interpretation, so they feel confident in developing efficient and effective growing facilities. Key questions include square footage, building operations (e.g., always 24/7), grow lighting diagrams, HVAC capacity, utility provider, etc. In addition, it is critical to scope their business operations, such as asking what their growth intentions are 2–5 years down the road (e.g., adding square footage, buying buildings). Many growers phase their growth and plan to expand a few years down the road, which is a key piece of information for ComEd to understand for its capacity planning

¹ Marijuana: A Short History, R-079