

POT & POWER:

IMPACT OF MJ LEGALIZATION ON ELECTRIC UTILITIES

September 11, 2017

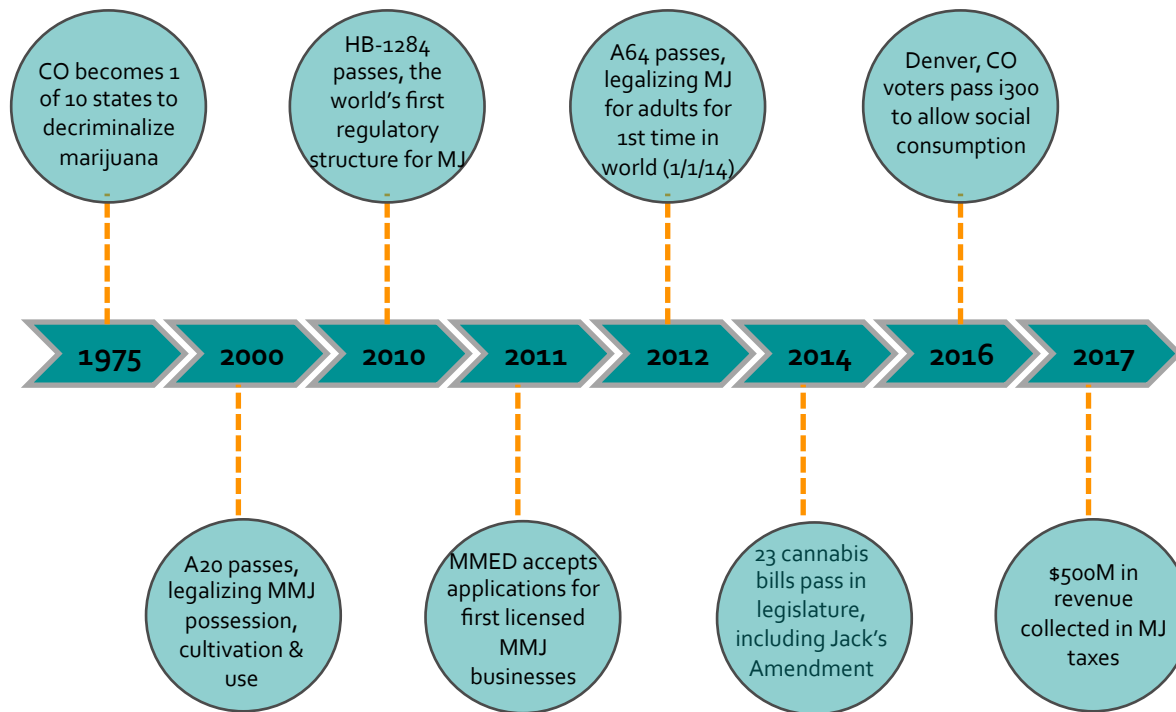
presented by:



ABOUT MARIJUANA INDUSTRY GROUP

- Marijuana Industry Group's is the oldest, largest, most diverse and most impactful group of licensed marijuana businesses in Colorado.
 - Advance safe policy and practice in Colorado on behalf of legal cannabis industry
 - Safe access to clean product for Colorado's patients, residents and visitors
 - Effective regulations advance a successful model
- MIG's mission is to advance appropriate legislation, regulation and implementation of Colorado's licensed cannabis program, which is the world's first example of taxed, regulated, legal cannabis.

COLORADO CANNABIS CHRONOLOGY



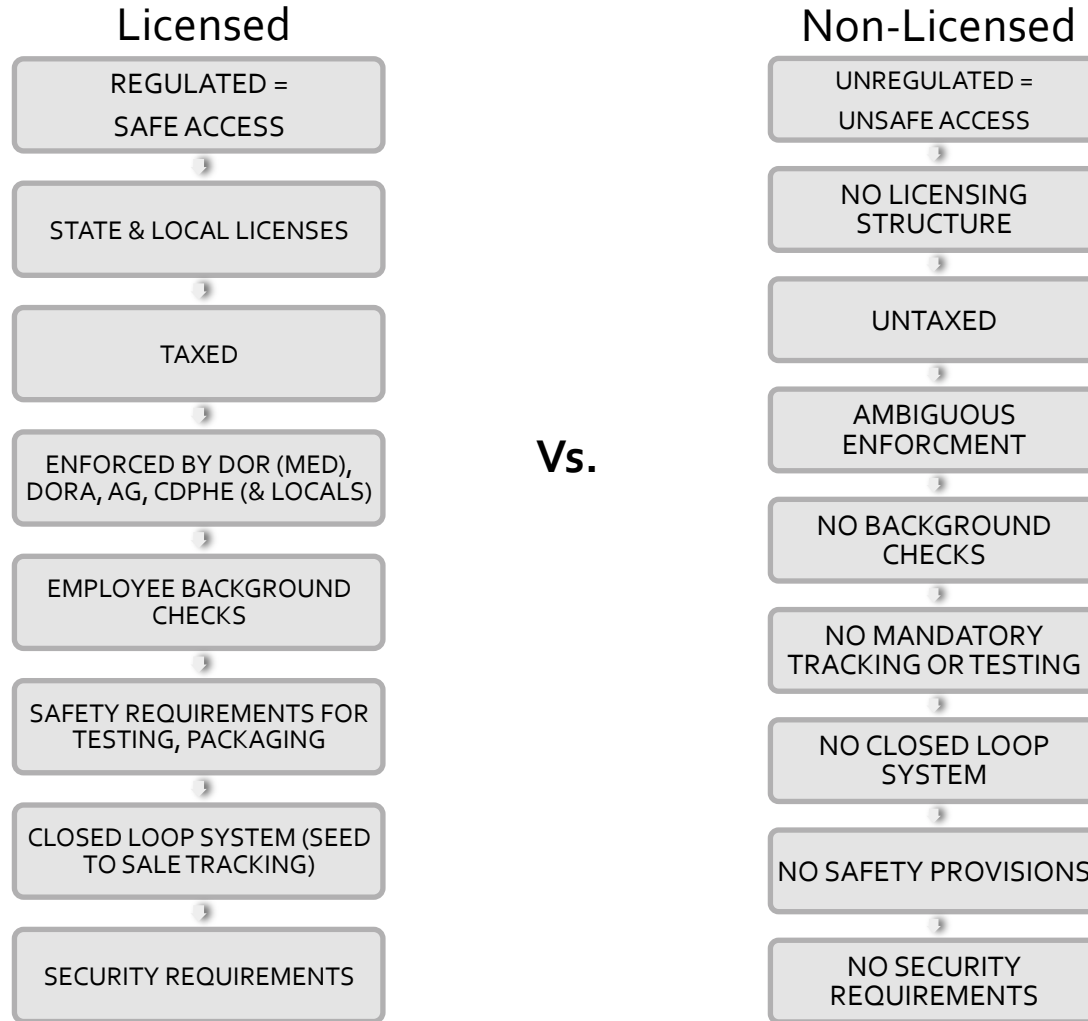
LEGAL CANNABIS OBJECTIVES

- Implementation of a tightly regulated model that:
 - Honors will of voters
 - Creates a safe environment for patient/customer access
 - Protects patient privacy
 - Contemplates public health and safety priorities – supported by mj tax dollars
 - Rigorous qualifications to market entry
 - Standards & guidelines for cultivation/processing/dispensing
 - Education
 - Addiction resources
 - Prevention of youth access, impaired driving
 - Medical efficacy studies & research
 - Support for enforcement
 - Limits access to within state borders
 - Tracks product from “seed to sale” & creates production management parameters
 - Self-funded through application, licensing, taxes
 - **ABSENT: Any discussion about sustainability**

COLORADO'S REGULATED CANNABIS MODELS

	Medical	Adult Use (Rec)
State (MED) & Local licensing	✓	✓
Taxed & regulated w/ cultivation limits/controls	✓	✓
CDPHE & local Environmental Health oversight	✓	✓
Dept. of Agriculture oversight; pesticide restrictions, OSHA conformance	✓	✓
Owner & Employee background checks	✓	✓
Seed-to-sale product tracking via METRC closed loop system	✓ Vertically integrated	✓
Packaging & labeling requirements; advertising restrictions	✓	✓
Product testing through state-approved labs	Potency	Potency, microbials, residual solvents, homogeneity
ID verifications prior to purchase w/ purchase limits	Colorado medical registry patients	21+
Cannot sell to minors	Exception: Children w/ medical necessity	✓
Cannot consume at Point of Purchase	✓	✓
Permits home cultivation	Caregivers (6+ plants)	Colorado residents 21+ (6 plants)

DIFFERENCE BETWEEN LICENSED & NON-LICENSED CANNABIS MARKETS



LICENSED CANNABIS BUSINESSES

LICENSE TYPE	COLORADO ADULT USE	COLORADO MEDICAL	COLORADO TOTAL
MMC/RMC	454	528	982
Cultivation	625	791	1416
MIP	236	254	490
Testing	14	14	28
Total	1329	1587	2916

Source: Colorado Department of Revenue: Marijuana Enforcement Dec. 2016

LICENSE TYPE	DENVER ADULT USE	DENVER MEDICAL	DENVER TOTAL
MMC/RMC	155	197	352
Cultivation	202	395	597
MIP	67	91	158
Testing	7	4	11
Total	431	687	1118

Source: Denver Office Of Marijuana Policy Dec. 2016

38% of total
licenses are in
Denver

[7]

COLE MEMORANDUM

- Federal Guidance re: Marijuana Enforcement (8/29/13)
 - Preventing distribution of mj to minors
 - Preventing revenue from the sale of mj from going to criminal enterprises and cartels
 - Preventing diversion of mj from states where it is legal under state law in some form to other states
 - Preventing state-authorized mj activity from being used as a cover or pretext for the trafficking of other illegal drugs or other illegal activity
 - Preventing violence and the use of firearms in the cultivation and distribution of mj
 - Preventing drugged driving and the exacerbation of other adverse public health consequences associated with mj use
 - Preventing the growing of mj on public lands and the attendant public environmental dangers posed by mj production on public lands
 - Preventing mj possession or use on federal property

BLACK MARKET SUPPLY CAN EASILY BE REPLACED BY THE LICENSED & REGULATED CULTIVATORS

2014 Supply Modality Total		
	Metric Tons	Share
Medical Retail	55	42%
Recreational Retail	22	17%
Caregivers	33.68	26%
Home Growers	12.14	9%
Total	122.82	94%
Demand	130.3	
Black Market	[7.48] (residual - 6%)	

The estimated black market supply of cannabis to the CO market was **7.48** metric tons in 2014.

In the month of Dec. 2014, if medical cannabis cultivators had grown at their licensed capacity, they could have produced approx. **46.9** metric tons, far exceeding the illegal market gap.

MED 2014 Data:

Medical Plants (51% of capacity)

Dec. 2014 Avg. Medical Plants Grown	302,793
Dec. 2014 Avg. Medical Plants Allowed	616,575
Dec. 2014 Difference to Capacity	313,782
Projected Yield (@.33 lb/plant)	46.9 metric tons

Source: Marijuana Enforcement Division 2015 Annual Update

Source: Marijuana Policy Group Impact of Marijuana on Colorado Oct. 2016

HOW HAS DENVER BEEN IMPACTED BY MJ CRIME?

Marijuana Policy Group:

Legal marijuana sales are increasing due to a supply shift — away from gray and black market suppliers, toward licensed suppliers.

Total marijuana crime comprises less than 1% of all crime in Denver, and has been trending down every year since 2012.

Denver Marijuana-Related Crime	Industry Related Crime 2015-2016	Non-Industry Related Crime 2015-2016
Violent Crime	-63%	-32%
Property Crime	+23%	-14%
Public Order Crime	-45%	-50%
All Other crimes	-67%	-33%

DPD Arrests/Citations for MJ Violations 2015-2016:

- Fell by 220 incidents and 13%.
- Of the 220 citations, 200 were for illegal and unlicensed activity

Every significant measure of MJ crime was reduced from 2015-2016 – except burglaries. It is more likely that burglaries occur when businesses are closed.

HOW HAVE OTHER COMMUNITIES BEEN IMPACTED BY MJ CRIME?



AURORA:

"Few incidents have been reported at licensed marijuana businesses in Aurora, likely because the City diligently establishes guidelines for license-holders when implementing legalized marijuana."

- From 10/10/14-12/31/16, APD initiated 154 reports occurring at licensed mj establishments (attempt to align w/ business start dates), of which 130 were founded, including traffic violations, warrants/arrests, suspicious/arrests, lost/found property.
- Between 2012 and 2016, APD investigated 698 illegal marijuana growing operations, and an increase of 50% since 2012. The marijuana team has seized 27K mj plants and almost 8,100 lbs of mj with street value of \$8.7M>
- Increase of DUID arrests (197%) since 2014.

GOVT & CANNABIS INDUSTRY HAVE SUPPORTED CONSUMER SAFETY & EDUCATION



- Multiple ID verification at dispensaries
- Child resistant packaging
- Active THC serving size
- “Good to Know” campaign (CDPHE)
- “Don’t Drive High” campaign (CDOT)
- Responsible consumption guides free of charge
- Responsible Vendor self-regulation
- Marijuana Industry Group has also partnered with CDOT, CDPHE, and the Colorado Task Force on Drunk & Impaired Driving to assist in getting the campaign messages out to industry, patients, and customers.

POT & POWER OVERVIEW

Colorado

- \$1.3B* CO Legal Marijuana Sales 2016
- Power = ~20%** of Operations
- Estimated 2%** of Colorado's power grid

National

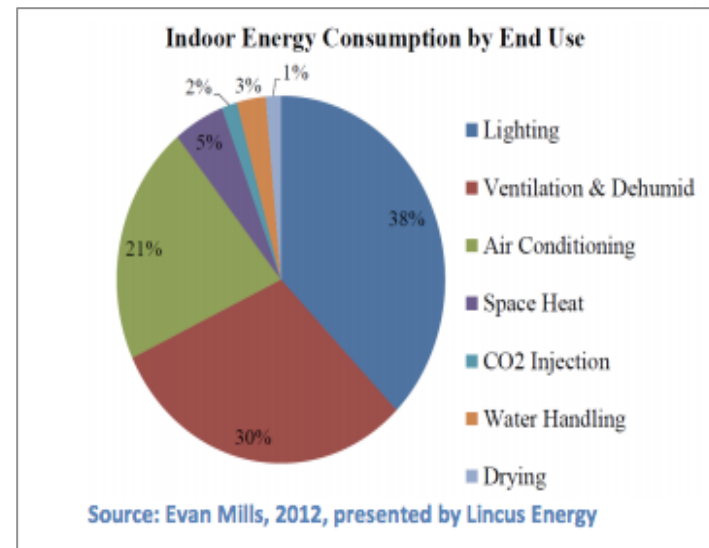
- \$3.4M-\$5M** national Legal Marijuana Sales 2016
- Power Use = ~\$6B/yr value
- Estimated 1%** of national electricity consumption

- Colorado has more indoor cultivation facilities than other states => light is heart of the indoor business
- Historically, the largest concentration of cannabis cultivation facilities were in the largest cannabis markets: Denver, Co. Springs, Boulder
 - DENVER = 60% of cannabis cultivation state-wide, 50% of electrical consumption post A64 was attributed to cannabis (growth @ 1.2%)
- With the introduction of local sales tax measures, more local impact is anticipated
- What we are NOT currently quantify is impact of caregivers, home grows and illegal market grows

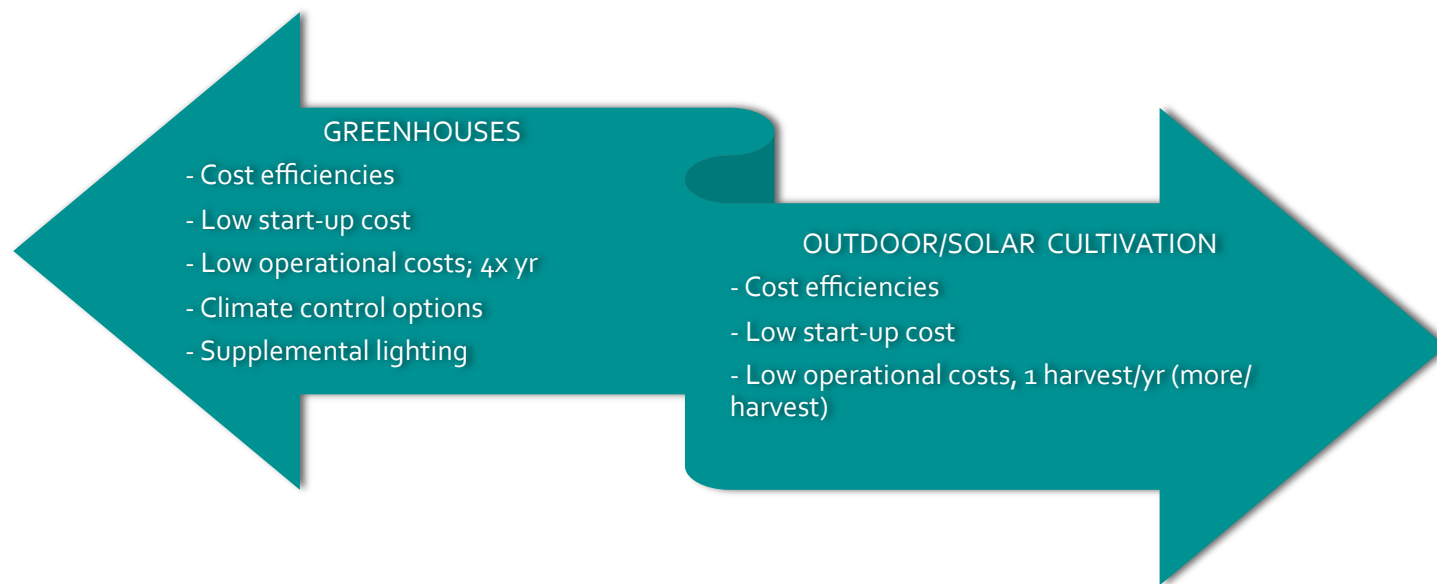
WHERE CONSUMPTION OCCURS



- Due to local zoning restrictions, it's wasn't unusual for businesses to retrofit abandoned warehouses requiring improvements before becoming commercially operable.
 - Power upgrades into buildings
 - Transformer upgrades
 - Power needs for a large-scale indoor commercial facility => data center
- Now, businesses are also looking at outdoor and greenhouse cultivation to help offset some of the high upfront costs of becoming engaged.



ALTERNATIVES TO INDOOR CULTIVATION



CULTIVATION CONSIDERATIONS



CANNABIS CULTIVATION IS COSTLY

- Start-up is costly
 - Retrofitting buildings with insufficient infrastructure
 - Stringent local building, zoning & community requirements
 - Costly security upgrades and other compliance measures
- Cost of operations is high, competition is stiff, margins are low:
 - Utilities (HVAC, Electrical)
 - Labor
 - Insurance
 - Security
 - Transport
 - Taxes
- Adoption of new ideas must come with operational efficiency.

ENERGY EFFICIENT MEASURES

Universal benefits for greater efficiency, sustainability are understood. Recommendations must consider plant needs, not just power needs.

- Identifying economies of scale
- Identifying other efficiencies:
 - 12 hour rotating light cycles (Operating on a “flip”)
 - Sensitivity to (indoor) closed environments
- Estimating actual power consumption needs:
 - Actual need: 35W/sq. ft. to 60W/sq. ft. vs. estimated 200W/sq. ft.
- Encourage energy rebates/fixtures (lighting incentives vs. HVAC)
 - Side-by-side performance studies
 - Measurement & data collection
 - Immediate vs. extended payback for rebates
- Solar incentives/flexible payment plans

AREAS OF OPPORTUNITY

- Identify ways to align your goals w/ industry goals
- Work with business operators and treat as partners
 - Implement verification process to determine state/local licensing and status are current
- Support access to education
- Encourage collaboration w/ industry to develop best practices
 - Not all grows are the same – a good idea for small cultivation may not work for large.
- Test ideas & innovation: incentivize, don't mandate



THANK YOU.

CONTACT: EXECDIRECTOR@MARIJUANAINDUSTRYGROUP.ORG
WWW.MARIJUANAINDUSTRYGROUP.ORG