



John Morris- VP of Market Development,
D+R International

- Introduction and background
- Overview of the North American cannabis market
- Energy Overview
- Overview and assessment of what *has not happened* in the cannabis/energy in 2017/2018.
- Facility types
- Property assessments in rural areas from an energy lens
- Utility engagement

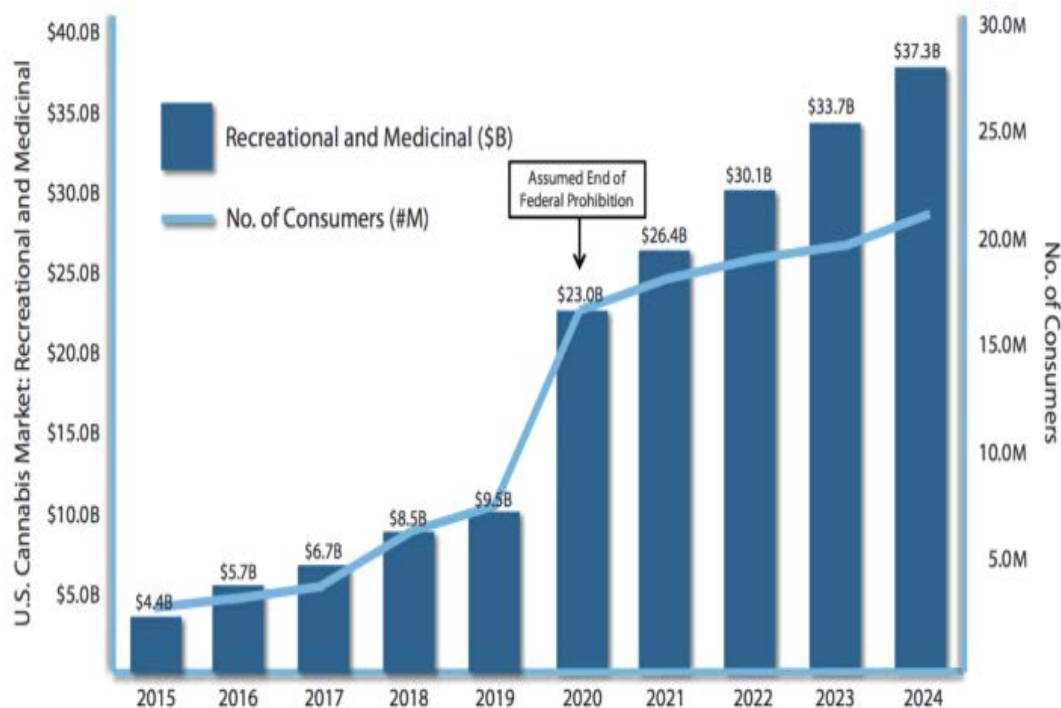
- Since 2014, John Morris has been conducting **outreach and education** to utilities and utility commissions across the United States
- John leads **D+R International's** Smart Ag Practice
- John is the Founder and Board Secretary of **Resource Innovation Institute**- a nonprofit dedicated to water and energy conservation in cannabis production.
- D+R is a subcontractor to Evergreen Economics for **Energy Trust of Oregon** Residential Lighting Study



- **\$9 (US) billion US Market 2017**
- **34% market growth**
- **US states legal:**
 - 9 recreational
 - 21 medical
 - 14 CBD only
- **Job market increased 445% in 2017 vs. 18% growth in 2016**
- **8,205 US recreational grow facilities by 2018**

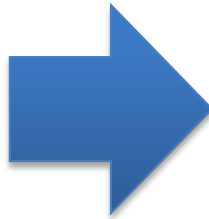
U.S. Cannabis Consumer Market: Recreational and Medicinal

\$37B Market by 2024 with 22M Consumers

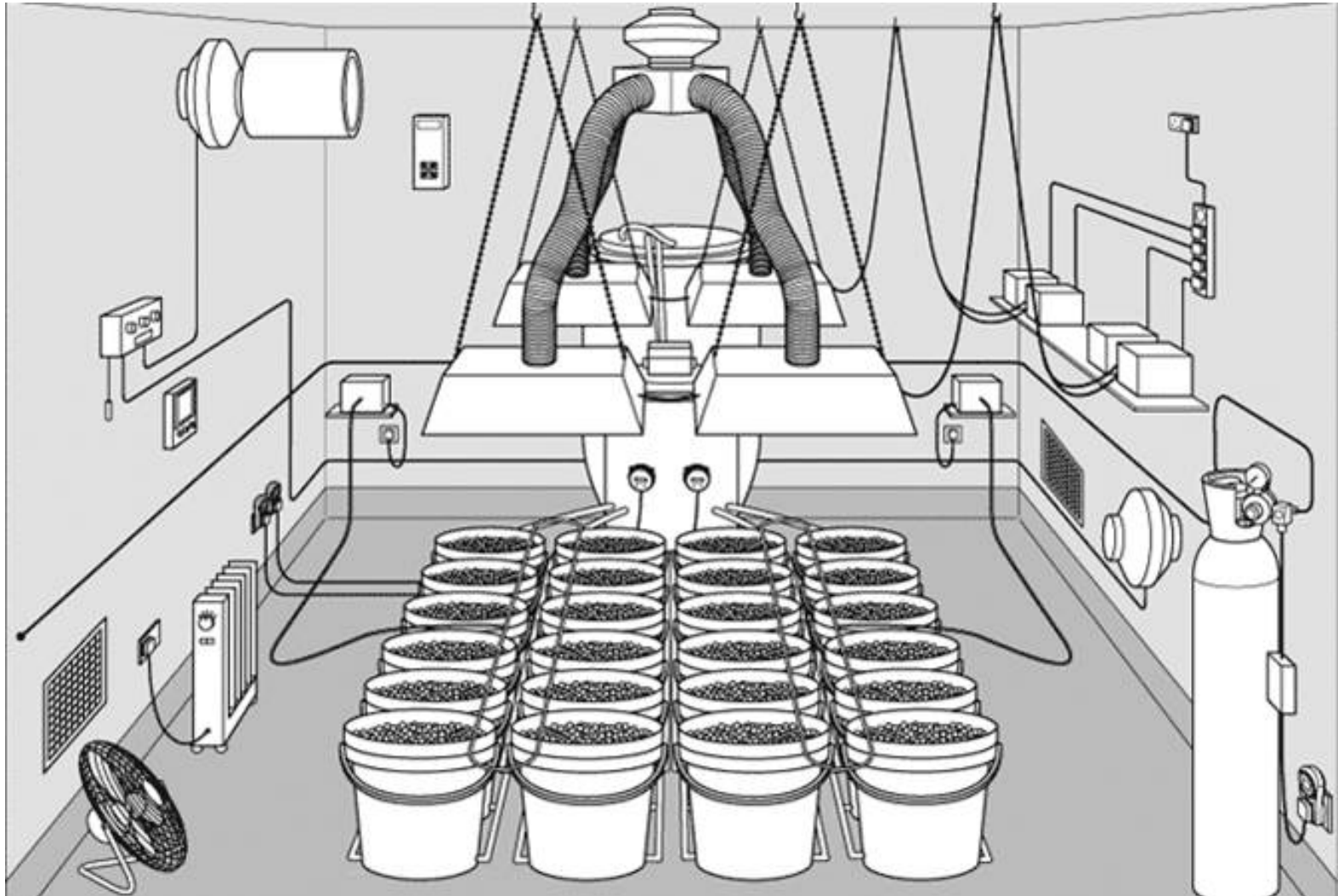


Source: Ackrell Capital estimates. See Chapter IV: U.S. Cannabis Market Estimates.

Utility engagement | Hookups | Efficiency |
Renewables







- **Pilot programs customized for cannabis growers**
- **Baseline studies that are segmented by building type**
- **Significant uptake on LED lights at a national level**
- **Increase in awareness for growers of the energy impacts of grows**
- **Increased education for growers on how to navigate utility hook up processes**
- **Growers deploying Microgrid applications**







State of the Art Marijuana Production Facility



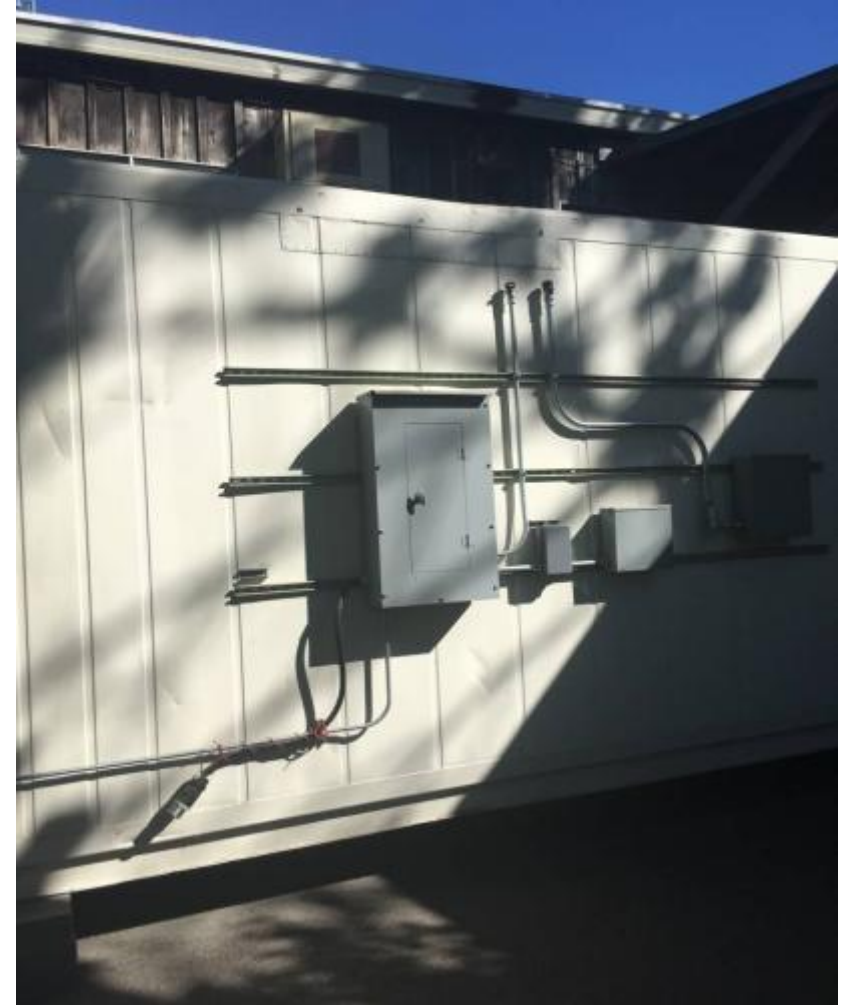




Forever Flowering Greenhouse Inside_IG.mov



All greenhouse images courtesy of Forever Flowering Greenhouse



All trailer photos taken at the offices of Grotec Builders









Utility Field Tool Assessment

SAMSUNG

LANE ELECTRIC
A Touchstone Energy® Cooperative

Steps Questions Results

Operational Details

When Do You Plan To Start Growing?

Currently growing

2 Weeks

4 Weeks

6 Weeks

8 Weeks

Longer

What Is The INITIAL Canopy Size You Expect To Launch Your Operation With? (Square Feet)

24000

When Do You Expect To Be Growing At Maximum Allotted Canopy?

Currently growing at maximum level

1 Month

Utility Field Tool Results

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Steps Questions Results

Lighting Information

Energy Requirements for Lighting

NOTE: You could save money by switching to LED lighting.

| KWH/Month | Est. Cost/Month |
|-----------|-----------------|
| 4392 | \$892 |

HVAC & Pump Information

Energy Requirements for HVAC and Pump Equipment

NOTE: An efficient heat pump could save you money and reduce your load.

| KWH/Month | Est. Cost/Month |
|-----------|-----------------|
| 4392 | \$892 |

Electrical Panel Information

Panel Size Requirements to Power your Facility

NOTE: Your panel appears to be under-sized.



Welcome To The Cannabis PowerScore

An energy benchmarking tool for growers of all types

Brought to you by

 RESOURCE INNOVATION INSTITUTE

At **Resource Innovation Institute**, our work over the past year throughout 2017 has focused primarily on solving the challenge of not having related to the lack of energy consumption data from cultivation facilities. The goal of the Cannabis PowerScore is to help inform the industry and stakeholders about the most reliable ways to move toward a lower-cost cultivation model through energy efficiency.



[Calculate My PowerScore](#)

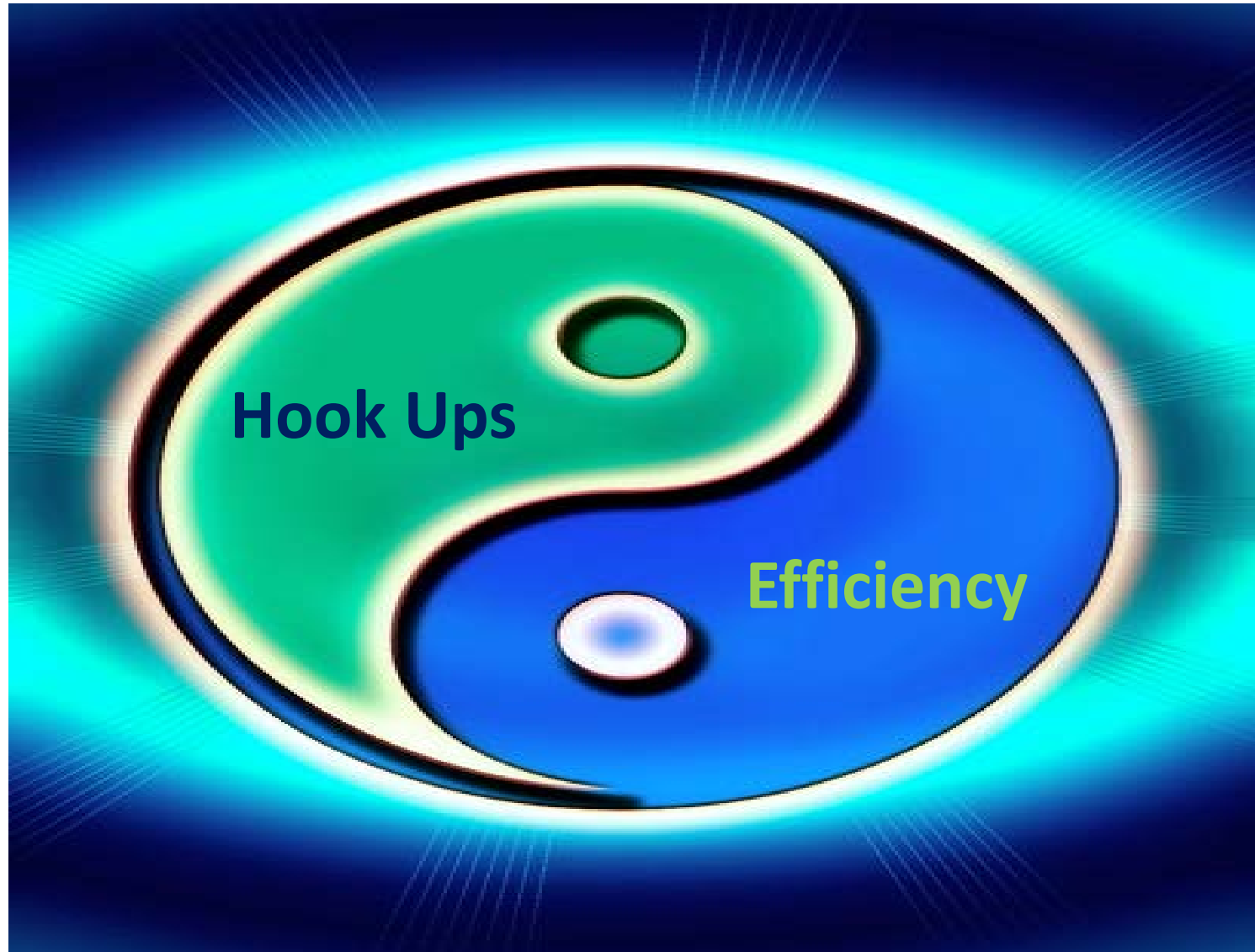


What are your light sources?

The cannabis plant grows everywhere humans are, on every continent and in every climate imaginable. Experienced, local cannabis farmers are experts in their region, and The Cannabis PowerScore helps industry leaders support regional energy efficiency programs.







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