A Chronic Problem:
Taming Energy Costs and Impacts from Marijuana Cultivation

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About EQ Research, LLC

OFFICES

EXPERTISE

• Distributed Energy Resources: Interconnection, Net Metering, Third-Party Ownership

• Regulatory Policy: Rate Design, Cost of Service, RPSs, Grid Modernization

SERVICES

POLICY VISTA

CUSTOM RESEARCH

INCENTIVE SPECTRUM
Order of Operations

1. Status of U.S. Marijuana Laws
2. The Energy Problem
3. Challenges for Utilities
4. Challenges for the Marijuana Industry
5. Recommendations
Marijuana Cultivation Stages

Clone: 3
Vegetate: 8
Flower: 8
Harvest: 1

Time in Weeks
Common Sources of Electricity Use

HPS Lamps

Dehumidifier
Breakdown of Energy Use

Sources: Northwest Power & Conservation Council, Evan Mills

- Lighting: 38%
- Venting & Dehumidifier: 30%
- Air Conditioning: 21%
- Space Heat: 5%
- Water: 3%
- CO2 Injection: 2%
- Drying: 1%
How Big Is This Issue?

Sample Electricity Usage:

- ~3% Total Electricity Use in California in 2011 (Mills)
  - Estimate conducted while California was still a medical marijuana market

- ~1% Total Electric Demand in Washington in 2014 (NPCC)
  - Indoor agriculture used an estimated 0.75-0.96% of Washington demand in 2014

- >0.4% Total Electricity Use in Colorado in 2014 (Crandall)
  - Estimated based on data from news reports and limited IOU information
How Big Is This Issue?

Sample Electricity Costs:

- **45-48%**
  - Energy Costs as Overhead
  - Energy costs can be almost half of operating costs (staff, security, rent, etc.), according to Evergreen Economics

- **$50,000**
  - Representative Monthly Bill
  - Denver growers’ electricity bills range from $20,000-$50,000 per month, but bills as high as $100,000 have been reported

- **$500,000**
  - Representative Upgrade Cost
  - Reported cost for distribution transformer upgrade for large-scale indoor marijuana grow facility in Colorado

Sources: The Denver Post, Evergreen Economics
If the marijuana industry is going to be using electricity, what opportunities are out there to ensure that electricity use is efficient and renewable? And what challenges exist?
Challenges for Utilities

Growing Practices

Load Forecasting

Reliability

Commission Policy

Federal Government
Energy Challenges for Marijuana Industry

The “Split Incentive” Problem
Growers vs. owners; submetering

High Cost of Capital
High-risk, high-interest; lack of banking options
Energy Challenges for Marijuana Industry

Utility Inexperienced
- Interconnection;
- Rates;
- Energy-saving products

Competing Regulations
- Indoor requirements;
- Zoning;
- Smell ordinances
Step 1: Provide Access to Data
Step 1: Provide Access to Energy Data

1. Utilities should offer customers access to their own data at a granular level, such as 15-minute intervals.

2. Businesses can install CT sensors to provide near real-time data for individual building circuits.

3. Utilities should provide mechanisms by which customers can share their data with third parties they authorize to review it.
Data As a Barrier to Rate Design

Source: Northwest Power & Conservation Council

Custom tariffs?  Bill Management  Other Options
Step 2: Coordinate
1. State and local governments and nonprofits can provide energy efficiency rebates and financing options.

2. Government agencies can offer tailored, energy- and utilities-related educational programming.

3. Utilities, local and state governments, and trade associations can collaborate to offer one-stop sustainability services when marijuana facilities are being designed.

4. Industry associations can supplement research by utilities on energy efficiency.

5. Industry associations can engage at PUCs.
Step 3: Set Supportive Policies
1. State PUCs can provide utilities with clarity as to the acceptability of offering industry-specific rates and programs.

2. PUCs can ensure that policies on new service connections treat the marijuana industry fairly.

3. State and local governments can use appropriate regulations to provide solutions to the barriers described above.
Step 4: Support Good Management Practices
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1. Develop technical resources encouraging best management practices related to energy and sustainability (City and County of Denver).

2. Consider third-party industry sustainability certifications (State of Oregon).
Thank you!

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Opinions expressed here are my own and do not reflect the firm’s or our clients.