

# Community Energy Program Design: How to maximize GHG emissions reductions, energy efficiency and workforce development opportunities

*A webinar hosted by LGSEC, presented by the Center for Sustainable Energy (CSE)*

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Sean Sevilla, Senior Manager

Jon Hart, Policy Specialist



**LOCAL GOVERNMENT  
SUSTAINABLE  
ENERGY COALITION**



Center for  
Sustainable  
Energy™







# Presenters

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**Sean Sevilla**

Senior Manager  
Distributed Energy Resources



**Jonathan Hart**

Specialist  
Distributed Energy Resources



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SUSTAINABLE  
ENERGY COALITION**



# About CSE

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## A mission-driven 501(c)(3) nonprofit organization

Offering scalable clean energy program administration and technical advisory services for more than 20 years.

## A national footprint, headquartered in San Diego, CA

Regional offices:

CA: Los Angeles, Oakland, Sacramento, MA: Boston, NY: Brooklyn, Stony Brook

## 185+ dedicated, mission-driven employees

Managing ~50 projects and programs

National programs | Statewide incentive projects | Region-specific solutions



One simple mission —

# DECARBONIZE.

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Our vision is a future with sustainable,  
equitable and resilient transportation,  
buildings and communities.



# Agenda Review

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## Demand response & load management concepts

Sean Sevilla – Senior Manager, CSE



## Integrating energy efficiency & demand response

Jonathan Hart – Policy Specialist, CSE



## Workforce Development, Benefits of DR/AutoDR, and Programs

Sean Sevilla – Senior Manager, CSE



# *Poll Question #1*

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# *Poll Question #2*

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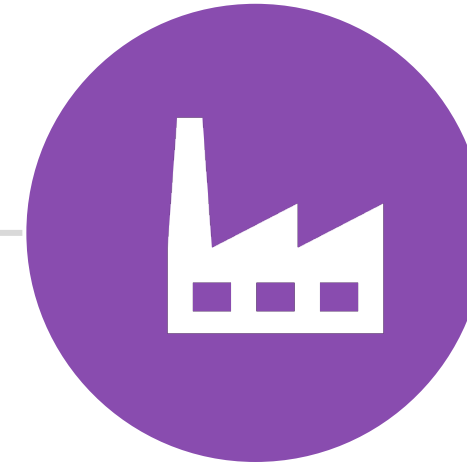
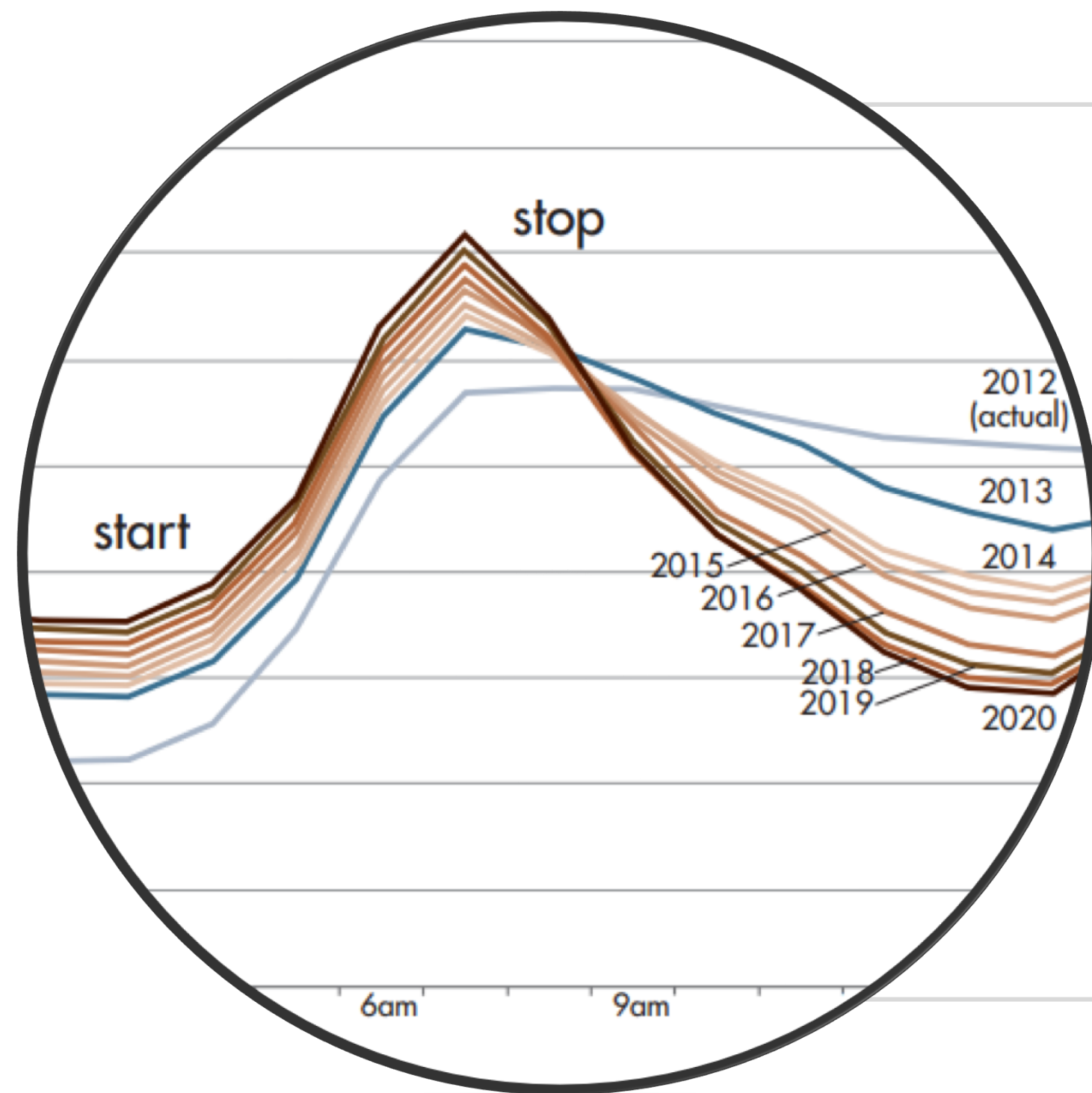


# Setting the Stage

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# Terminology



## Energy consumption

The total amount of energy or power used.  
Measured in kilowatt-hours (kWh)



## Demand

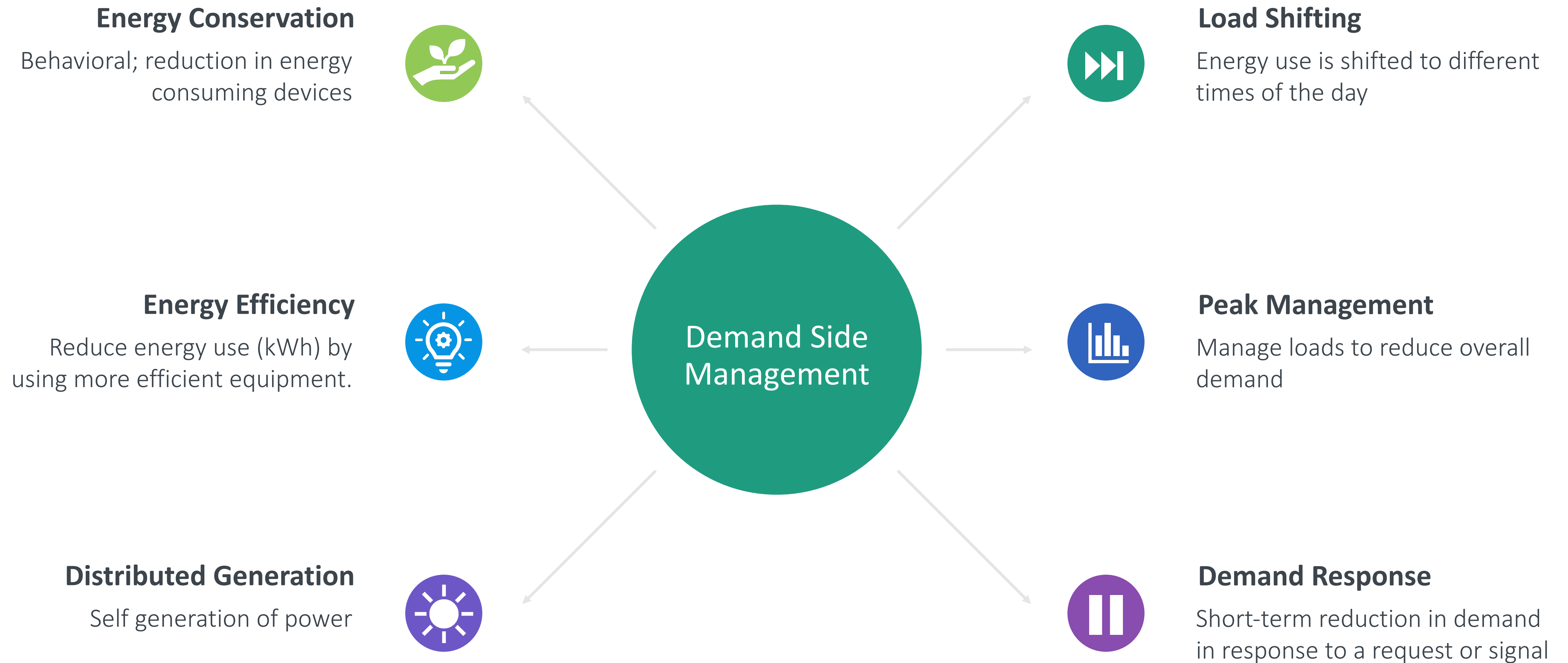
the immediate rate of consumption; how fast  
or the rate at which energy is consumed.  
Measured in kilowatts (kW)



## Load Shape

Graph of the variation in the electrical load  
(demand) versus time.

# Demand Side Management

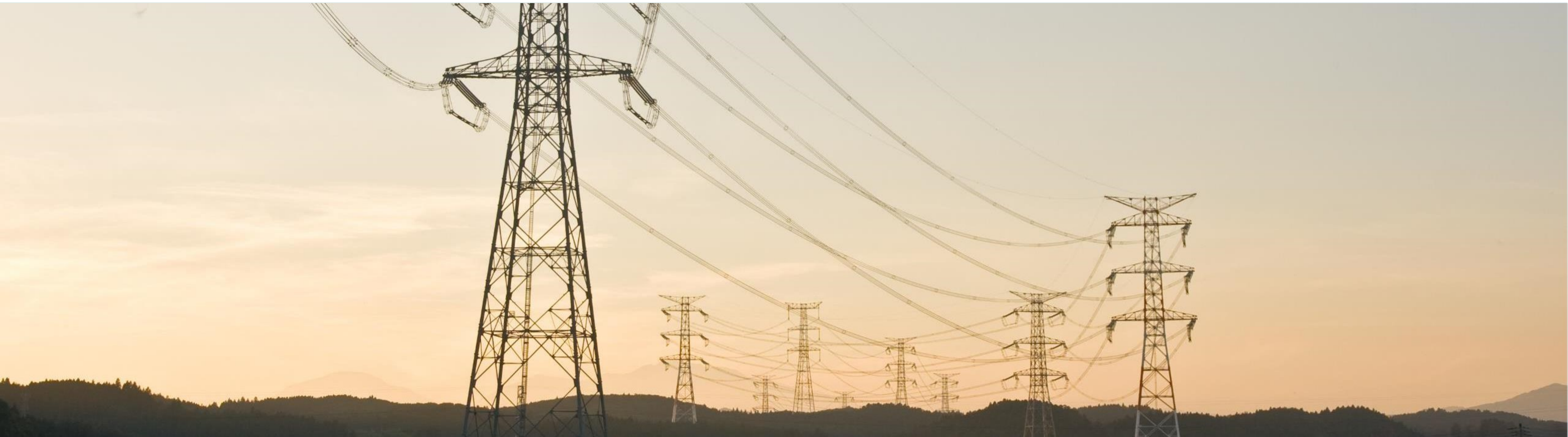




# Demand Response

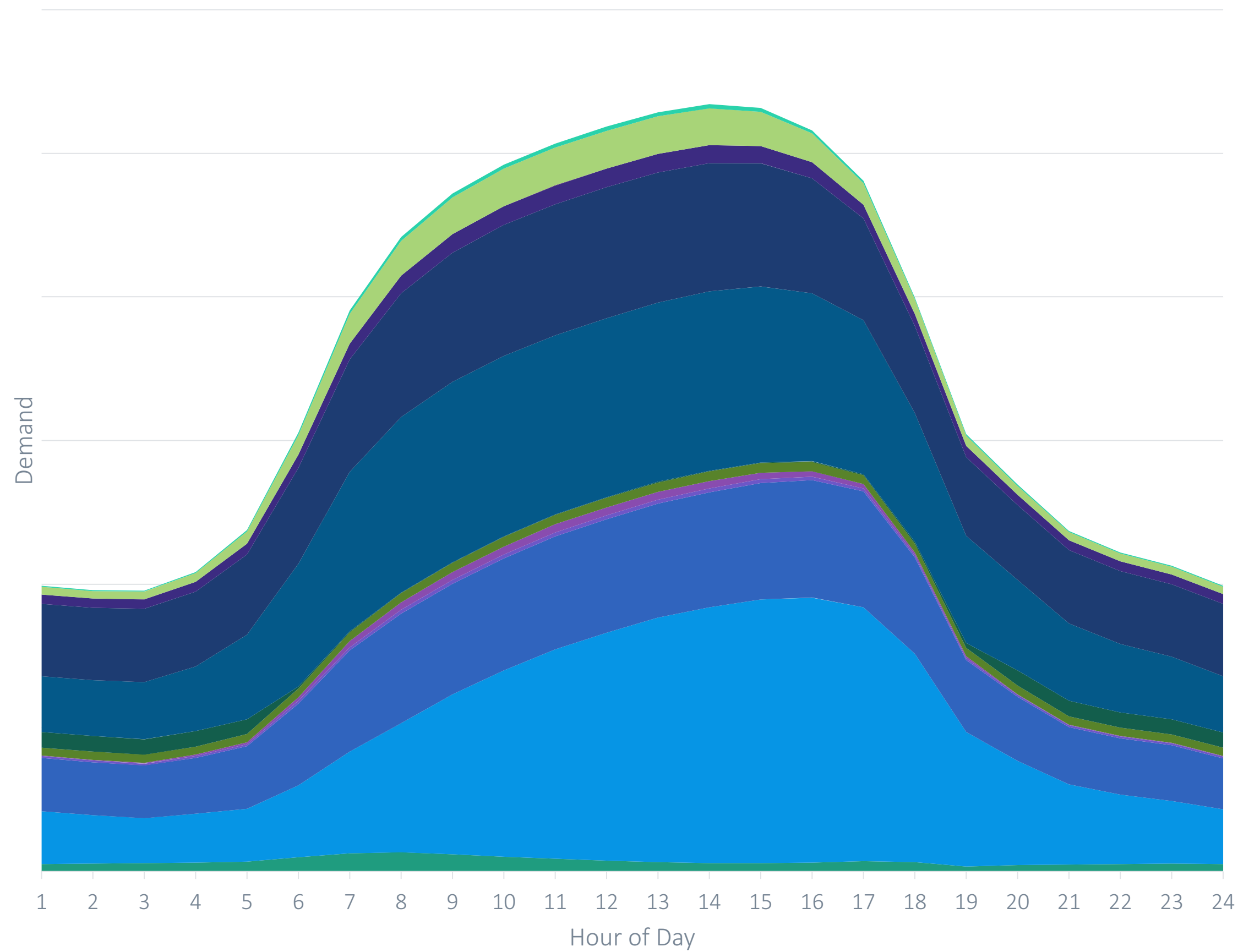
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Changes in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.

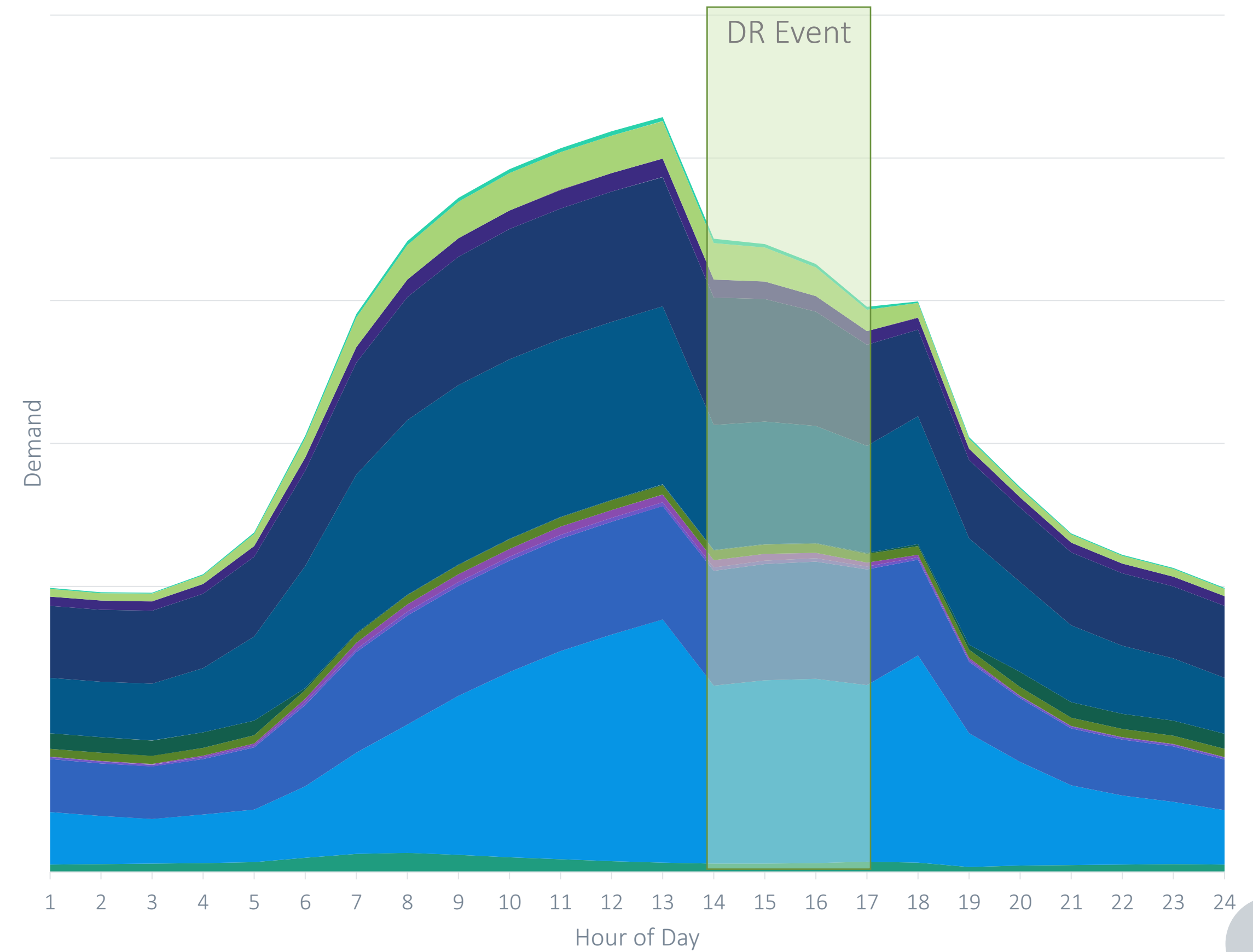


# Demand Response Events

Commercial Building (Typical July Day)



Commercial Building with DR Event





# Energy Use and Greenhouse Gas Emissions

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# The “Marginal” Generator

- Natural gas provides most of California’s “flexible” generation
- When electricity demand changes, natural gas plants ramp up or down to meet demand





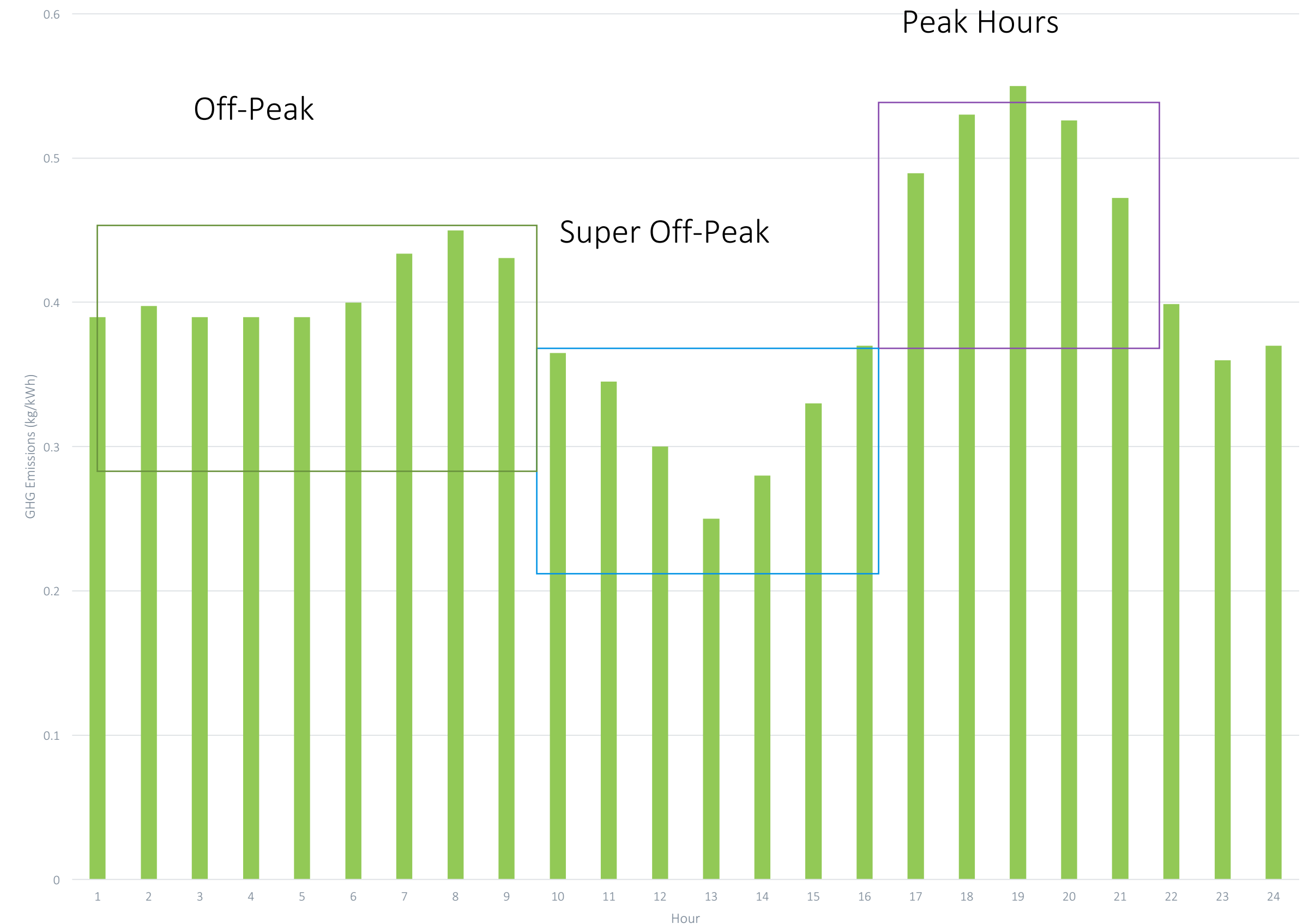
# Marginal GHG Emissions

- Marginal emissions consider which powerplant turned on or off in response to changing load
- Marginal emissions increase/decrease depending on the emissions rate of the responding power plant
- Not all hours are created equal



# Time of Use Rates

- A **rate plan** in which rates vary according to the time of day, season, and day type (weekday or weekend/holiday). Higher rates are charged during the peak demand hours and lower rates during off-peak (low) demand hours.





# Integrating Energy Efficiency & Demand Response

# Why Energy Efficiency and Demand Response?

## Save/Earn Money

Reduce utility bills and receive compensation for participating in demand response events

## Reduce Pollution and Greenhouse Gas Emissions

Use less electricity, especially at times when it is more polluting

## Improve Grid Reliability

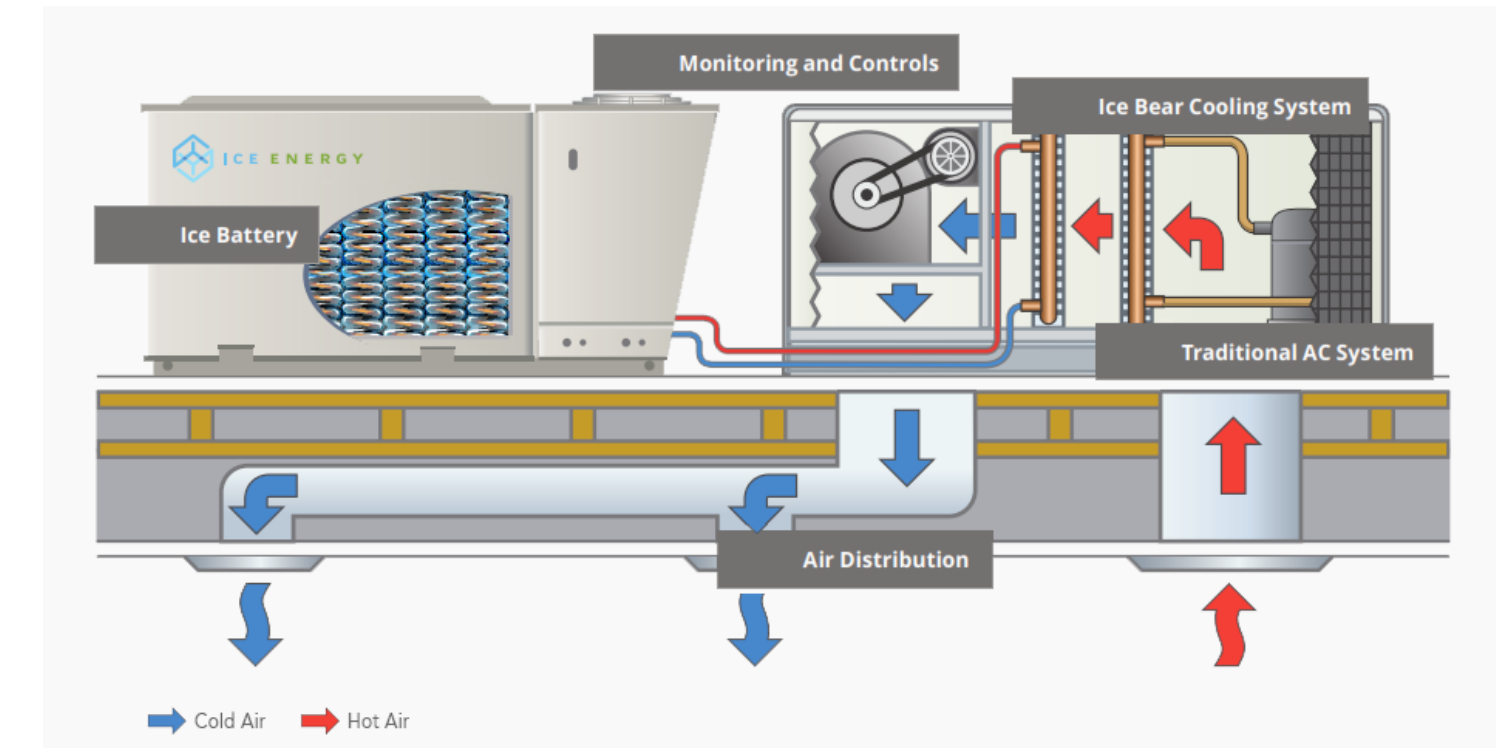
Reduce electricity demand on the electrical grid, especially during times of peak demand



# Some Technologies can provide both EE and DR

## Example - HVAC Units

- Remotely-controllable variable speed drives; thermal energy storage systems.





# Case Study – Hotels Implementing EE and DR

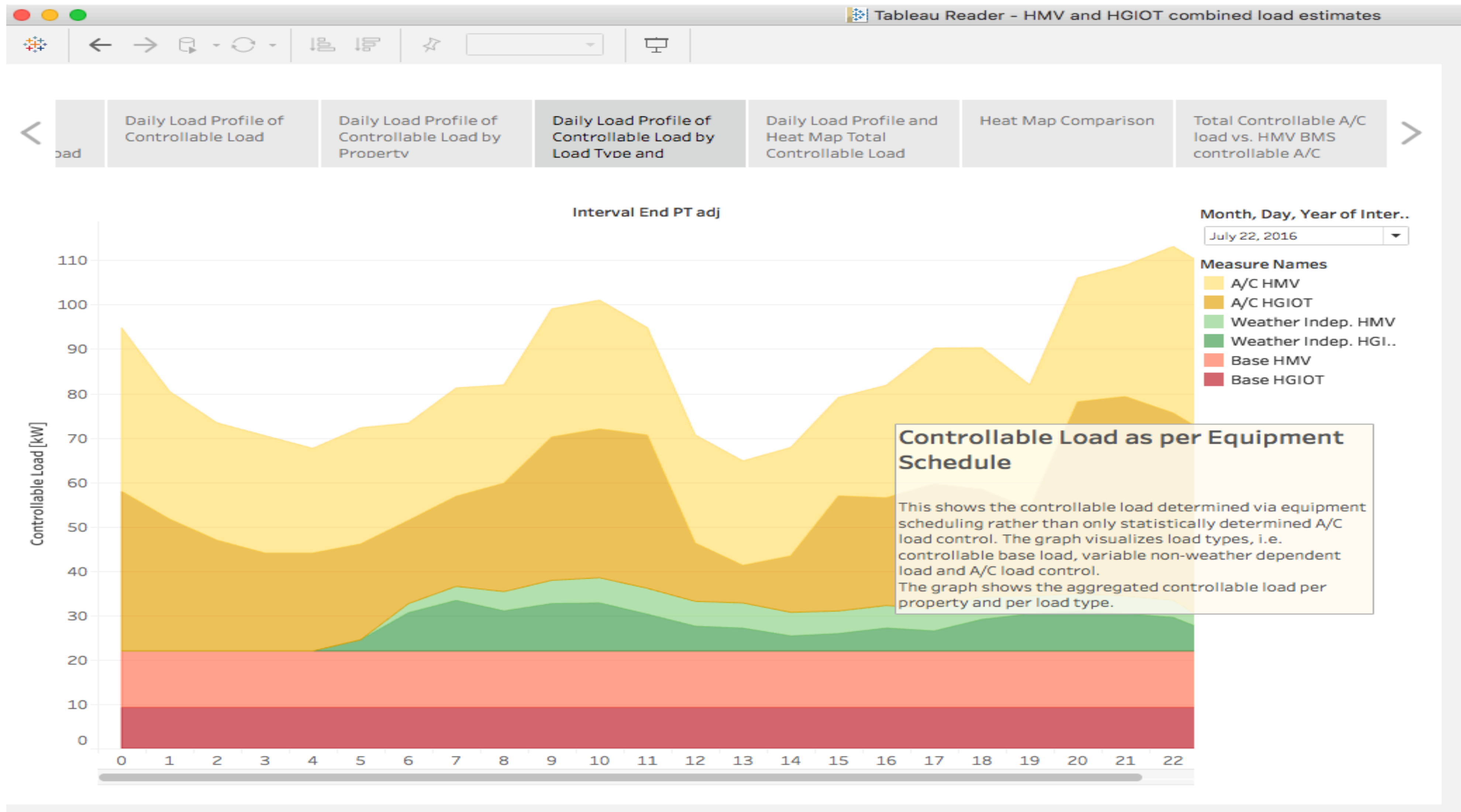




# Implemented EE measures, new sensors, load controls

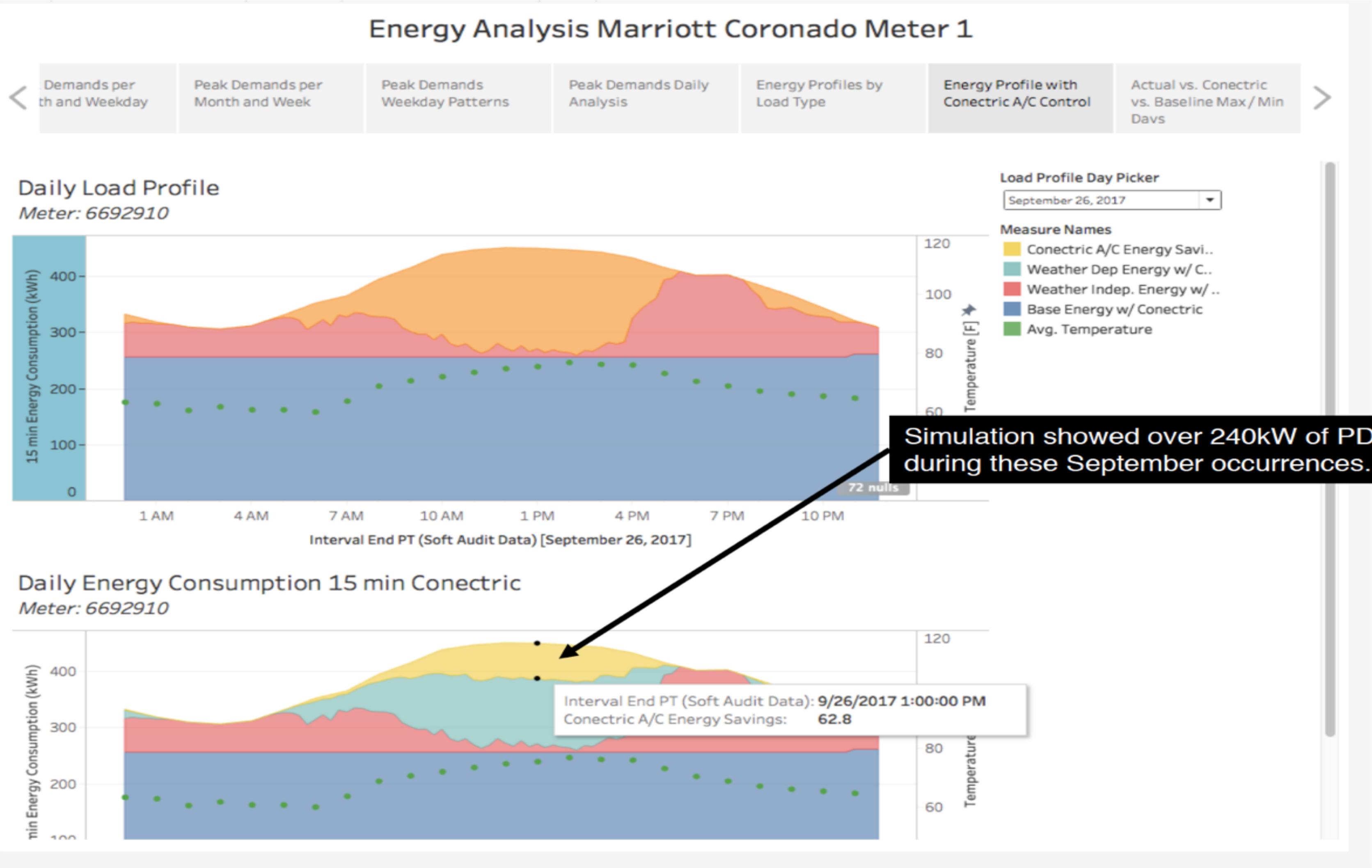


# Insight into and control over electricity use





# EE and DR Potential



# AutoDR Workforce Development Project

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# Project Goals

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1

Advance the goals of AB 758 to achieve energy savings in existing buildings

2

Achieve greater grid reliability & lower costs for CA ratepayers

3

Develop a skilled workforce around AutoDR communications technology

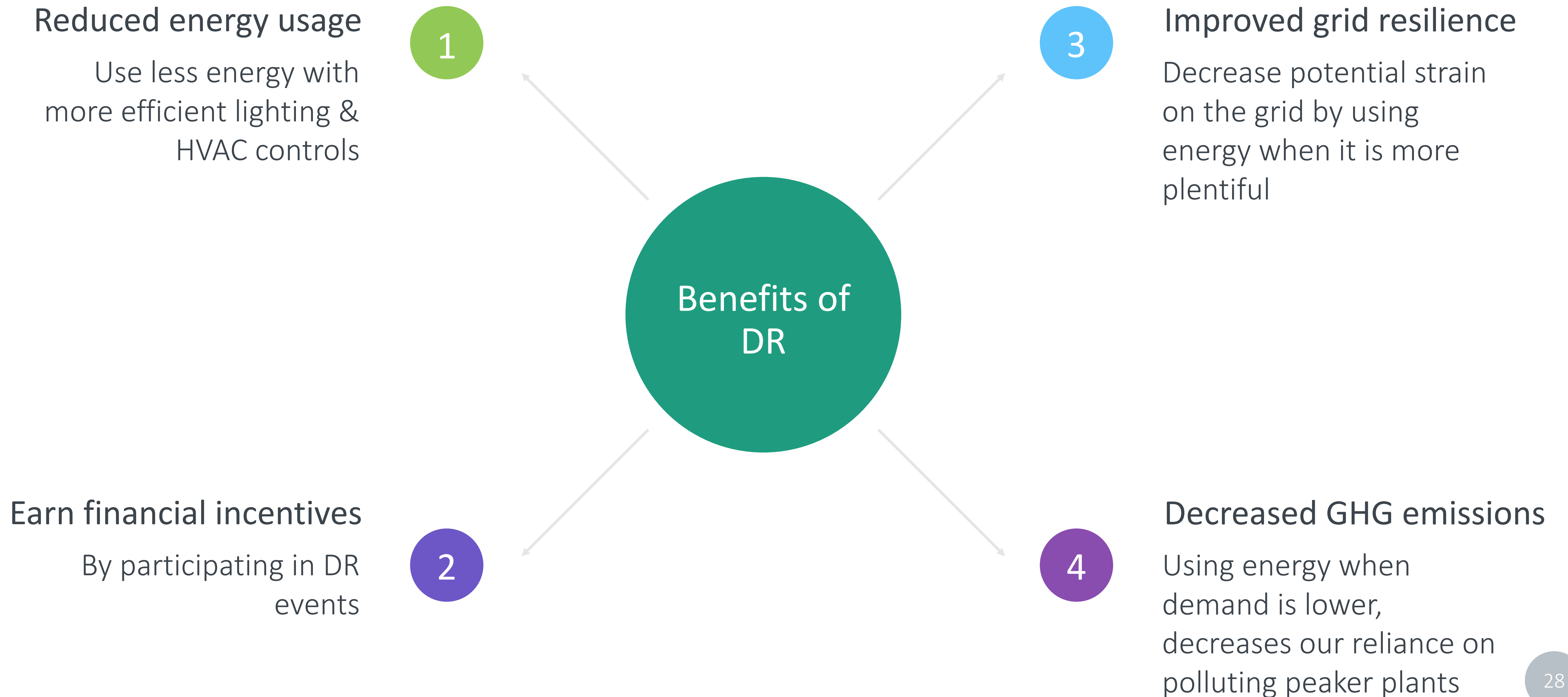
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Increase economic opportunity in DACs through workforce development

5

Support the deployment of AutoDR technologies

# Benefits of Participating in DR

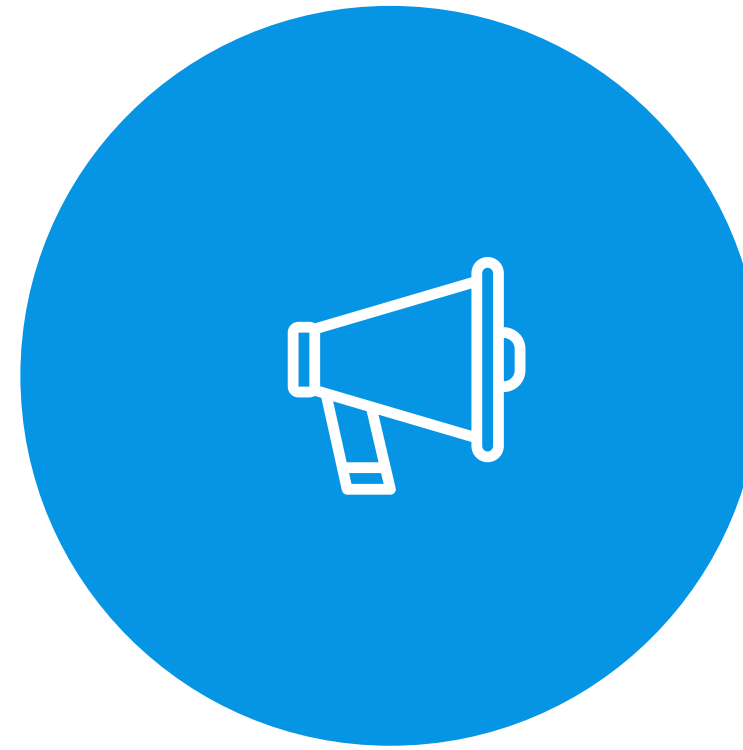


# Sample DR Programs by Customer Type



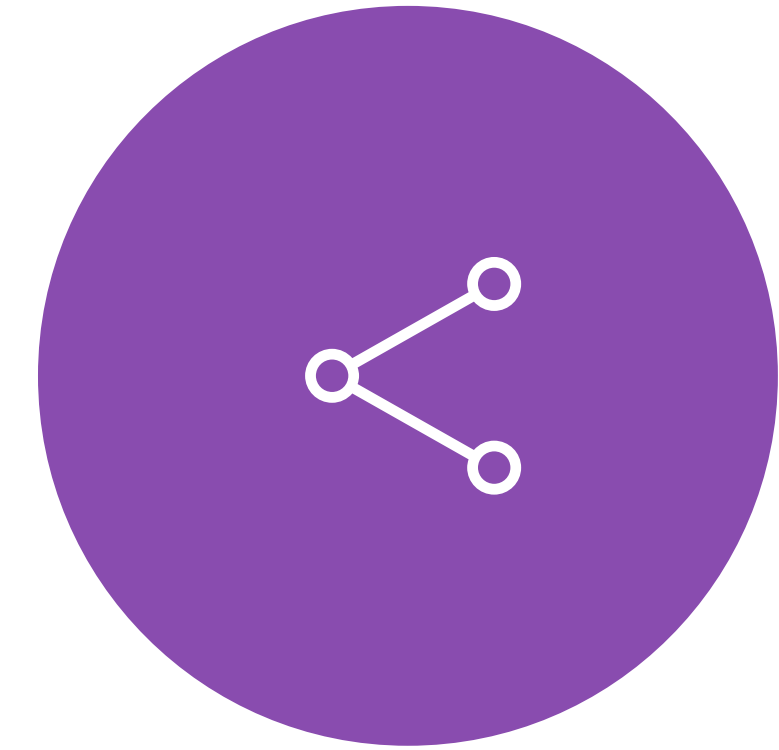
## IOU Customer

- PDP/CPP
- Base Interruptible
- CBP
- 3rd Party Aggregation (wholesale aggregation)



## CCA Customer

- CBP
- Base Interruptible
- Wholesale Market



## DA Customer

- PDP – must receive both generation & distribution from the utility
- CBP – eligible to participate & receive AutoDR controls incentives
- Base Interruptible – best suited to large C/I sites



# AutoDR Incentive Programs

## SCE Express & PG&E FastTrack Incentive Programs

- Express customers receive up to 100% of the AutoDR incentive up front.
- Incentive pays up to 100% of project costs.
- Simplified incentive calculators.
- Eligibility:
  - Offices under 100,000 sq. ft.
  - Facilities with 100 – 499kW maximum demand
  - Strategies including: Dimming Lighting, HVAC temperature resets, HVAC duty Cycling
- AutoDR Custom programs available for large C&I and more advanced strategies.



# How to Choose?

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## Considerations for Program Choice

- Preference to work with or without a third party
- CAISO energy market requirements
- DR event hours
- Auto-DR participation
- Flexibility of DR measure
- Community Choice Aggregation (CCAs) and Direct Access (DA)
- Program compensation magnitude, style, and penalties

## Considerations for Implementation

- Enhancement of business operations
- Quantify and monetize the benefits of demand side management.
- Access to Technical support services.
- Combine retrofits wherever possible to unlock deeper savings.
- Choose a conservative AutoDR strategy.
- Combine with education and outreach to building occupants.



# CSE Offerings

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- CSE can conduct an initial high-level screening to determine if a customer is a good candidate for programs
- Work with jurisdictions on including DR in their capital improvements

# Contact Us

EnergyCenter.org



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# Questions?

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