

July 15<sup>th</sup>, 2021

# Efficiency Vermont Overview

Cannabis Control Board Meeting

Lauren Morlino

Emerging Technologies & Services Manager



# Who we are

- Statewide energy efficiency utility
- Reduce the cost of energy for all Vermonters
- Help families, businesses, and institutions understand and make better use of energy and reduce greenhouse gases



# What we do

- Direct support through incentives, training, and technical advice
- Market transformation through supply chain engagement
- Partnership with energy service providers



# The impacts of efficiency

**Over \$2.8 billion**

Lifetime savings from 2000-2020

**Over 12.5 million metric tons of CO<sub>2</sub>e**

Lifetime avoided from 2000-2020

**2.7 million cars**

Equivalent impact of GHG emissions avoided

**38% lower**

Vermont's average energy bills, below the national average

**10,741 jobs**

Vermont's energy efficiency jobs – 58% of the clean energy workforce

**400 businesses**

Efficiency Excellence Network members

# The economic value of efficiency

Efficiency comprises **over 16%** of VT's electric portfolio, delivered at half the cost of purchasing new power.



**16.2%**

Percentage of Vermont's 2020 electric needs met by efficiency



**5¢/kWh**

Cost of saving electricity with efficiency



**10¢/kWh**

Cost of supplying electricity

**VS**



**\$17/MMBtu**

Cost of saving fossil fuel with efficiency



**\$20/MMBtu**

Cost of supplying fossil fuel

**VS**

# Our Customers

"Brewing is an energy- and water-intensive process. If we commit to economic and environmental sustainability, we have to look at the energy we are using to make our beer."

- BLACK FLANNEL BREWERY, ESSEX



"Energy costs are a third of my budget. It's a big number. If we had never done any projects with Efficiency Vermont, we'd be paying almost a quarter of a million dollars more for electricity right now."

- LANDMARK COLLEGE, PUTNEY



"It was all so simple. We picked out the fryer we wanted, filled out the paperwork, and that was it. A lot of things are complicated right now, but Efficiency Vermont and B&G made this piece simple."

- READSBORO INN, READSBORO



"The contractor walked us through each step, so I didn't have to figure out what to do next. They told us when they were coming and when we'd need to be out of the house.

They filled out the paperwork so that we could get the rebate from Efficiency Vermont. They all knew what they were doing and made it very easy for us."

- JILL, WARDBORO

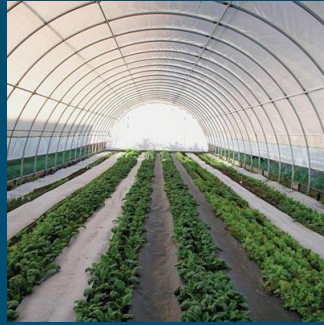


# Controlled Environment Agriculture (CEA) Building Types



Residential  
Home  
Growers

Fruits, Flowers,  
Herbs, Veggies,  
Cannabis



Hoophouse/  
High  
Tunnels

Fruits, Flowers,  
Herbs, Veggies,  
Cannabis



Gable-style,  
Year-Round  
Greenhouse

Flowers, Herbs,  
Veggies,  
Cannabis



Indoor Grow  
Rooms

Herbs,  
Mushrooms,  
Cannabis



Drying/ Cold  
Storage

Fruits, Herbs,  
Veggies,  
Cannabis



Processing  
Laboratories

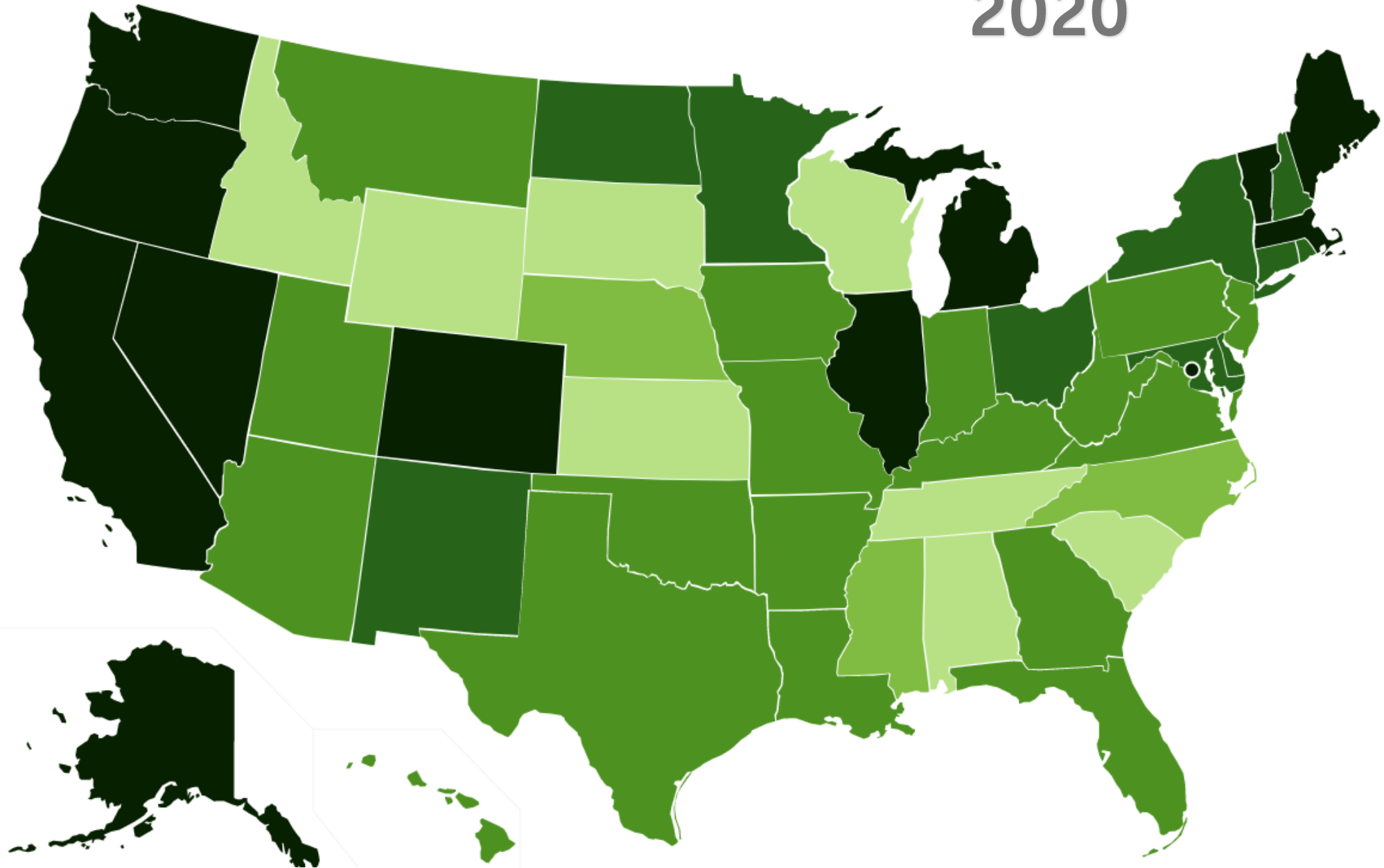
Herbs,  
Cannabis





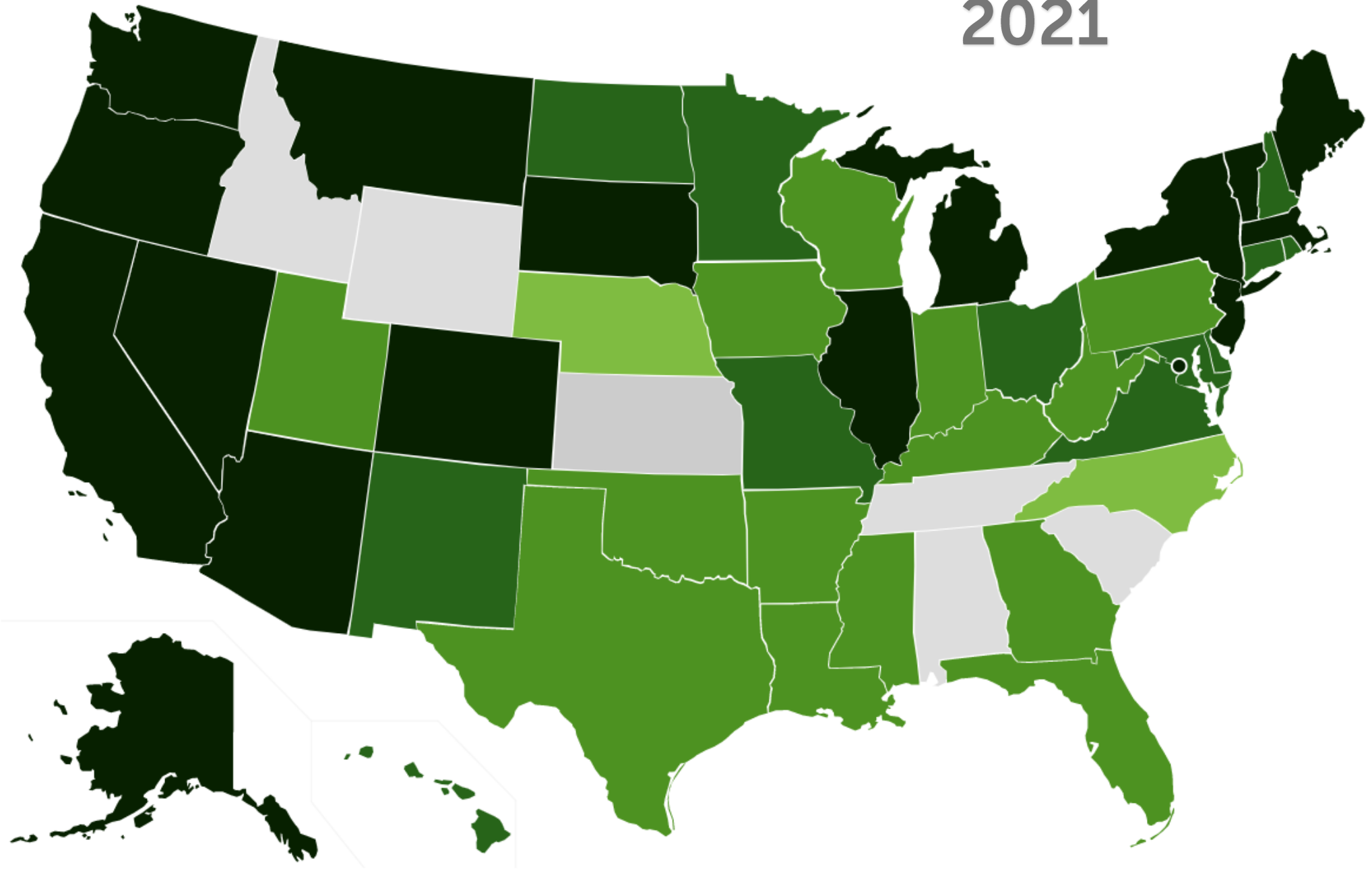
Legalized Medical and decriminalized Medical Decriminalized Fully illegal

2020



Legalized Medical and Decriminalized Medical Decriminalized Fully illegal

2021



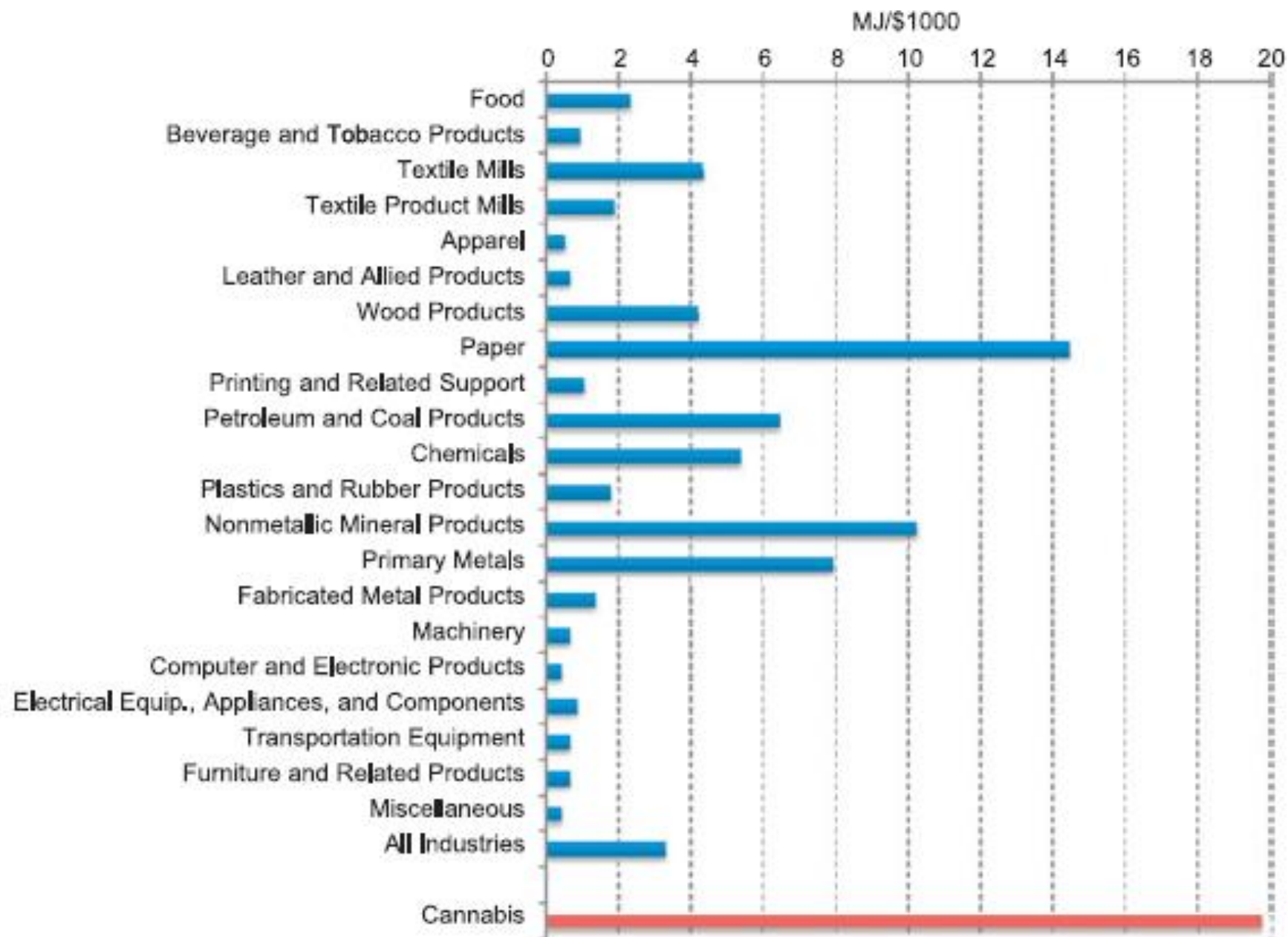
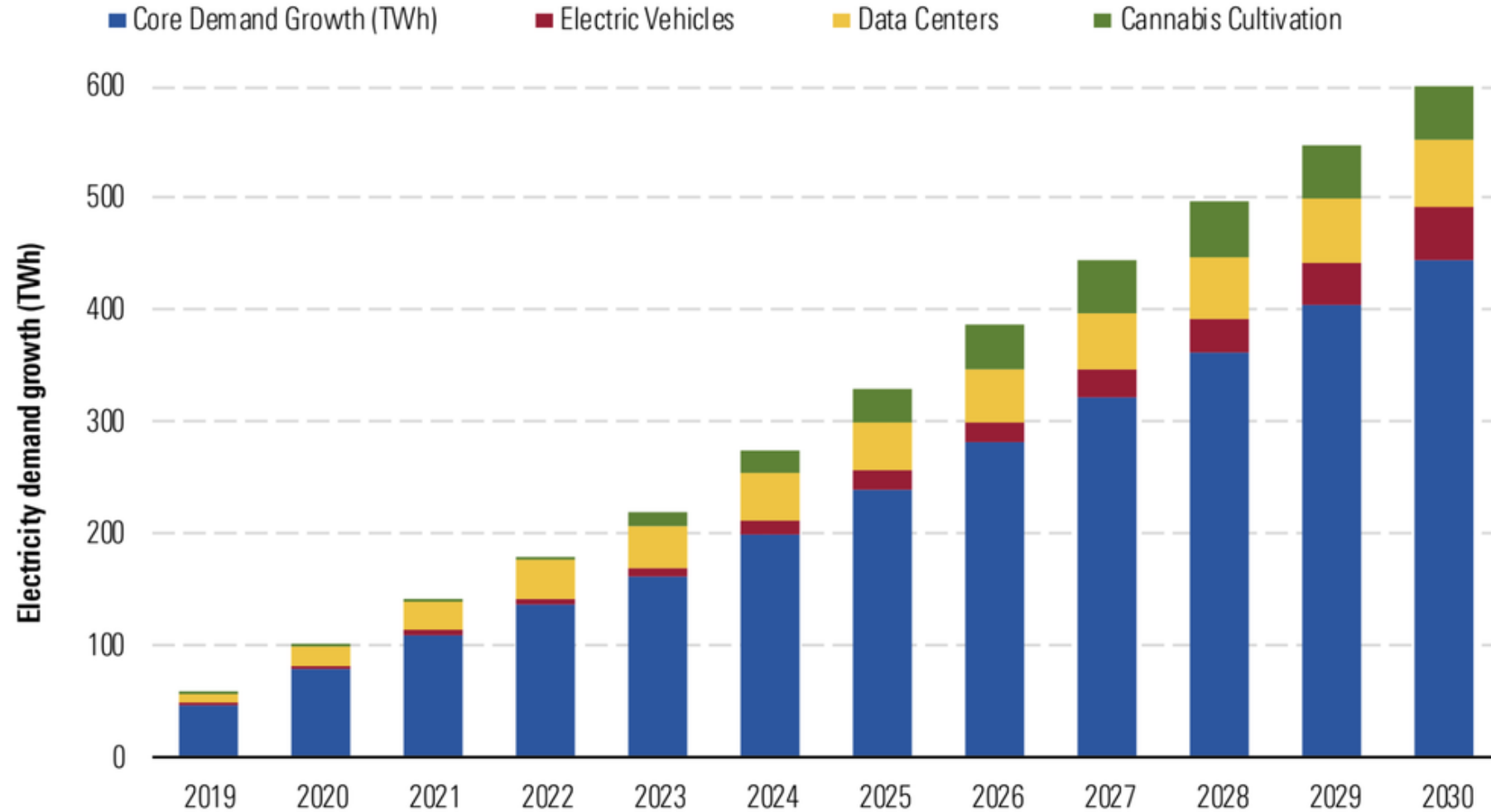


Fig. 3. Comparative energy intensities, by sector (2006).

# National Growth Rates for Emerging Industries

**Exhibit 5** New Sources Become Larger Share of Demand Growth in Outer Years



Source: Morningstar.

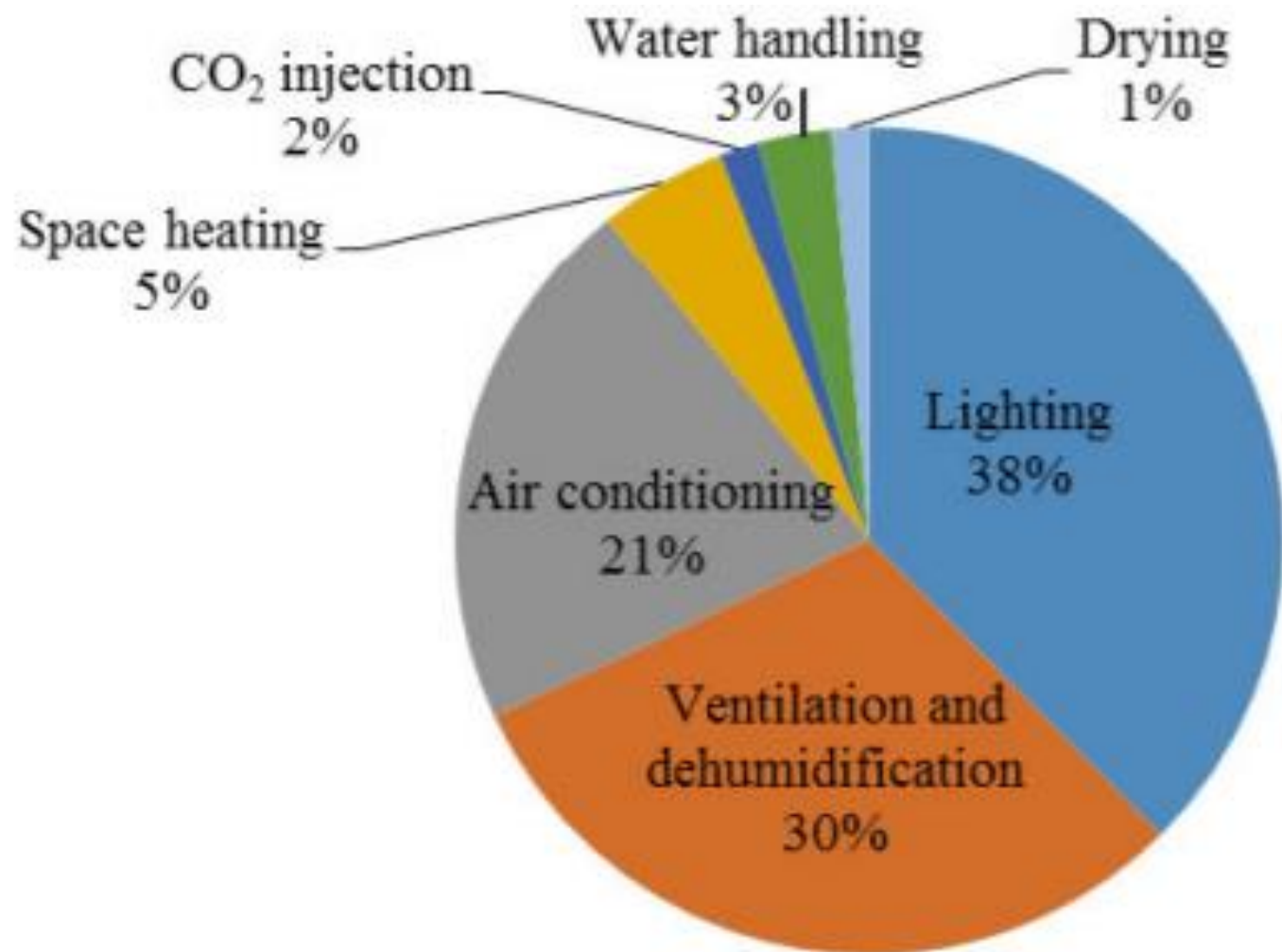


Figure 1. Breakdown of energy use for indoor cannabis production. *Source:* Mills 2012.

# Residential Grow Light Rebate

Launched April 2019

- Downstream rebate for local or online purchases
- Underserved customers – renters, low income
- First of its kind in the U.S., since then EnergyTrust created residential program
- [Most popular Efficiency Vermont blog ever](#) on seed starting, Spring 2020
- More residential products being added to DLC



Up to  
**\$100** per fixture  
cash back

Find a Retailer

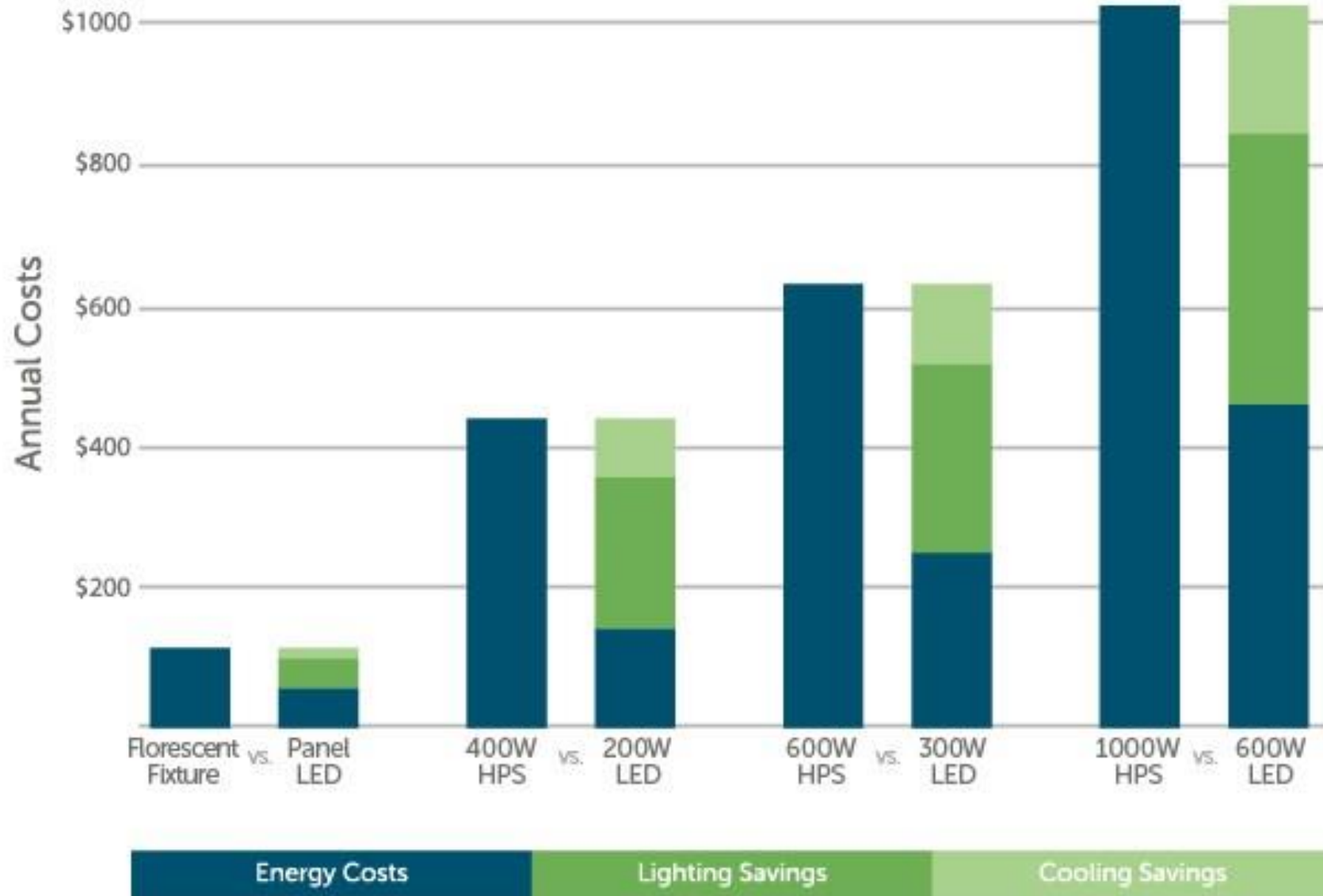
Submit Rebate

The graphic is a dark blue rectangle with white text and a light green button. It features an illustration of a grow light fixture hanging above several potted plants. The text "Up to \$100 per fixture cash back" is prominently displayed. Below the text are two buttons: "Find a Retailer" in light green and "Submit Rebate" in white with a green border.

Efficiency  
Vermont

# Energy Savings Comparison

## Non-Efficient Lighting vs. LED



Note: rebates are subject to change & depend on final energy code decisions



# Hoop-Style Greenhouse Rebates

## Equipment

## Rebate per Product


Exhaust/circulation fans	Custom
Greenhouse controller	Up to \$0.10/sq. ft.
Heating system upgrades	Custom
Pipe insulation & air sealing	\$2-\$3/mmbtu saved
LEDs for indoor growing 	Up to 30% cash back
Polyethylene upgrade w/film	Custom
Thermal & shade curtains	Up to \$0.50/ sq. ft.
Variable Frequency Drives (VFDs)	\$200/HP back for 2-5HP \$150/HP back for 7.5-100HP



# Gable-Style Greenhouse Rebates

## Equipment

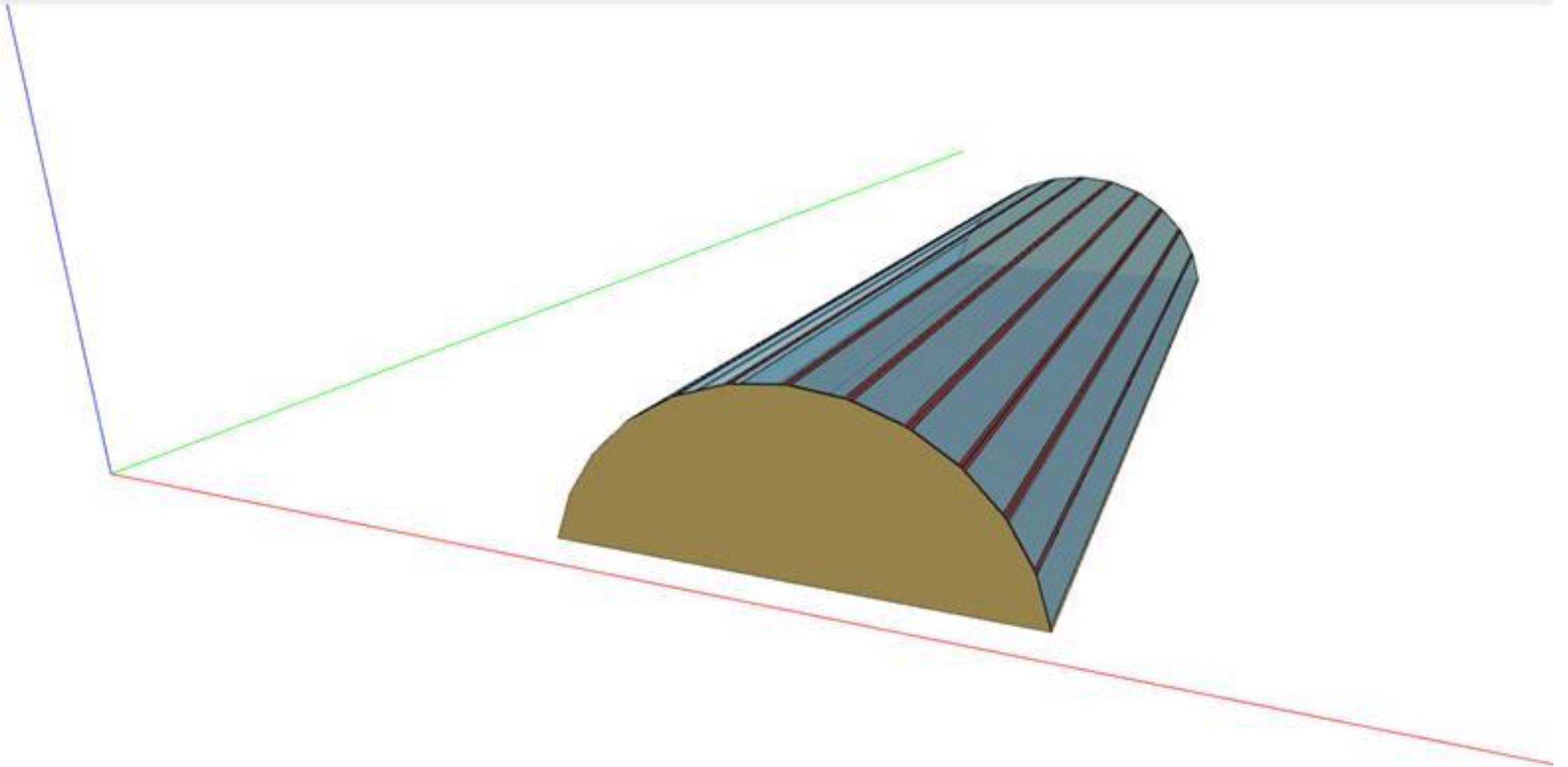
## Rebate per Product

Exhaust/circulation fans	Custom
Greenhouse controller	Up to \$0.10/sq. ft.
Heating system upgrades	Custom
Pipe insulation & air sealing	\$2-\$3/mmbtu saved
LEDs for indoor growing 	Up to 30% cash back
Polycarbonate or glass upgrade w/film	Custom
Thermal & shade curtains	Up to \$0.50/ sq. ft.
Variable Frequency Drives (VFDs)	\$200/HP back for 2-5HP \$150/HP back for 7.5-100HP

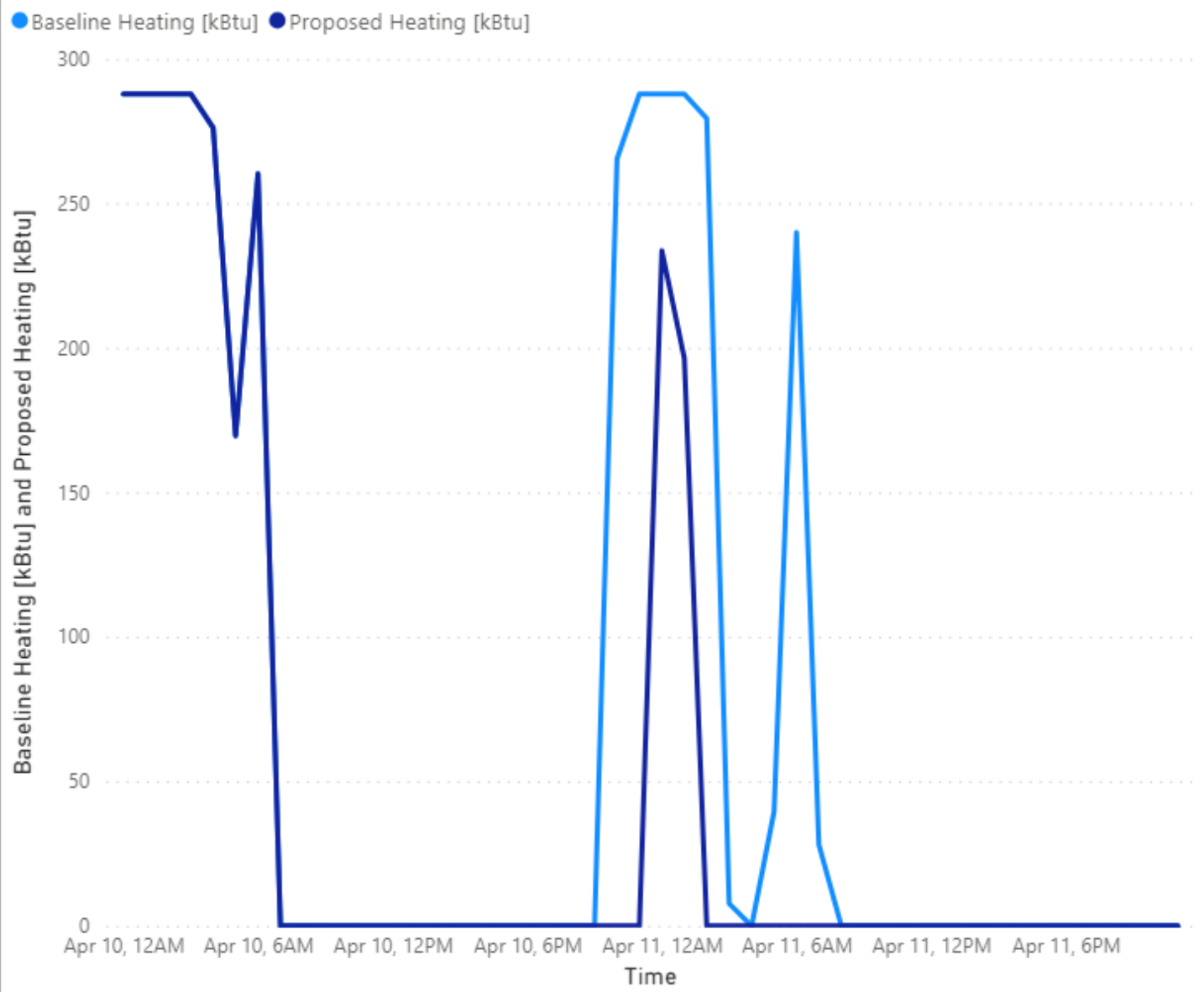


# Greenhouse Custom Modeling

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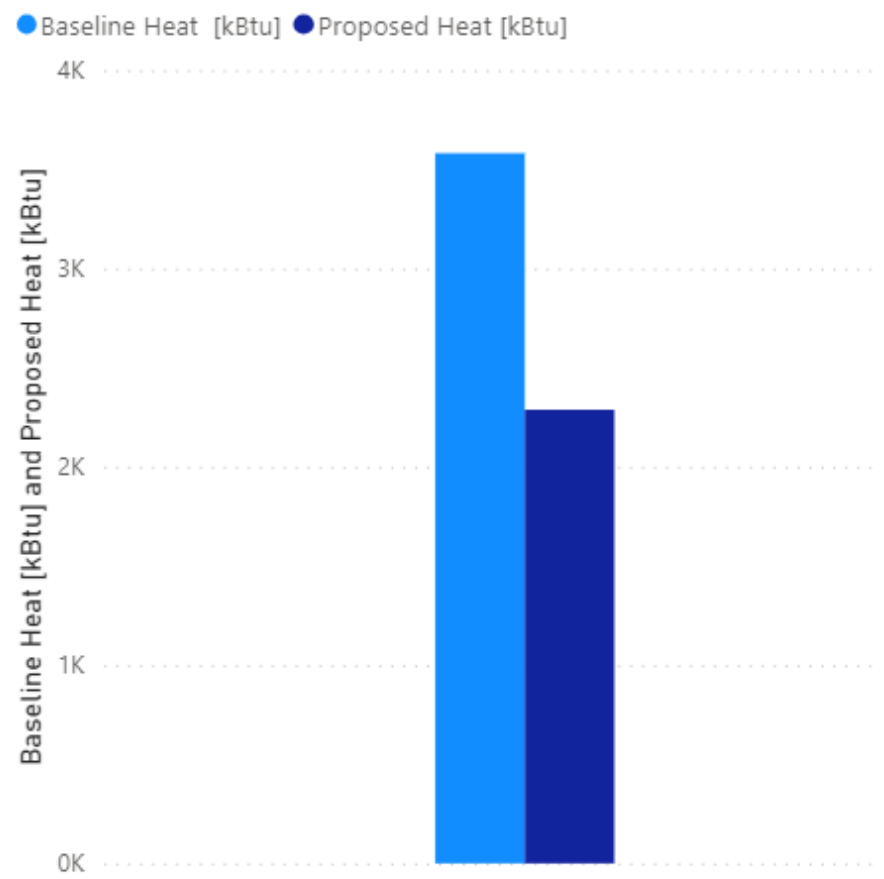
Baseline Heating [kBtu] and Proposed Heating [kBtu] by Time



4/10/2020 4/11/2020



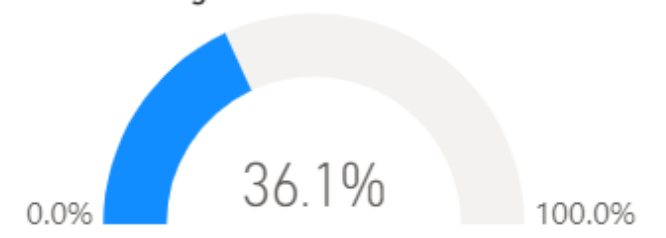
Baseline Heat [kBtu] and Proposed Heat [kBtu]



Heating Savings [MMBtu]

1.29

Heating Percent Savings



Note: rebates are subject to change & depend on final energy code decisions

# Indoor Grow Room Rebates

## Indoor Growing Equipment

## Rebate per Product

Exhaust/circulation fans

Custom

Controls for HVAC and lighting

Up to \$0.10/sq ft

HVAC systems

Custom

LEDs for indoor growing

Up to 30% cash back



Drying or processing equipment

Custom

Refrigeration

Custom

Pumps and motors

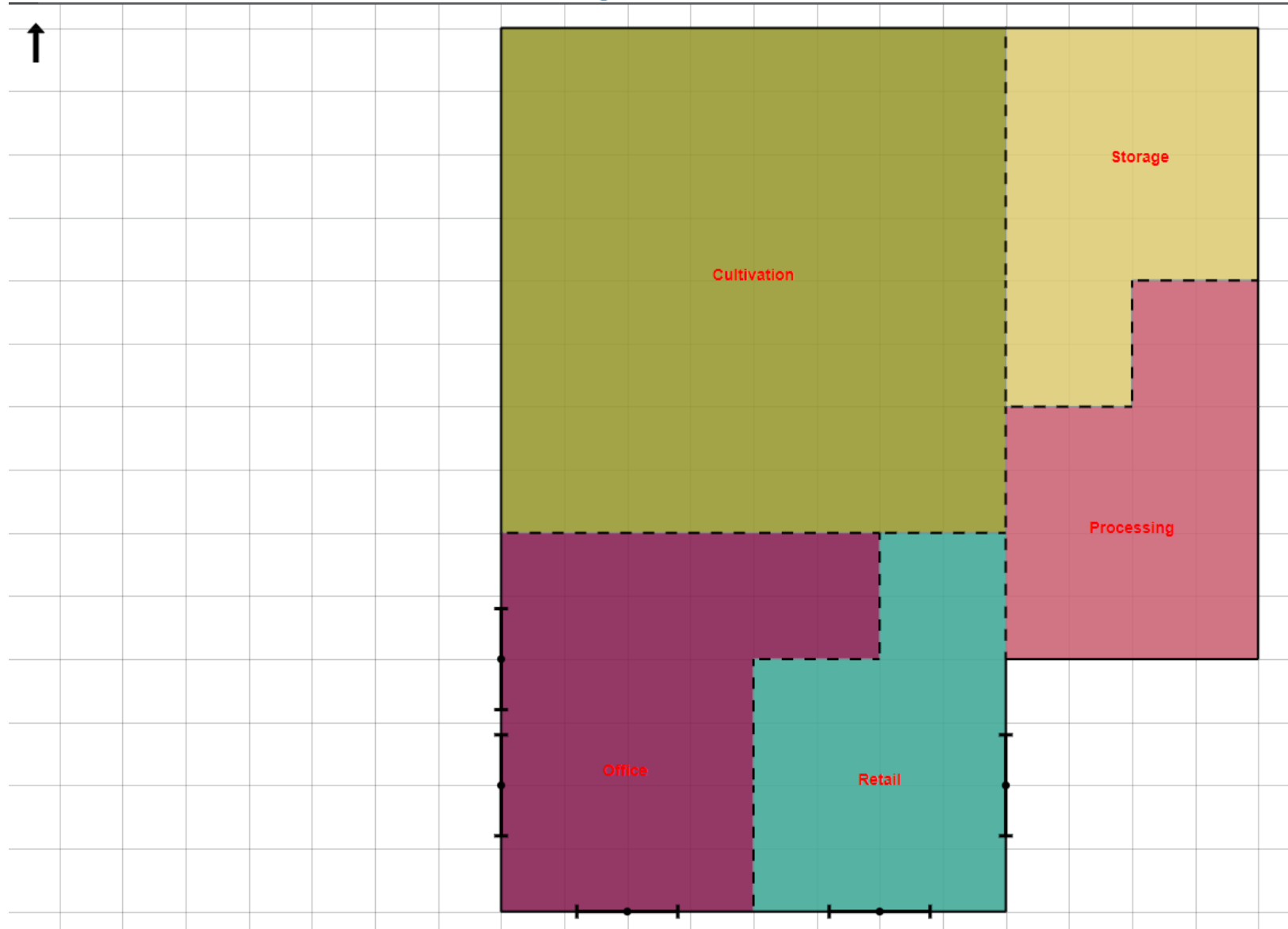
Custom

[Variable frequency drives \(VFDs\)](#)

\$200/HP back for 2-5HP motors or pumps

\$150/HP back for 7.5-100 HP motors or pumps

# Indoor Grow Facility Custom Modeling



# Custom Rebates

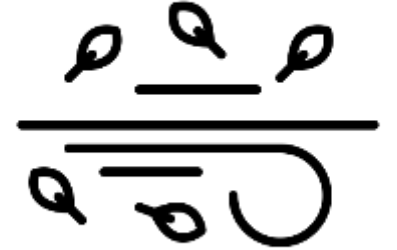
## Cannabis Cultivation/Indoor Grow Rooms

- Custom modeling for most systems



## Drying

- Drying webinar in partnership with UVM Extension, Distribution Utilities, Resource Innovation Institute, Vermont Division of Fire & Safety:  
<https://www.youtube.com/watch?v=dIPozbV-MuY&feature=youtu.be>



## Processing

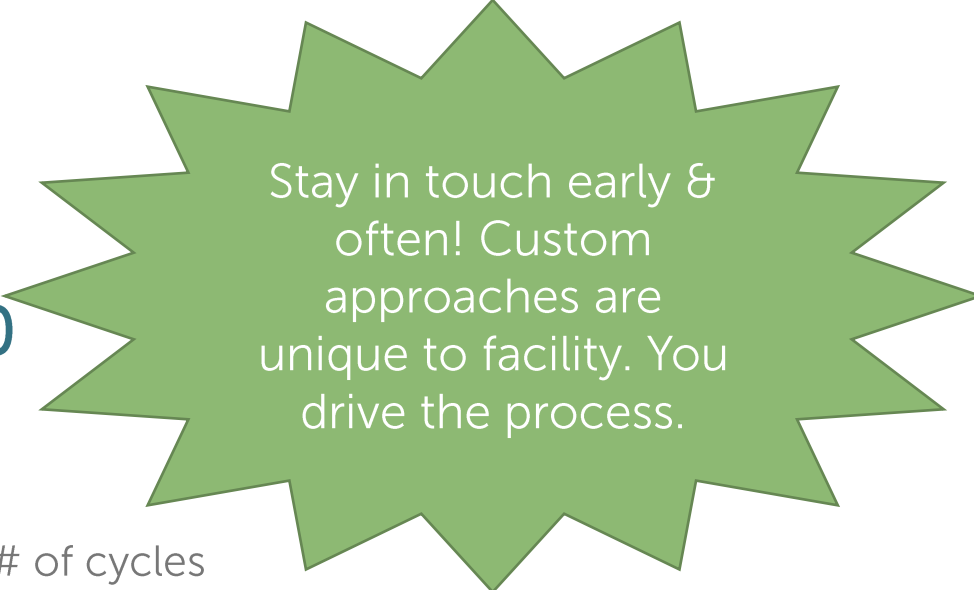
- Metering of systems
- Laboratory or processing room ventilation
- Refrigeration for industrial process and ultra low temperature freezing needs



# What do I do next?

## Contact Efficiency Vermont! (888)921-5990

- Things we'll want to know:
  - Location of your facility
  - Equipment you're thinking of purchasing and price
  - Schedule of lights on, lights off, HVAC on, HVAC off, watering, # of cycles
  - Number of grow rooms, processing rooms, other spaces, and square footage of each
  - Hours of operation (when are you running facility and how long?) Can you avoid peak times of day, for example 5-9pm?
  - Are you working with Engineers, HVAC, and lighting specialists? Do you have system design drawings or PPF layouts you can share?
  - Your schedule availability in case a site visit is appropriate



Stay in touch early & often! Custom approaches are unique to facility. You drive the process.

## Contact Distribution Utilities!

- Things to ask:
  - Which rate will I be on?
  - What will my demand charges be? What time of day should I try to avoid running my lights?
  - Do I have enough power nearby for my proposed facility? If not, is it possible to get 3-phase to the site?

**Participate in the public energy code conversations!**

# LED HPS

DLC Specification  
1.9 PPE, UL-Listed, 5 year warranty, 36k hrs lifetime, etc.  
\$1000+ new

Super Efficient DE HPS  
1.9 PPE, UL-Listed, 3 year warranty  
\$350-\$600/fixture new, \$150-\$200 used

HPS & DE HPS  
1.7 PPE  
\$200-\$300/fixture new, \$100-\$150 used

Thank you!

# Resources:

[Efficiency Vermont Cannabis/Indoor Grow Operation Equipment Rebate Page](#)

[Efficiency Vermont Cannabis/Indoor Grow Operation Info Sheet](#)

[Efficiency Vermont Greenhouse Info Sheet](#)

[Efficiency Vermont Greenhouse Efficiency Best Practices Guide](#)

[Efficiency Vermont Greenhouse Rebates Page](#)

[Efficiency Vermont Grow Light Technical Training Video](#)

[Efficiency Vermont Residential LED Grow Light Rebate page](#)

[Efficiency Vermont LED Grow Light Technology Info Page](#)

[Efficiency Vermont Residential Seed Starting Blog Post](#)

[Vermont Hemp Drying Best Practices Webinar](#)

[Resource Innovation Institute Best Practices & Resources including Lighting, HVAC, & Controls](#)

[DesignLights Consortium LED Grow Light Qualified Product List](#)

[1 \(888\) 921-5990](tel:18889215990)