



T E S L A

**Power Plant Research Advisory Committee  
Energy Storage Working Group Meeting**

October 26, 2017



# A SUSTAINABLE FUTURE



Clean Electricity



Flexible, Resilient Grid



Sustainable Transport

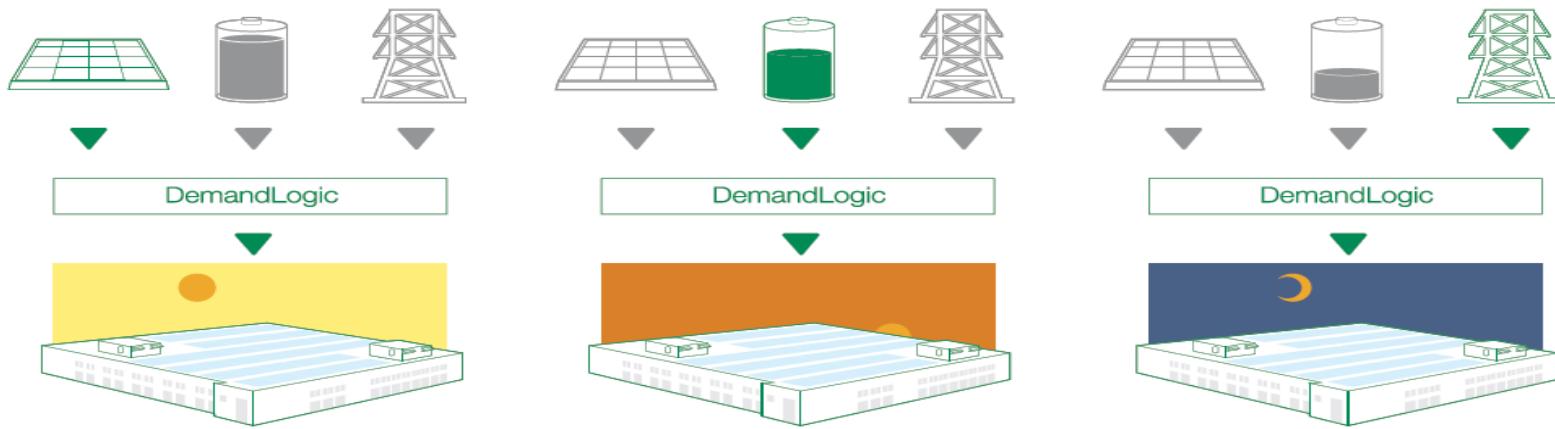
# FOR INDIVIDUAL CUSTOMERS

## RESIDENTIAL

Power through any outage



# DEMAND LOGIC FOR BUSINESSES



## 12 PM

Your system is at full production, charging your battery and reducing your need for utility power.

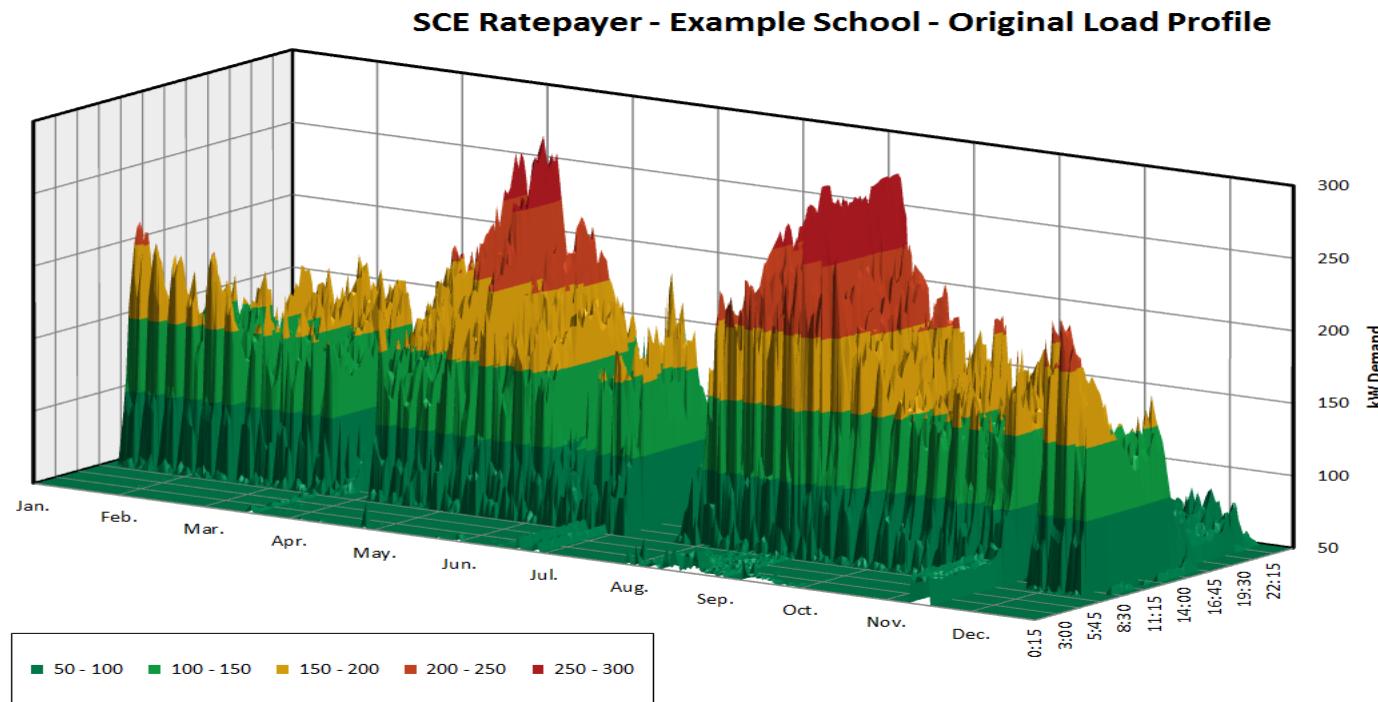
## 5 PM

As solar production decreases, the battery is intelligently discharged to reduce peak demand charges.

## 10 PM

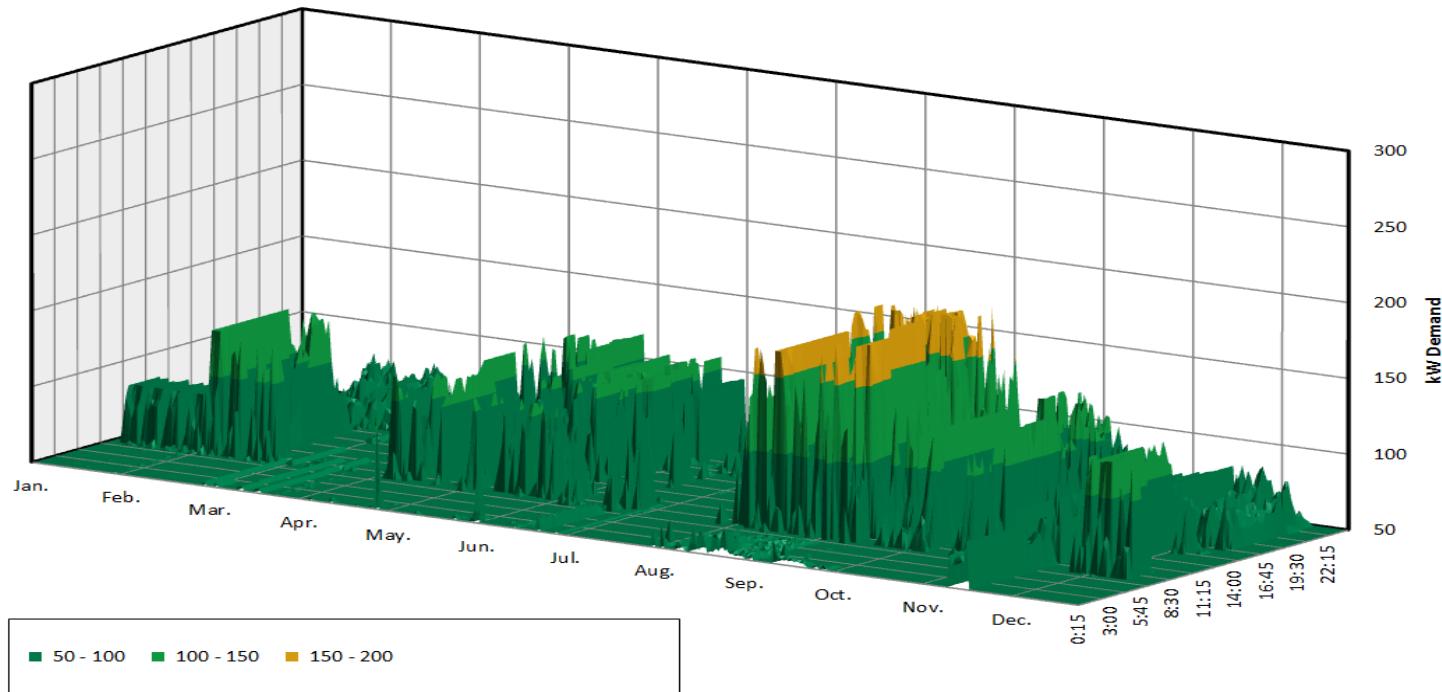
You draw power from the utility company at night at lower off-peak demand rates.

## K-12 – ORIGINAL LOAD PROFILE



## K-12 - AFTER DEMANDLOGIC

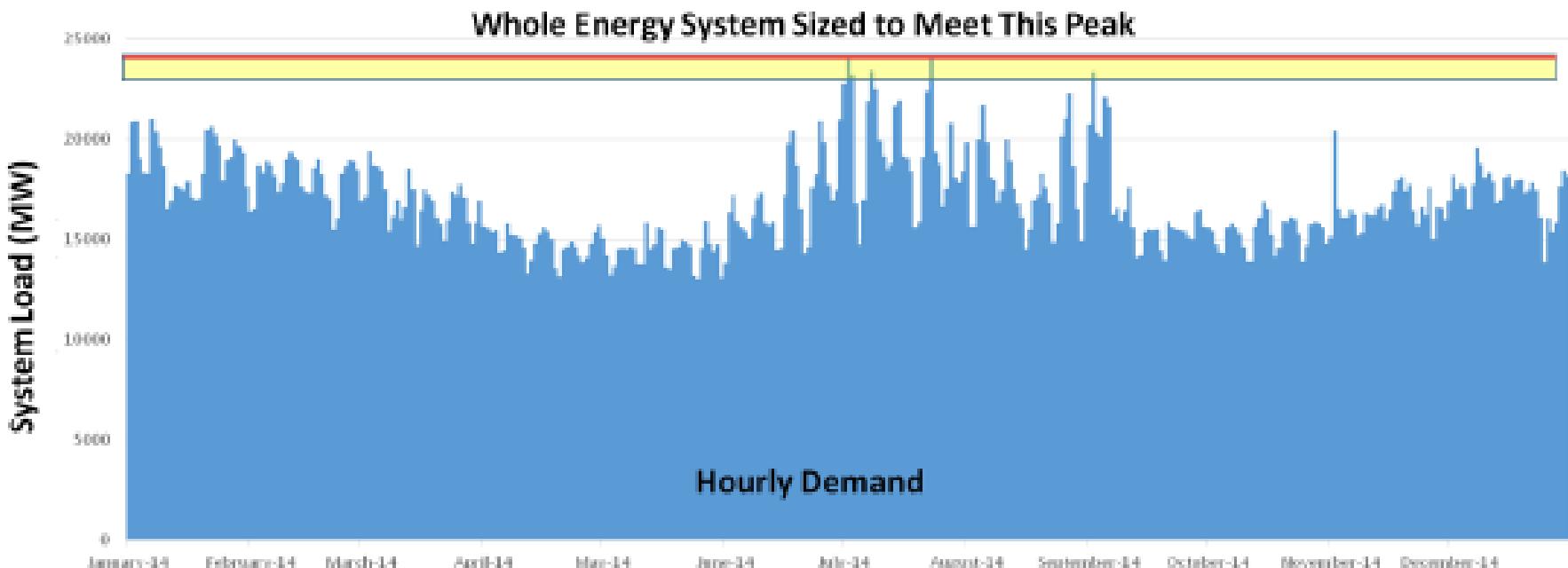
SCE Ratepayer - Example School - Load Profile After PV + DemandLogic



# FOR THE SYSTEM

# PEAK LOAD DRIVES COSTS

**State of Charge Report:** The top 10% of hours accounted for 40% of annual spend.



**Figure 2: The whole electricity system is sized to meet peak demand**



## AGGREGATED RESIDENTIAL

Customer  
**Green Mountain Power**

Location  
**Homes across Vermont**

Project Size  
**500 Powerwalls**

Applications  
**Backup power**  
**Peak shaving**  
**Reduce T&D costs**  
**Grid stability**

Commissioned  
**2016 / 2017**

# GMP RESIDENTIAL STORAGE PILOT PROGRAM

- Aggregate residential batteries and use to offset system costs:
  - Offset Forward Capacity Market (FCM) Peaks
  - Offset Transmission (Regional Network Service, RNS) Peak
  - Perform some energy arbitrage
- Improve CAIDI (duration) and CAIFI (frequency) metrics for participating customers



## G M P R E S I D E N T I A L S T O R A G E P R O G R A M

	Option 1	Option 2	Option 3
GMP Usage Level	None	75% FCM Peaks, 50% RNS Peaks	100% FCM Peaks, 75% RNS Peaks, Energy Arbitrage
<b>System Savings/ Powerwall</b>	<b>None</b>	<b>\$31.76/month</b>	<b>\$50.70/month</b>
Customer Cost	\$6,501	\$6,501	\$37.50/month
Bill Credit	None	\$31.76/month	Included in monthly payment
Owner	Customer	Customer	GMP

# GMP COMPREHENSIVE ENERGY HOME SOLUTION

- Tesla Powerwall 2 batteries and GridLogic software platform
- Use stored energy to drive down costs, especially during peak
- Estimated reduction of up to 10 MW peak load
  - Equivalent to taking 7,500 homes off the grid
- Deploy up to 2,000 Powerwalls
  - Customers will receive backup power
    - \$15/month or \$1,500 one-time fee

# QUESTIONS

Thank you.

Betty Watson  
[bewatson@tesla.com](mailto:bewatson@tesla.com)

