

The Economic and Environmental Potential of Controlled Environment Agriculture: Legalized Marijuana and the Bottom Line

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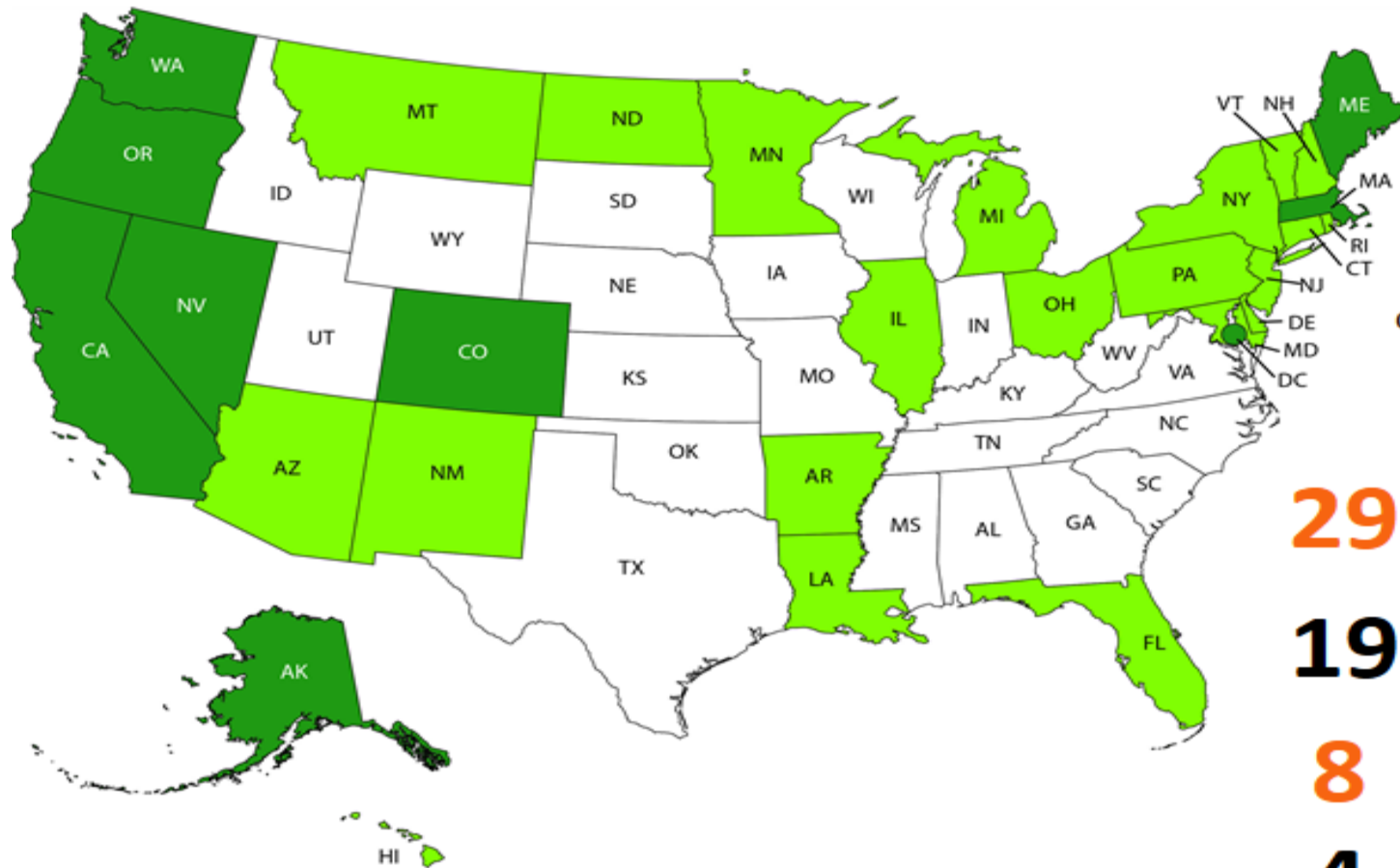


October 5, 2017

The Evolving Status of Cannabis

Marijuana Legalization by State

■ States with Recreational Marijuana Laws ■ States with Medical Marijuana Laws



Key Statistics

59.3%

of the U.S. population now lives in a state where marijuana has been legalized

29 states plus Washington DC have medical marijuana laws ...

19 plus Washington DC have operating dispensaries

8 states plus Washington DC have recreational marijuana laws ...


4 with operating retail stores

Economics of Cannabis Production

IN THE U.S.

- **\$6 Billion** in annual sales
- Colorado 2017 mid-year sales **\$750M**
- 25% increase over first half 2016
- Sales:
 - 2014 **\$699 M**
 - 2015 **\$996 M**
 - 2016 **\$1.3 B**
- CEA production averages 4-8oz of usable product per plant
 - 1 oz. bud retails \$200-250
 - 1 plant yields \$800-1,000

IN CALIFORNIA

- # 1 cannabis producer
- California Local Property tax **\$15/sq. ft.**
- California Local sales tax **15%**
- 2016 California sales **\$3.3 B**
- 2020 Projection **\$7.5 B** 

Energy & Environmental Considerations

ENERGY

- ❖ Big short- to mid-term growth in consumer demand & production
- ❖ CEA as most energy efficient growing method
- ❖ 1 g/bud per watt; One 400 watt HPS translates to 400 usable grams (14 oz.)
- ❖ Energy in CEA = 30-50% of operating costs
- ❖ Energy choices often do not reflect energy efficiency solutions
- ❖ Opportunity for renewable energy generation and storage

ENVIRONMENTAL

- ❖ Field production more impactful than CEA
- ❖ 1 kg product = 4,600 kg of CO₂
- ❖ Potential for nutrients run off, but water treatment is typically in place
- ❖ Better water use efficiency in CEA
- ❖ More strains and quality consistency in CEA

Economic Opportunities and Hurdles in Controlled Environment Agriculture (CEA)

- ❖ Significant new permitting and tax revenue for cities and county
- ❖ Diverse range of employment opportunities—basic to technical
- ❖ Current Federal regulations and laws restrict financial transactions
- ❖ No formal/certified training programs for growers, distributors, retailers
- ❖ Energy efficiency secondary to maximizing production
- ❖ CEA driven real estate boom & opportunities for local utilities
- ❖ Wholesale prices declining, but large variability depending on origin