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How Mass. Can Prepare For Cannabis Industry Energy Use

By **Caitlin Beresin, Julie Cox and David O'Connor**

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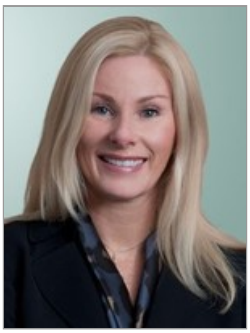

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State-by-state legalization of the medical and recreational use of marijuana is creating a new industry in the U.S. that has the potential to rival our largest businesses. However, the growth of this new industry comes at a cost. In addition to the obvious cultural and financial impacts the industry will have on Massachusetts, significant environmental impacts should be anticipated.

Historically, the illegal status of marijuana has inhibited an understanding of the potential impacts of large-scale operations on the environment. The current emergence of this industry presents an opportunity for Massachusetts to be a progressive example of best practices and environmental stewardship.

Data suggests that cannabis is an especially needy crop, requiring high temperatures, strong light, highly fertile soil and large volumes of water. Indoor cultivation has been found to be the most energy intensive cultivation method. A 2012 California study showed that indoor cannabis cultivation was responsible for approximately three percent of the state's electricity use, equivalent to the electricity consumption of one million California homes — and this was at a time when only medical, and not recreational, marijuana was legal.

Greenhouse and outdoor cultivation methods use much less energy than indoor growing, although they use more water and can have detrimental ecological consequences. A California report cited a 2016 study that estimated the energy cost differential between indoor versus greenhouse versus outdoor cultivation to be 78 to 1 to 0.

An Act to Ensure Safe Access to Marijuana, signed into law by Governor Baker July 28th, was built upon a voter-approved ballot initiative legalizing the recreational use of marijuana in the Commonwealth. The bill includes a state and local taxation system, a 2-tiered local option arrangement to authorize cannabis establishments and creation of the Cannabis Control Commission (CCC), an independent commission charged with the promulgation of regulations that cover nearly every aspect of the nascent industry.

The Massachusetts law allows local municipalities to individually determine where, when and how, marijuana licensees may operate. However, the Massachusetts CCC's regulations are required to address "energy and environmental standards for licensure" for marijuana establishments that cultivate or manufacture product.

Additionally, the CCC must establish a working group to provide recommendations on ways to reduce energy and water use in the industry, mitigate environmental impacts, conduct annual energy audits and identify best practices to ensure compliance with the state's energy efficiency goals and to ameliorate the potential harm to the environment.

Pursuant to these directives in the enabling statute, the CCC would be wise to take note of the practices adopted in pioneering states such as Colorado and Oregon.

The city of Boulder, Colorado, requires commercial cannabis growers to either offset increased electricity use with local renewable energy sources, or to pay a 2.16-cent charge per kWh. Such fees are funneled into the Boulder Energy Impact Offset Fund, the purpose of which is to encourage the use of best practices in energy use in marijuana cultivation, in addition to funding carbon offset projects. Additionally, the fund serves to collect data on energy use and to assist in developing more efficient lighting and ventilation systems as the industry grows.

In another example, Oregon requires any applicant for a recreational marijuana license to submit a report on the estimated electricity and water consumption anticipated for their operations. To assist in this endeavor, Oregon created an energy use calculator that can assist applicants in more accurately estimating energy use needed for indoor cultivation. The calculator, which is accessible online, utilizes total grow area, total plant amount, the type of energy use equipment and actual energy use if known, to calculate an estimate of the monthly and annual energy use based on a typical 12-18 hour per day light operation.

Requiring an energy use report as part of the application for a license encourages growers to consider their energy use profile, and may inspire them to consider use of energy-saving mechanisms in their operations. It should be noted that other states have provided financing opportunities to enable marijuana growers to invest in renewable energy and energy efficiency.

Even if best practices are identified and implemented, the need to address the enormous consumption of energy presents an opportunity for the clean-tech industry. Although the uncertainty in the market stemming from the federal ban has stifled innovation due to a lack of financing, the growing acceptance of cannabis legalization has resulted in a problem of sufficient size that cries out for a solution.

Various technologies are being developed that may help to meet the challenge. For example, LED technology has advanced rapidly over the last decade; use of this technology can reduce the need for cooling and dehumidification. Solar energy, greenhouses, humidification systems and microgrids are also technologies that are poised for growth.

With an eye on energy efficiency in this space, utility companies in Massachusetts have stepped forward as partners to the burgeoning industry. Fran Boucher, National Grid's energy efficiency program manager, stated at the World Cannabis Congress and Business Exposition in Boston this year that utility companies can offer incentives for marijuana businesses that design or upgrade their facilities to be more energy efficient.

As long as the grower installs the efficient systems and uses them as agreed, the utility company will provide payments proportional to the savings. Boucher made clear that there is no upper limit to the incentives, stating that projects as small as installing 10 LED lights could be eligible.

With a deadline for pot shops to open by July 1, 2018, the CCC is on a short timeline to craft regulations. The five CCC commissioners have been appointed and are hosting listening sessions across the Commonwealth to elicit public feedback on industry issues.

The chair, selected by Treasurer Goldberg, is Steve Hoffman, a retired business executive and Bain and Company partner. Governor Baker tapped Senator Jennifer Flanagan for her background in mental health and substance misuse. Attorney General Healey appointed Britte McBride, who worked for the Executive Office of Public Safety and Security and for the Attorney General's Office. Kay Doyle, who had been working in the medical marijuana program at the Department of Public Health, and Shaleen Title, co-founder of the cannabis staffing firm THC, were selected by a majority of the above three constitutional officers.

The 25-member advisory board members were also announced — a group tasked with assisting the CCC to draft regulations and guidelines for the industry.

We will closely monitor the CCC's progress on how to address energy consumption, and will

periodically report on developments in this area as regulations are crafted.

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