



# Clean Power Update

Board of Directors Meeting  
January 11, 2023



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# Topics

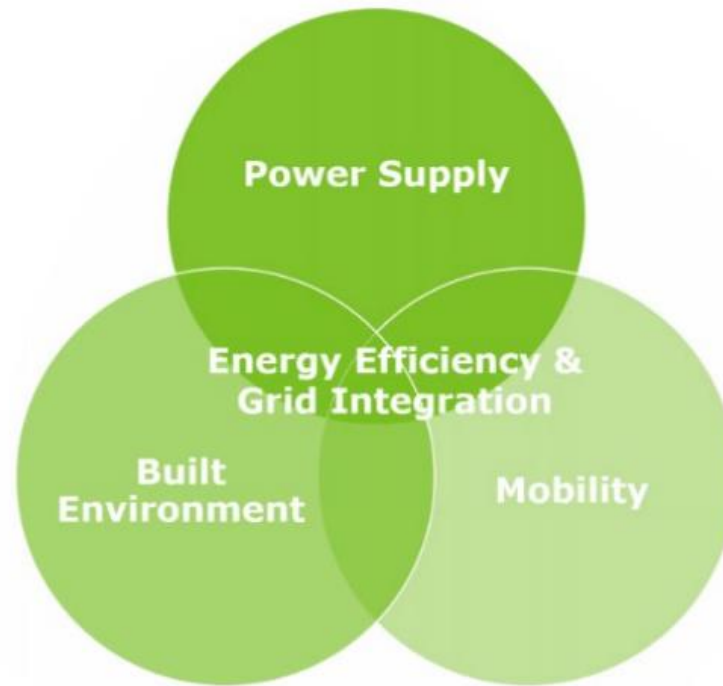
- SVCE's Clean Goals, mandates and progress towards meeting objectives
- Challenges
- Future Initiatives



# SVCE's Mission & Board Directives

Reduce dependence on fossil fuels by providing **carbon free**, **affordable**, and **reliable** electricity and innovative programs for the SVCE community

- Power Supply 100% Clean on annual basis
- Balance RPS and non-RPS resources
- Meet or exceed State Renewable Portfolio Standard (RPS)
- Target 65% RPS by 2030



## 2022-23 Strategic Focus Area:

### 24x7 CLEAN ENERGY:

Explore 24x7 clean energy delivery at scale, to improve on the current 100% clean energy goal



# Clean Goals & Mandates

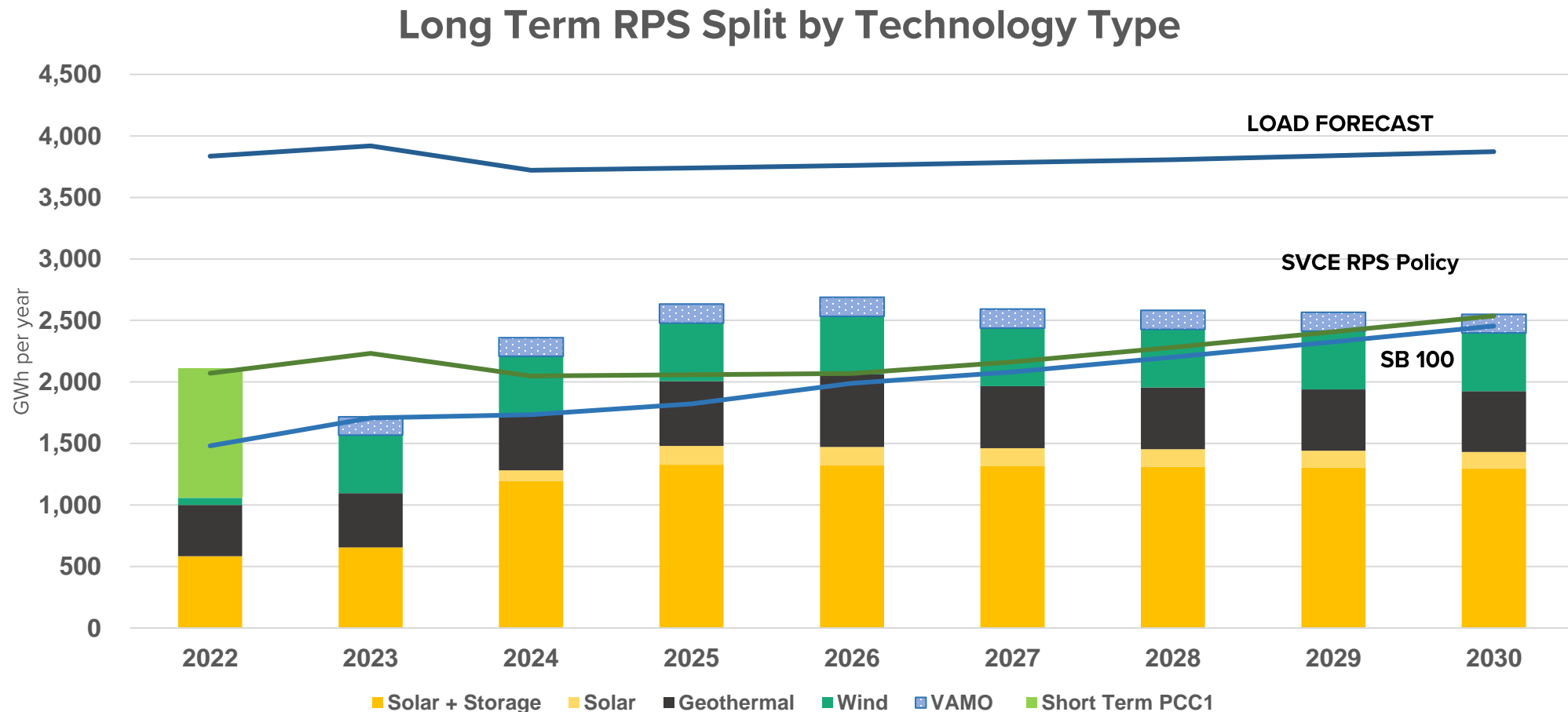
- **SB100**
- **SB350**
- **SB1020**

- SB100 established RPS over four compliance periods
  - 2020 35.8% increasing to 60% by 2030
  - Also sets a goal to be 100% Carbon-free by 2045
- SB350 requires that 65% of RPS be met with via long-term PPAs (10 years or greater)
- SB1020 establishes Clean goals between 2030 and 2045
  - 90% by 2035 and 95% by 2040
- CPUC Procurement Orders for Reliability



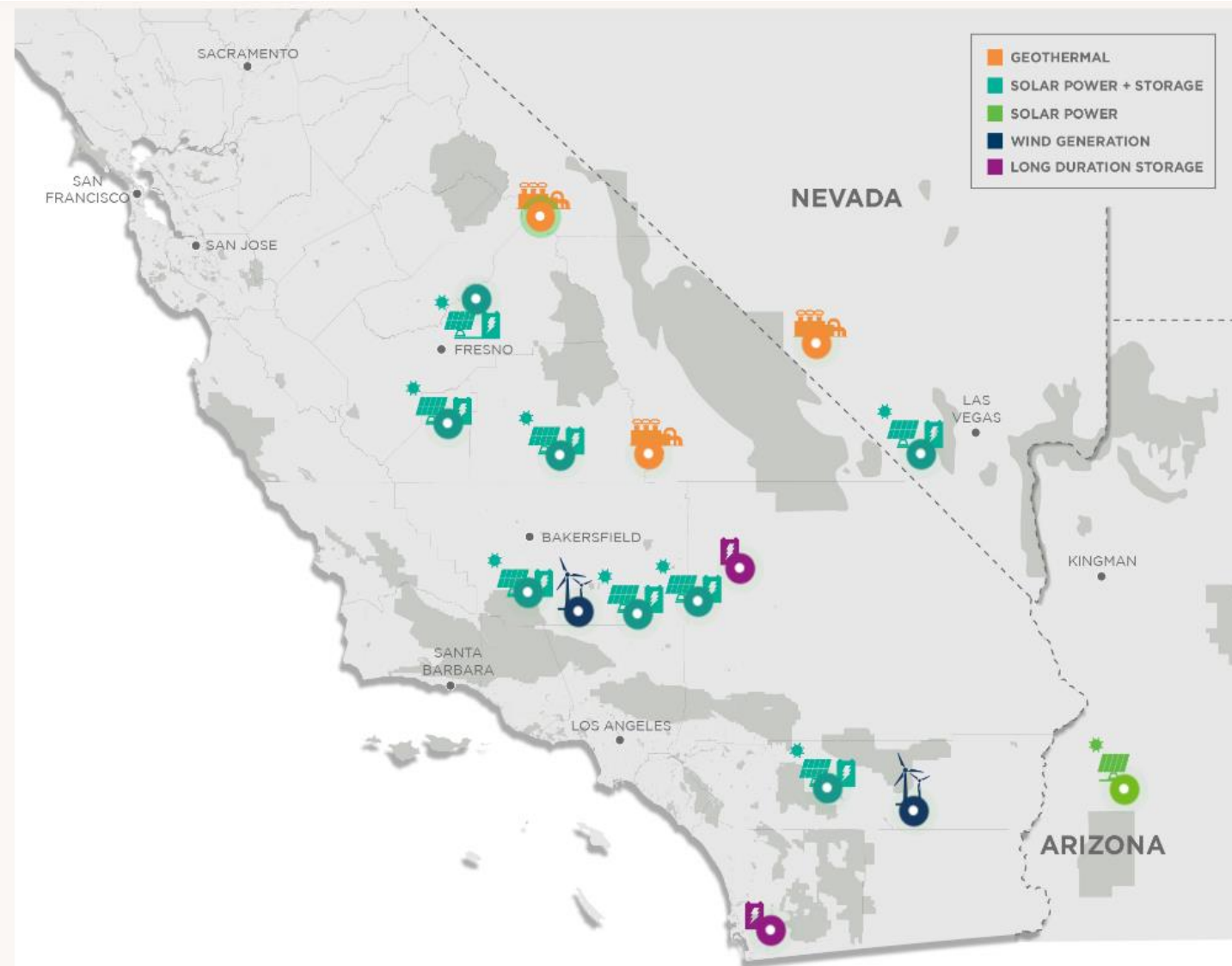
# SVCE's Renewable Portfolio Standard

SVCE on track to meet RPS requirements with planned additional procurement in 2023 & will have excess RPS in years beyond 2024 through 2030.





# Clean Long-term Power Purchase Agreements



- \$1.9B+ in commitments
- 16 PPAs signed, including 13 new build projects
- 676 MW of Renewable Power
- 151 MW lithium-ion storage paired with 445 MW of Solar PV
- 29 MW of Long-duration storage
- 6 Projects now delivering to SVCE meeting ~23% energy needs
- PG&E Voluntary Allocation & Market Offer (VAMO) subscribed to 2 slices representing 4% of load





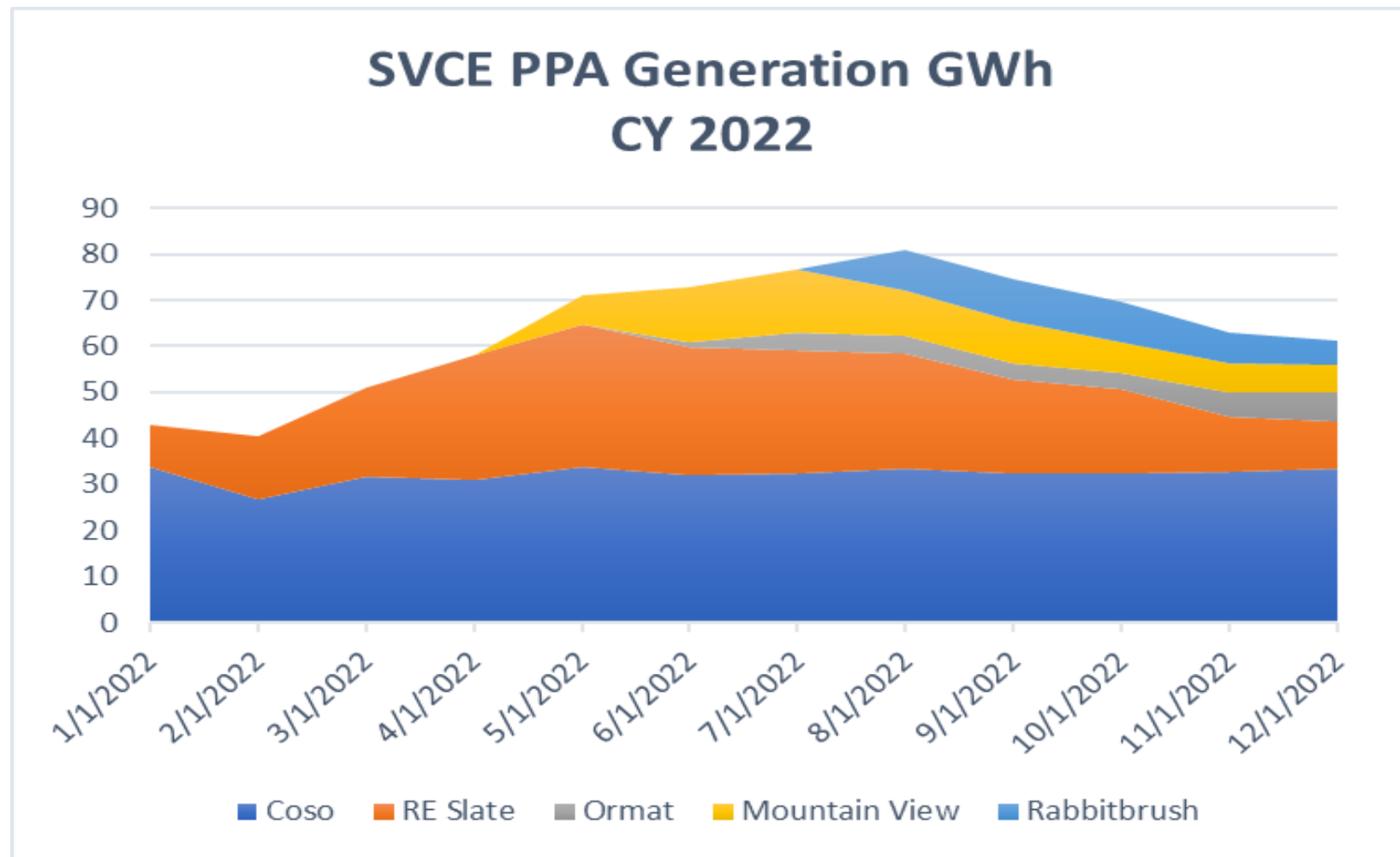
# SVCE Long-Term Clean Energy Contracts

	Seller	Project Name	Technology	Generation MW	Storage MW	Approximate % of Annual load in 2025	Term (years)	Lifetime Not to Exceed Authority (MM\$)	SVCE Board Approval	Status
1	MN8	Slate	Solar + Storage	93.0	46.5	6.7%	17	\$198	Oct-18	Online
2	Ormat	Casa Diablo	Geothermal	7.0		1.4%	10	\$43	Feb-20	Online
3	Atlantica	Coso	Geothermal	43.8		9.6%	15	\$331	Mar-20	Online
4	Leeward	Rabbitbrush	Solar + Storage	40.0	8	3.0%	15	\$64	Apr-20	Online
5	NextEra	Yellow Pine	Solar + Storage	50.0	26	4.1%	20	\$128	May-20	Construction
6	Avantus	Aratina	Solar + Storage	80.0	20	6.6%	20	\$174	Jun-20	Pre-construction
7	174 Power Global	Atlas	Solar	50.0	0	3.8%	10	\$27	Jan-21	Pre-construction
8	SB Energy	Angela	Solar + Storage	20.0	10	1.4%	15	\$35	Mar-21	Pre-construction
9	AES	Mountain View	Wind	62.5	15.625	3%	20	\$128	Apr-21	Online
10	Origis	San Luis West	Solar + Storage	33.5		4%	15	\$74	Apr-21	Pre-construction
11	Clearway	Victory Pass	Solar + Storage	100.0	25	8%	15	\$149	May-21	Construction
12	Terra-Gen	Cameron Crest	Wind	77.7		5%	15	\$150	May-21	Online
13	Rev Renewables	Tumbleweed	Long Duration Storage		14.6	n/a	15	\$100	Feb-22	Pre-construction
14	Onward	Goal Line	Long Duration Storage		14.2	n/a	15	\$100	Mar-22	Pre-construction
15	Ormat	Geothermal Portfolio	Geothermal	16.75		3.3%	20	\$256	Jun-22	Pre-construction
16	OME	Fish Lake	Geothermal	1.82		0.4%	20	\$30	Jun-22	In-development



# PPAs in Operation

- COSO geothermal: January 2022
- Slate Solar + Storage: January 2022
- Ormat geothermal: September 2022
- Mountain View wind: July 2022
- Rabbitbrush Solar + Storage: October 2022
- Represents about 23% of retail load
- By 2025 PPAs in operation will represent ~60% of annual needs

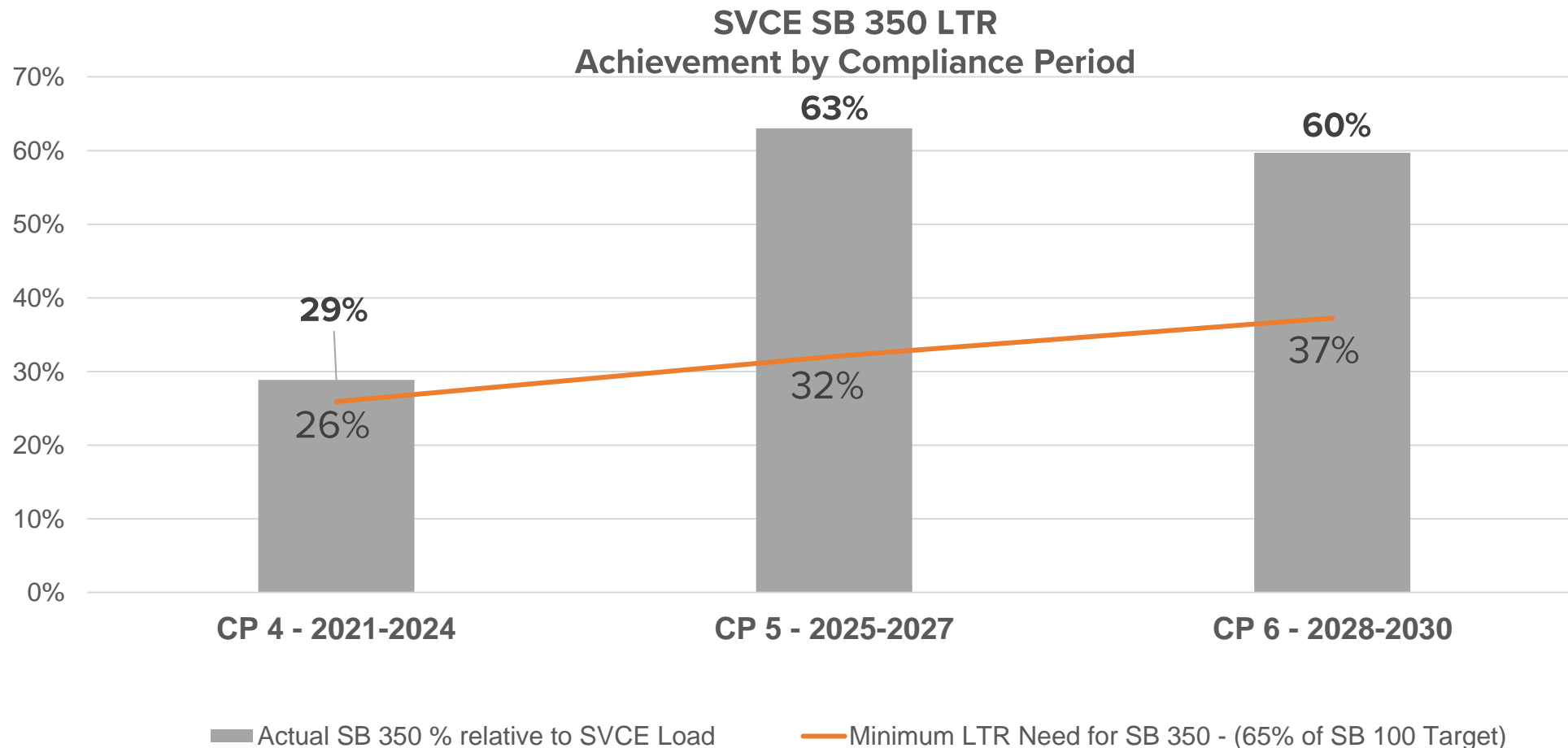






# Long-term RPS per Compliance Period

SVCE on track to meet its SB350 compliance obligations

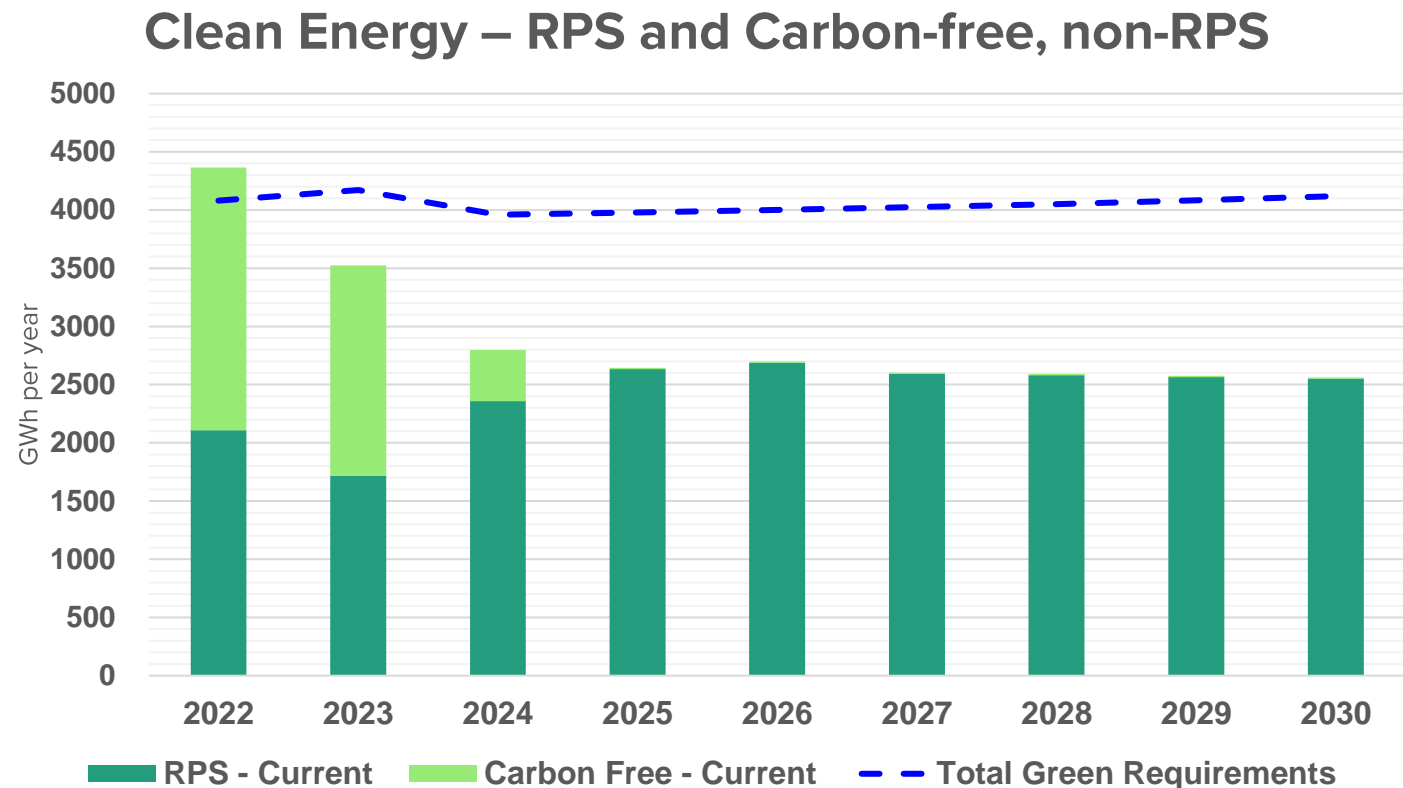




# 100% Clean Goals

SVCE's ability to meet its Clean annual goals remains uncertain

- Large Net Open Position (NOP) are projected in outer years
- PG&E Allocations meet 25 to 30% of needs, which are likely to go away
- By 2030, non-RPS Clean needs are ~35%
- Highly dependent on hydroelectricity supply in California and Northwest





# Power Source Disclosure – 2022 Estimated

- 2022 GreenStart estimated RPS is 50% - PSD reflects 46.8%
- Reportable emissions are attributed to COSO Geothermal
- 2022 GreenPrime RPS is 100% with no reportable emissions
- Overall RPS 53.8%

## 2022 POWER SOURCE DISCLOSURE ANNUAL REPORT SCHEDULE 3: POWER CONTENT LABEL DATA For the Year Ending December 31, 2022 SVCE Green-Start

Instructions: No data input is needed on this schedule. Retail suppliers should use these auto-populated calculations to fill out their Power Content Labels.

	Adjusted Net Procured (MWh)	Percent of Total Retail Sales
Renewable Procurements	1,728,576	46.8%
Biomass & Biowaste	-	0.0%
Geothermal	865,662	23.4%
Eligible Hydroelectric	-	0.0%
Solar	389,526	10.5%
Wind	473,388	12.8%
Coal	-	0.0%
Large Hydroelectric	1,130,537	30.6%
Natural gas	-	0.0%
Nuclear	834,858	22.6%
Other	-	0.0%
Unspecified Power	-	0.0%
<b>Total</b>	<b>3,693,970</b>	<b>100.0%</b>

<b>Total Retail Sales (MWh)</b>	<b>3,693,970</b>
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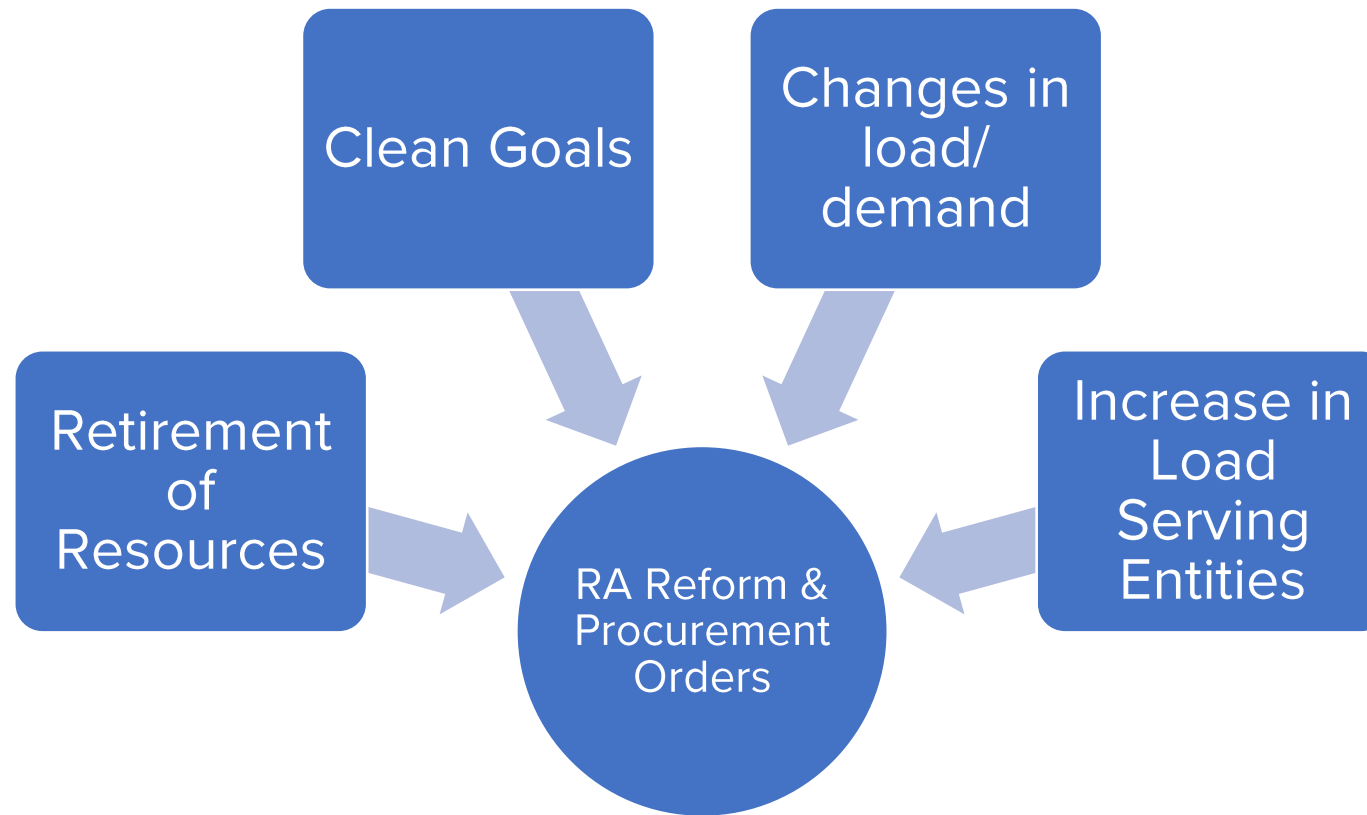
<b>GHG Emissions Intensity (converted to lbs CO<sub>2</sub>e/MWh)</b>	<b>76</b>
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<b>Percentage of Retail Sales Covered by Retired Unbundled RECs</b>	<b>0.0%</b>
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# Reliability and Resource Adequacy Reform

**The State's 3 Energy Agencies are Coordinating on Planning, Reliability and Resource Adequacy**

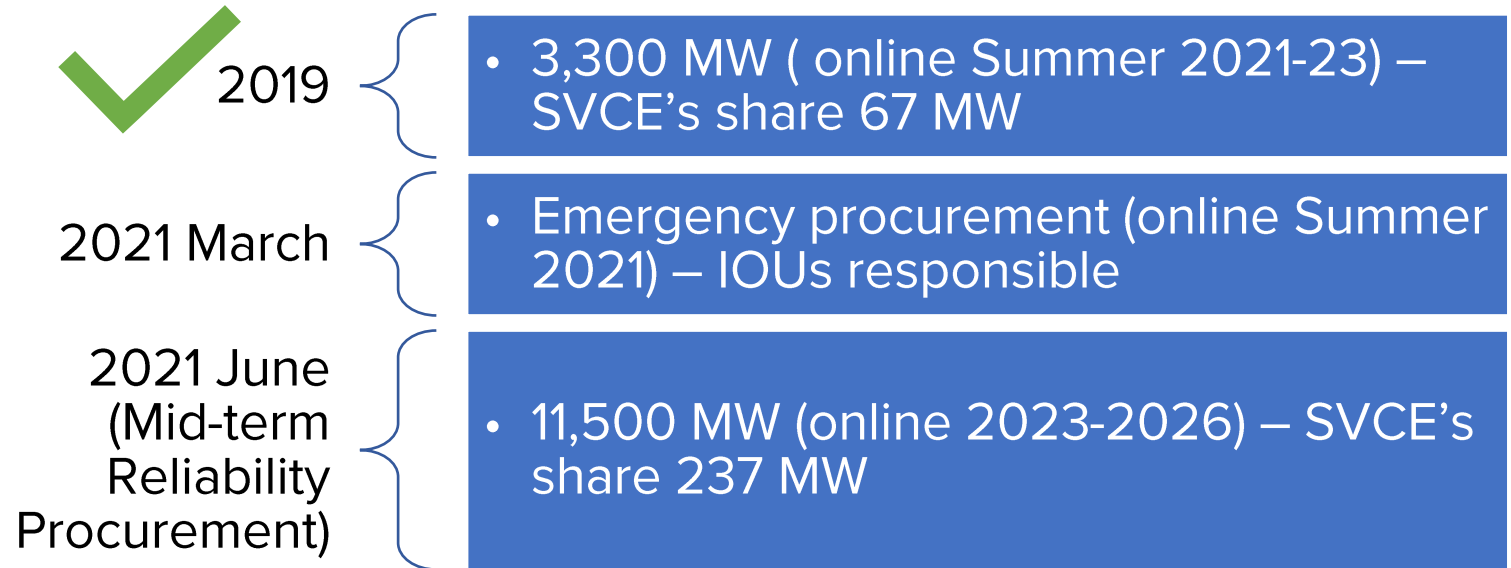






# CPUC Procurement Orders

**Unprecedented  
scale, speed &  
frequency of  
orders by the  
CPUC**



CPUC proceeding underway to make programmatic changes to the Integrated Resource Planning process to enforce compliance vs. procurement orders



# Mid-term Reliability Procurement Order

**SVCE has made significant progress towards meeting its share of 11,500 MW**

1. Total Requirement: 237 MW
2. Generic - Standalone storage & Solar + Storage – 196 MW
  - \* 41 MW by 2023
  - \* 124 MW by 2024
  - \* 31 MW by 2025
  - (52 MW “zero emitting” to meet Diablo Canyon Replacement)
3. Long-lead Time Resources - 41 MW by 2026
  - \* Long Duration Storage – 20.6 MW
  - \* Firm Clean Resources – 20.6 MW



**Actively procuring to meet remaining MTR requirements**



# Summary

## **Procurement orders, drought and scarcity of reliability resources drive costs up.**

1. Supply-chain, labor issues and procurement orders are driving RPS cost up and causing delays in projects coming on-line
2. Hydroelectricity and other carbon-free, non-RPS, resources are expected to become less available and less affordable
3. Resource Adequacy reform will make compliance a greater challenge and will increase costs
4. Natural gas resources will continue to be necessary for reliability as California transitions to Carbon Free
5. Pathway to 24x7 Carbon-free remains a challenge until reliability and affordability needs are addressed



# Future Initiatives & Considerations

1. Continue to optimize PPA resources in the market
2. Continue to procure Clean resources to meet obligations and SVCE goals
  1. Evaluating offers from Fall 2022 RFO
3. Explore additional long-term hydro resources
4. Evaluate use of longer-term natural gas and storage resources to meet reliability needs
5. Monitor developments in new clean energy technologies including hydrogen
6. Assess feasibility, cost and strategies for achieving Carbon-free 24x7 – Strategic Plan Focus Area



# THANK YOU!

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