ET Summit 2024

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7 GW Flexible Demand Challenge

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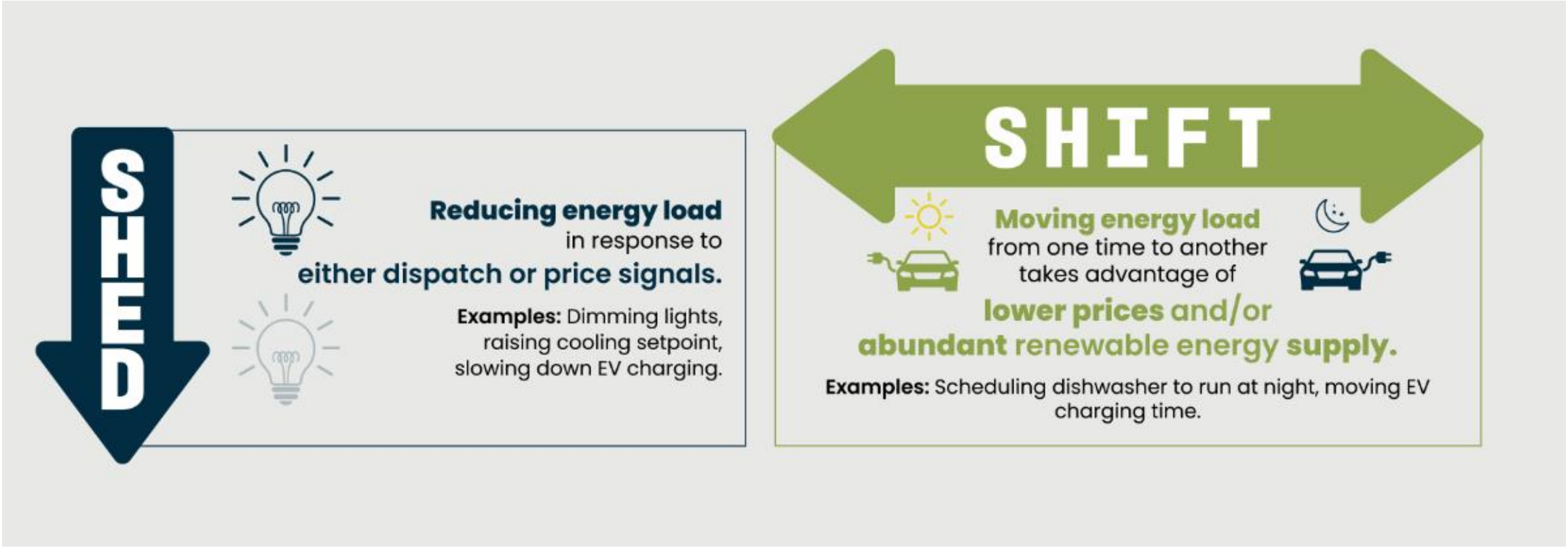
What is Flexible Demand?

- "Flexible demand" means the capability to schedule, shift, or curtail the electrical demand of a load-serving entity's customer through direct action by the customer or through action by a third party, the load-serving entity, or a grid-balancing authority, with the customer's consent.

  - California Energy Commission

** Flexible demand involves managing energy consumption patterns on an hourly basis (or shorter), consistently every day, throughout the year.*

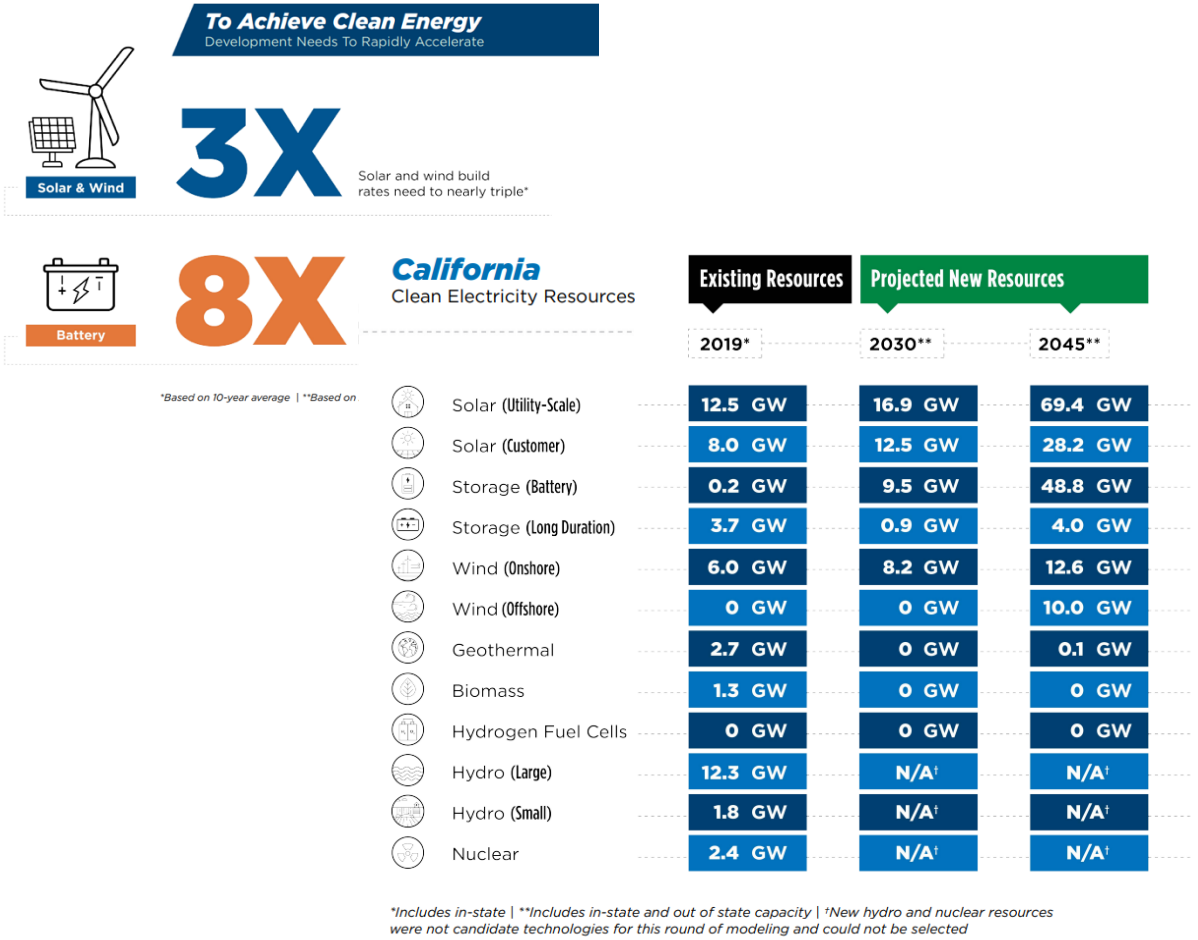
Flexible Load Strategies: Shed or Shift



Credit: CalFlexHub

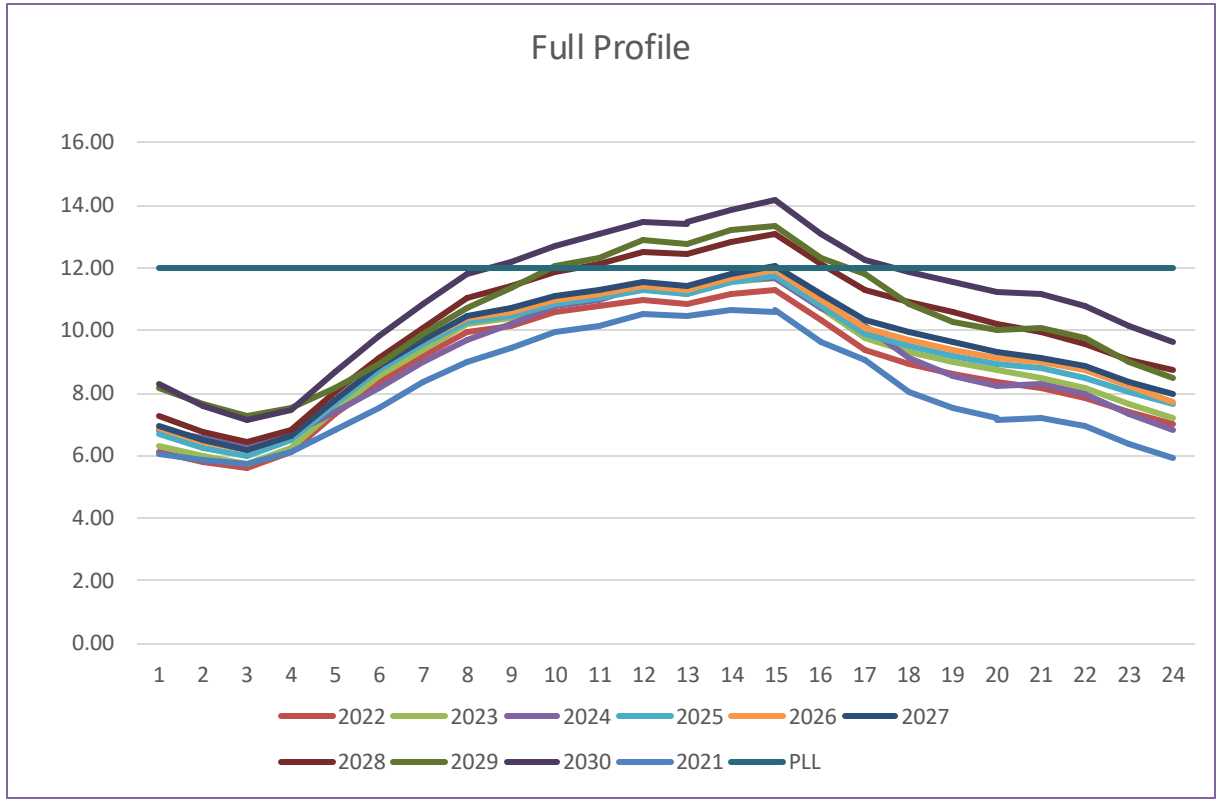
What Are We Trying to Solve?

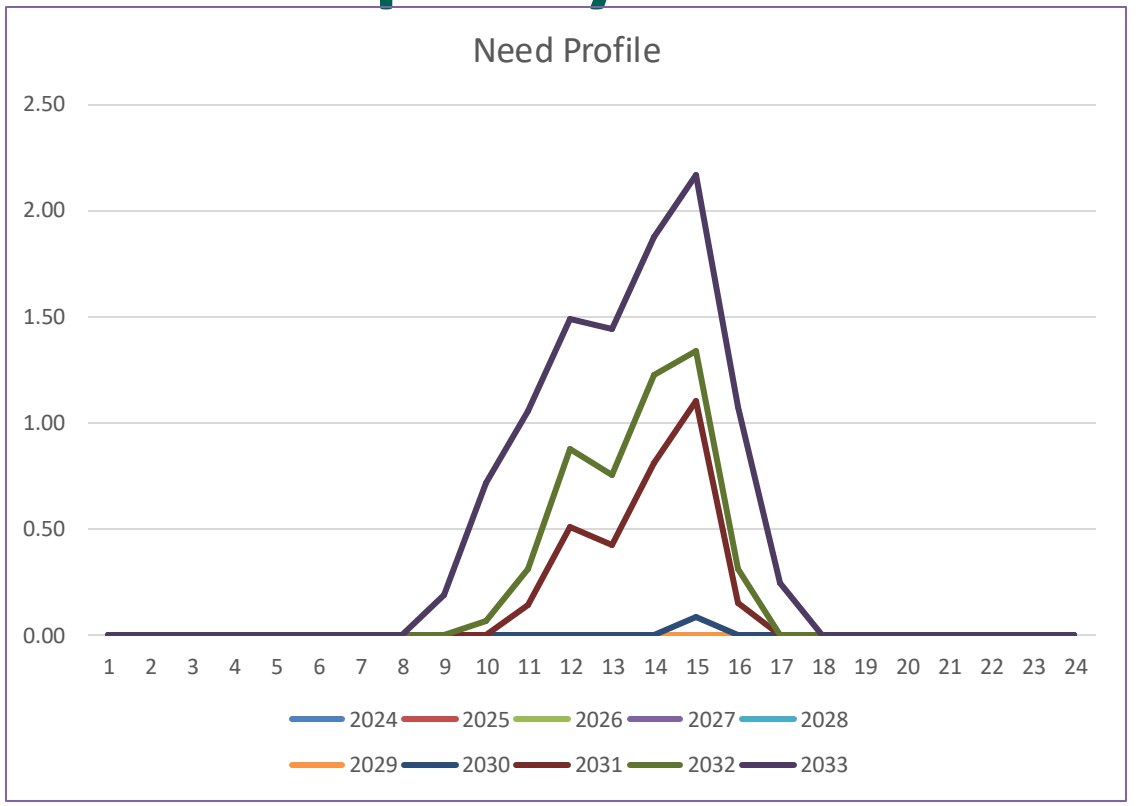
- Maintaining the spirit of California's Loading Order
- Challenges for Achieving the Renewable Portfolio Standards
  - Overgeneration/Curtailment
  - Intermittency
  - Duck Curve
- Anticipated Load Growth from Decarbonization Efforts.



CEC, SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future, 2021

To Solve: Local Distribution Line Capacity Needs



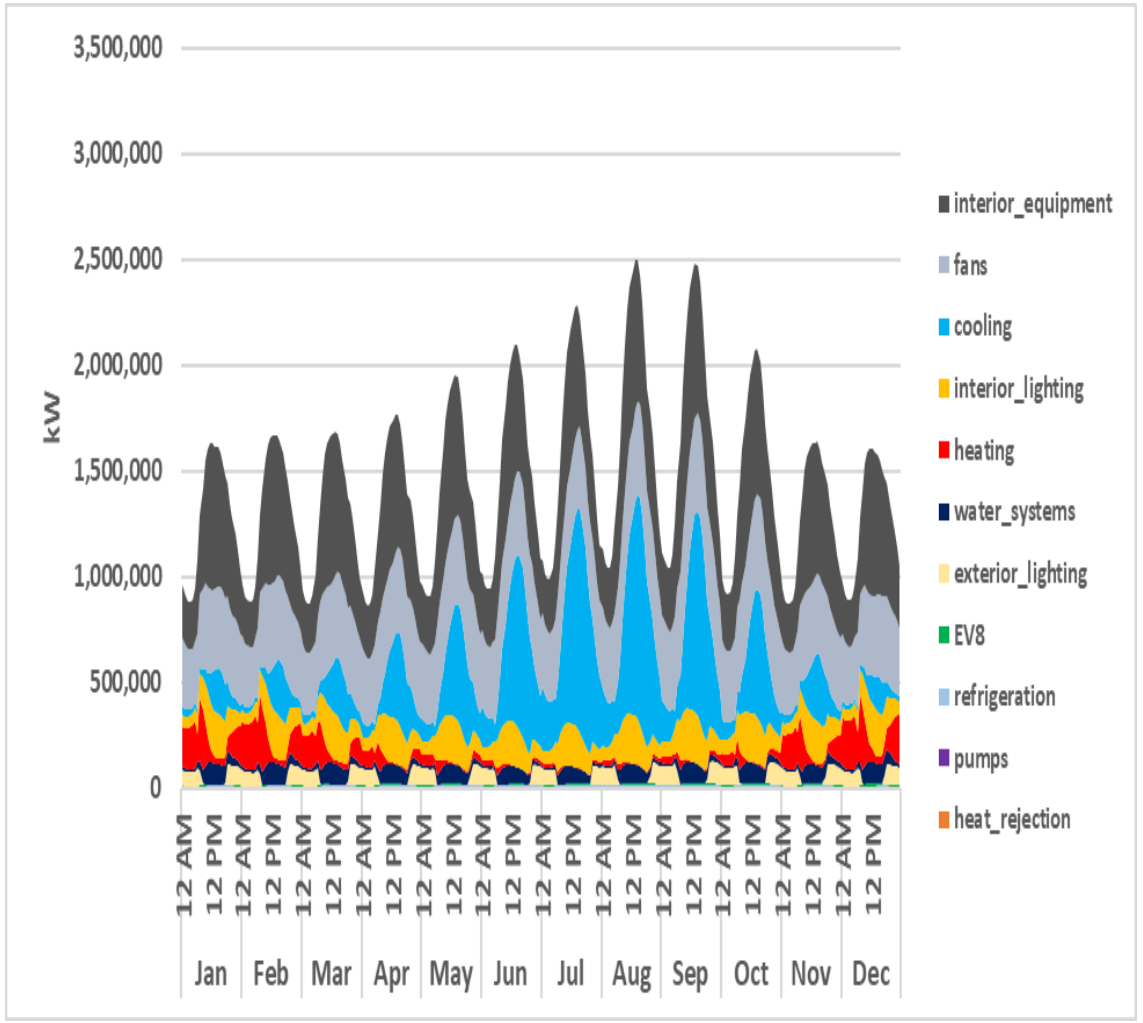


Need Profile & DDOR Candidate Deferral Add Info Summary Table - Single PLL Scenario

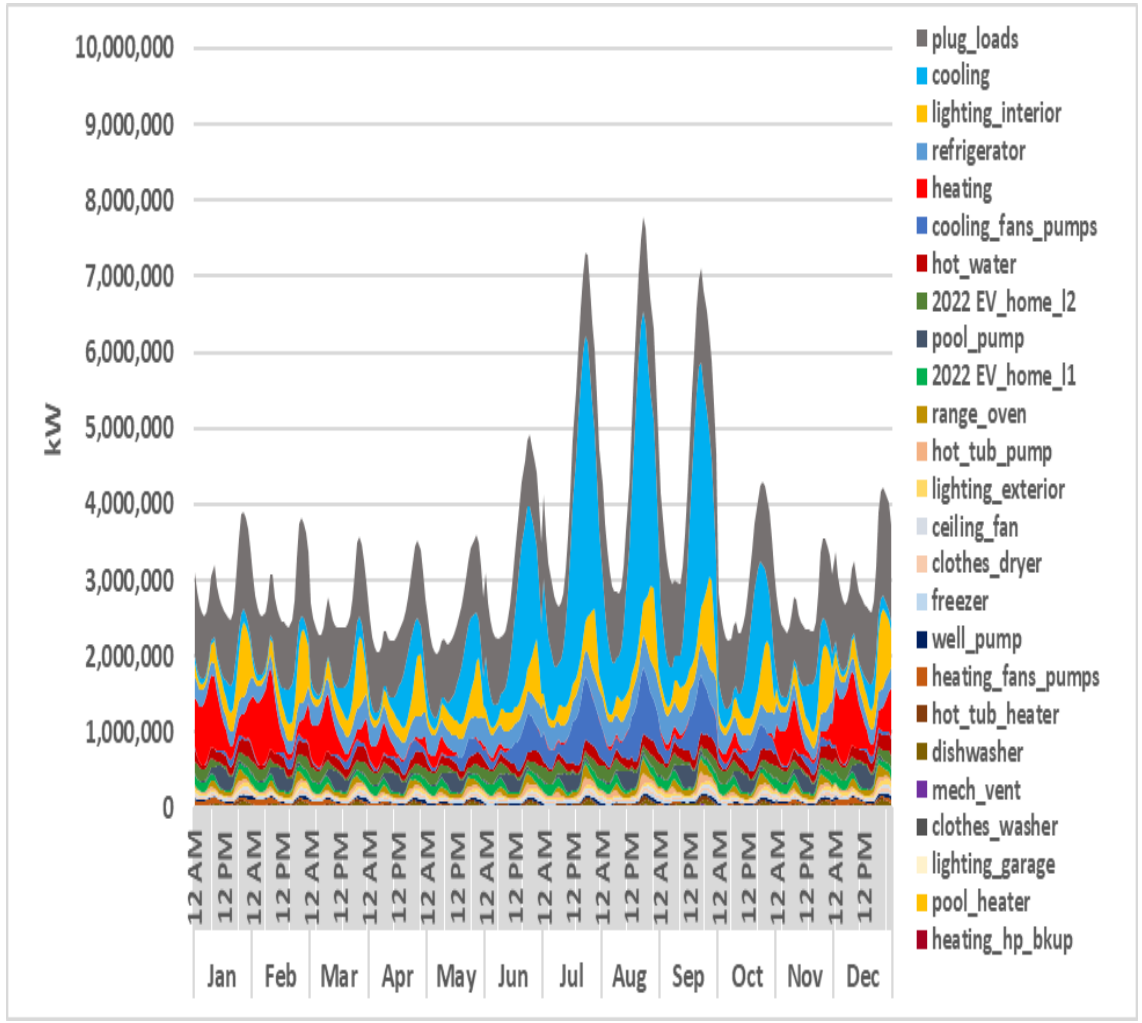
						Peak Hourly Need (MW)																				
Capacity (MW)	Energy Need (MWH)	Season	onthly Frequen	early Frequen	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Durat ion
0.0	0.0	N/A	0	0	2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.0	0.0	N/A	0	0	2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.0	0.0	N/A	0	0	2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.0	0.0	N/A	0	0	2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.0	0.0	N/A	0	0	2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.0	0.0	N/A	0	0	2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
0.1	0.1	Summer	5	15	2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
1.1	3.1	Summer	6	20	2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.4	0.8	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
1.3	4.9	Summer	9	25	2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.9	0.8	1.2	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
2.2	10.3	Spring,Summer	22	70	2033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	1.1	1.5	1.4	1.9	2.2	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9

Where can 7 GW of the Flexible Demand come from?

Medium Commercial (2023)

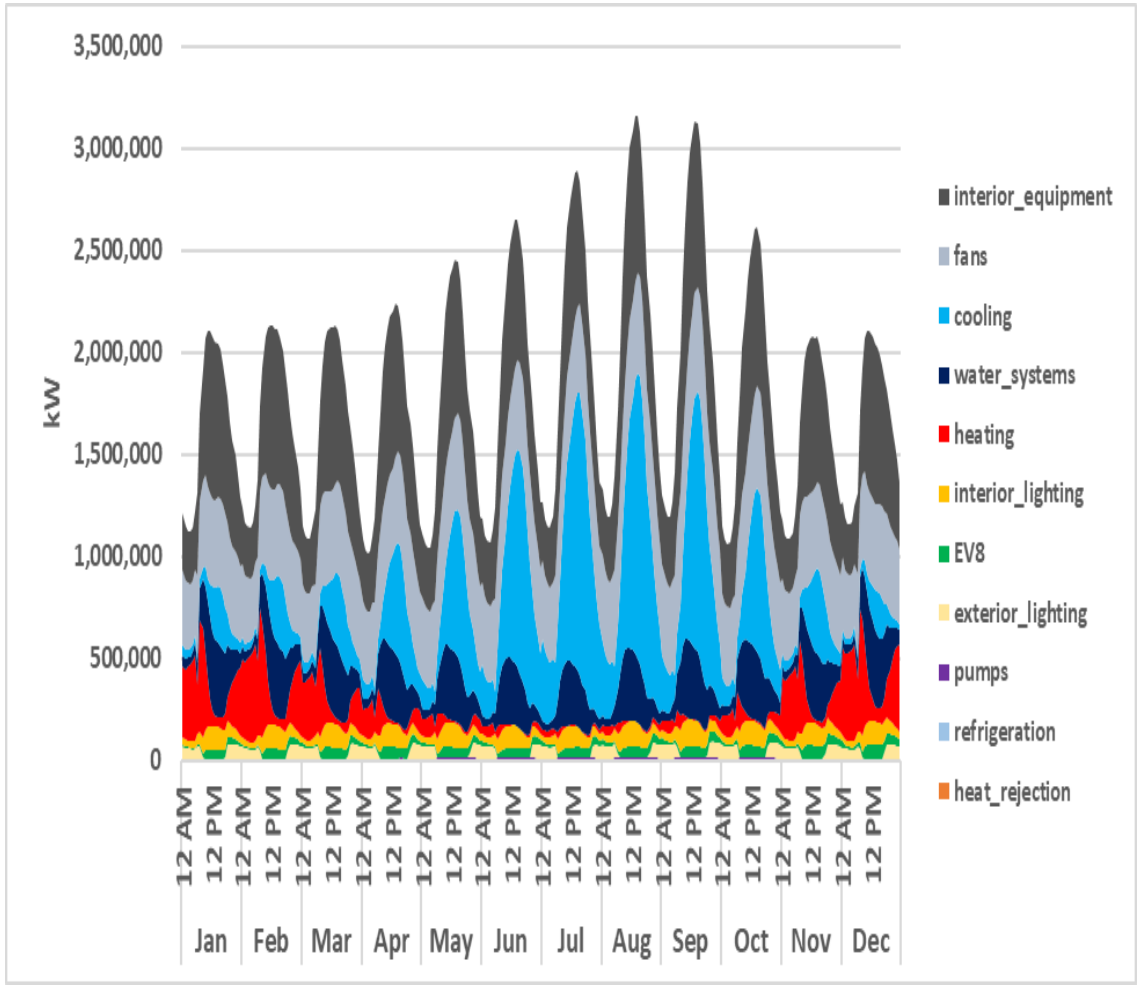


Residential (2023)

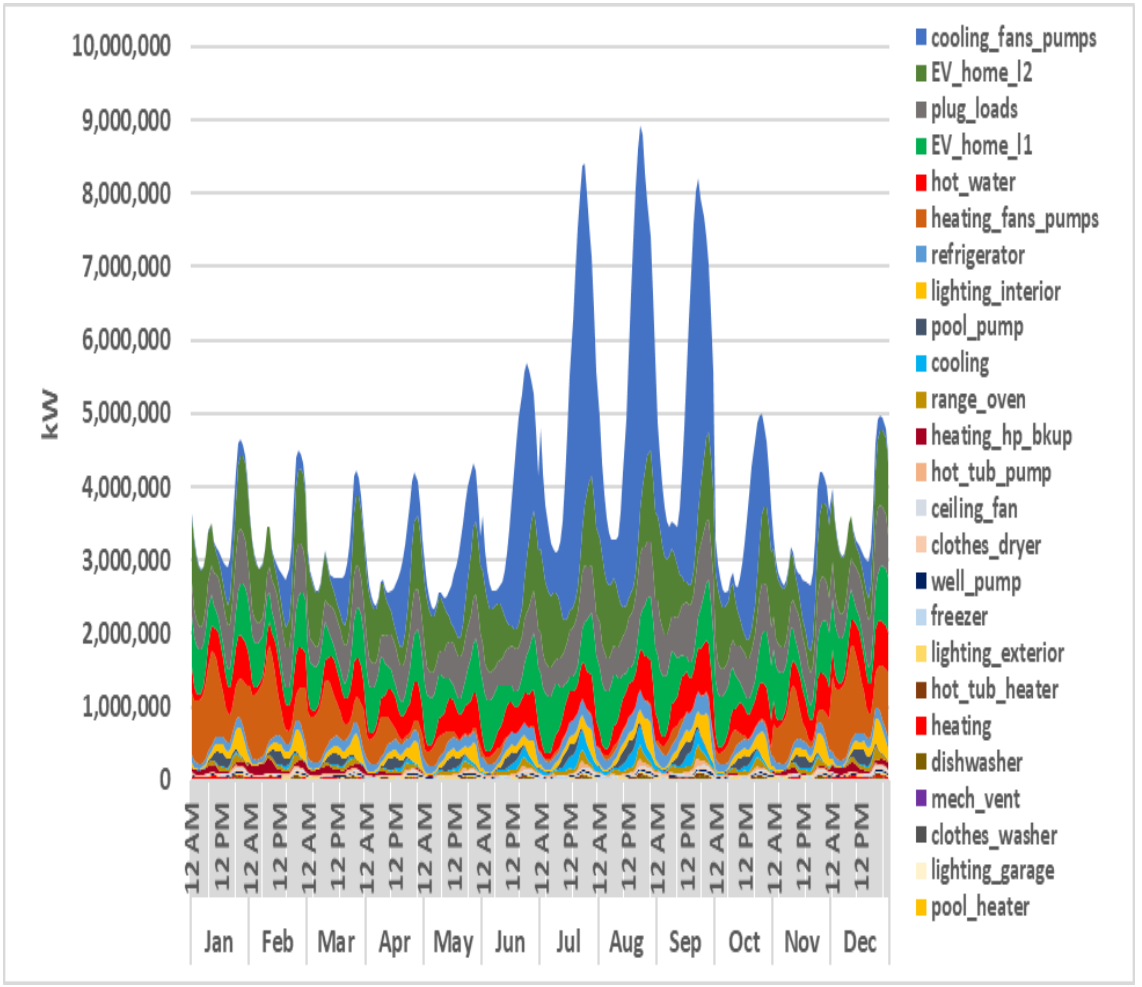


Where can 7 GW of the Flexible Demand come from?

Medium Commercial (2035)



Residential (2035)



Flexible Demand Readiness: Where Are We?

Technology
"Be Connected and Be Real"

- What End-Use?
  - EV
  - HVAC
  - HP Water Heater?
- How to Identify Customer Resources?
  - AMI 2.0?
- How to Connect/Integrate/ Communicate?
  - OpenADR 3.0
  - IEEE 2030.5
  - Other?
- How to Respond?
  - Auto vs. Manual
- What Signal?
  - Price/TOU?
  - GHG
  - Combinations
  - Note: It is a multi-variable Q

Program
"Affordable"

- Demand Management
  - CA ISO issues
  - Local Capacity Issue
- Quantify Participation Benefits?
  - Flat vs. TOU
- Affordability & Equity
  - Low Income
  - Disadvantaged Communities

Market
"Rapid Adoption"

- Customer Awareness & Adoption
- Workforce Development
- Progressive EE/DR Policies
- Code Preparedness
- Resilient and Sustainable Market

Contact

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