
Clean Power Update

SVCE Board Meeting

October 13, 2021

Monica Padilla, Director of Power Resources

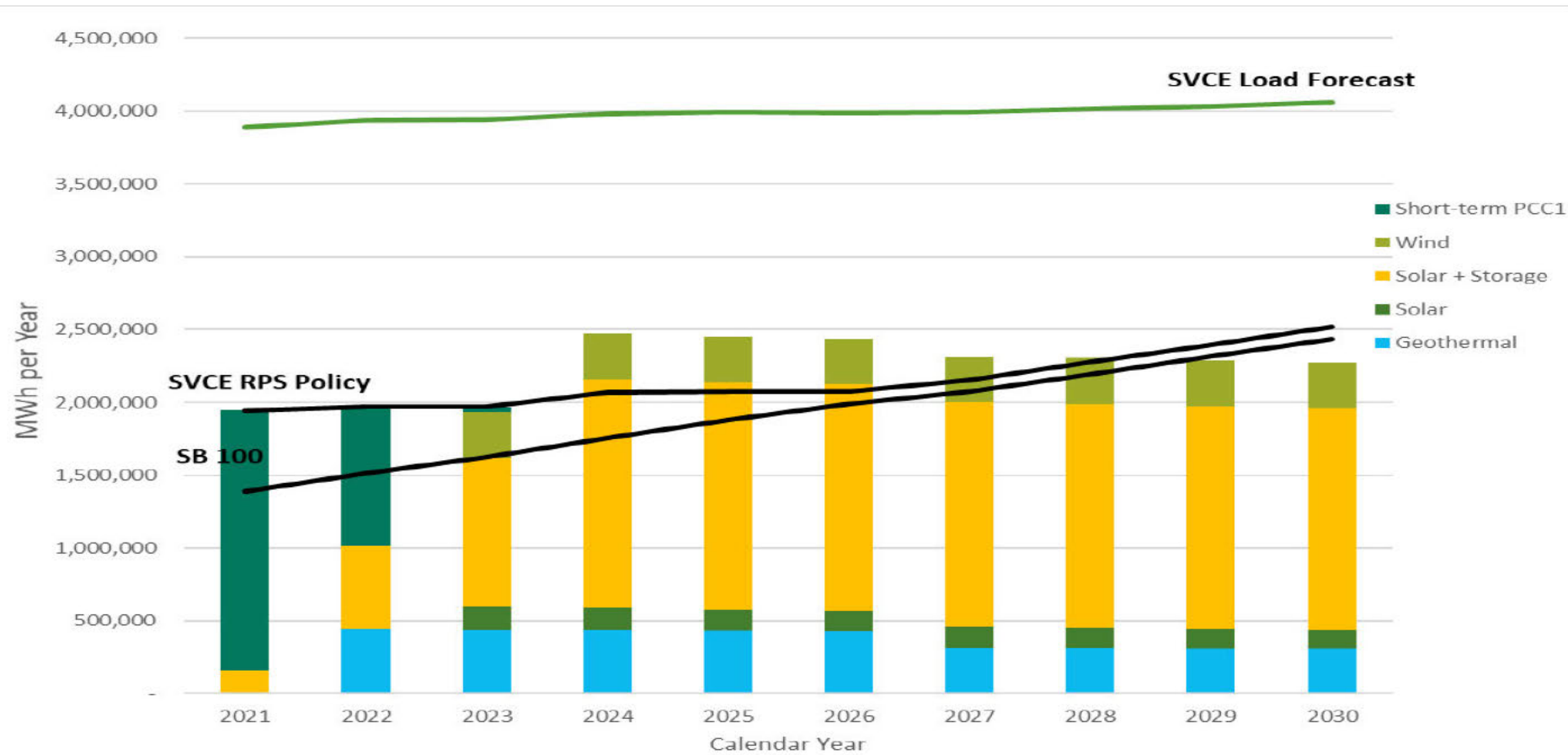
Topics

- RPS & PPA Update
- Reliability
- Mid-term Reliability Procurement Order
- California Community Power & Long Duration Storage Procurement
- Summary

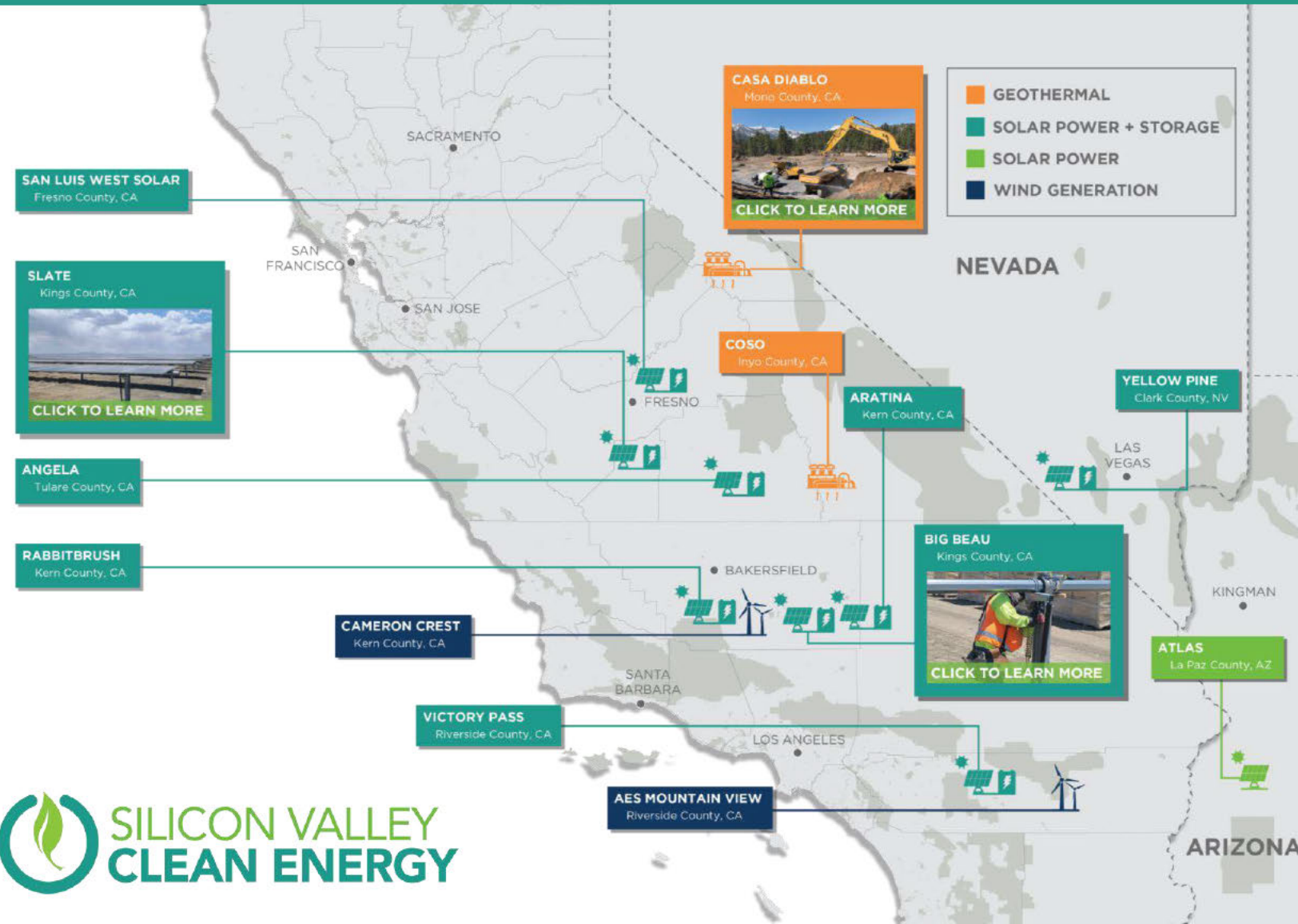


Renewable Portfolio Standard

SVCE has exceeded SB100 RPS requirements since 2017 and will exceed SB350 long-term PPA mandate



Signed Power Purchase Agreements



- **\$1.6 B in commitments**
- **62% RPS in 2024**
- **13 PPAs signed**
- **10 new build projects**
- **~725 MW in total**
- **173 MW lithium-ion storage paired with 516 MW of Solar PV**

12 Projects to be operated with Central Coast Community Energy

Projects Under Construction

Three of SVCE's PPA projects have broke ground



Slate
Solar + Storage



Casa Diablo
Binary Geothermal



Big Beau
Solar + Storage



PPA Implementation & Operations

Slate now providing test energy. Other projects facing delays.

- Recurrent's Slate solar plus energy storage plant testing and CAISO grid synchronization started.
- EDF's Big Beau solar PV will start testing activities synchronization with the CAISO grid in October 2021. Storage system delayed.
- Coso's existing Geothermal project will deliver to SVCE starting on January 1, 2022
- Ormat's Casa Diablo geothermal construction started in August 2021.
- Projects facing delays due to COVID-19, labor shortages and/or supply-chain delivery issues.
- Board approval of Coordinated Operating Agreement with Central Coast Community Energy (3CE) in November 2021.

<https://www.svcleanenergy.org/power-sources/>

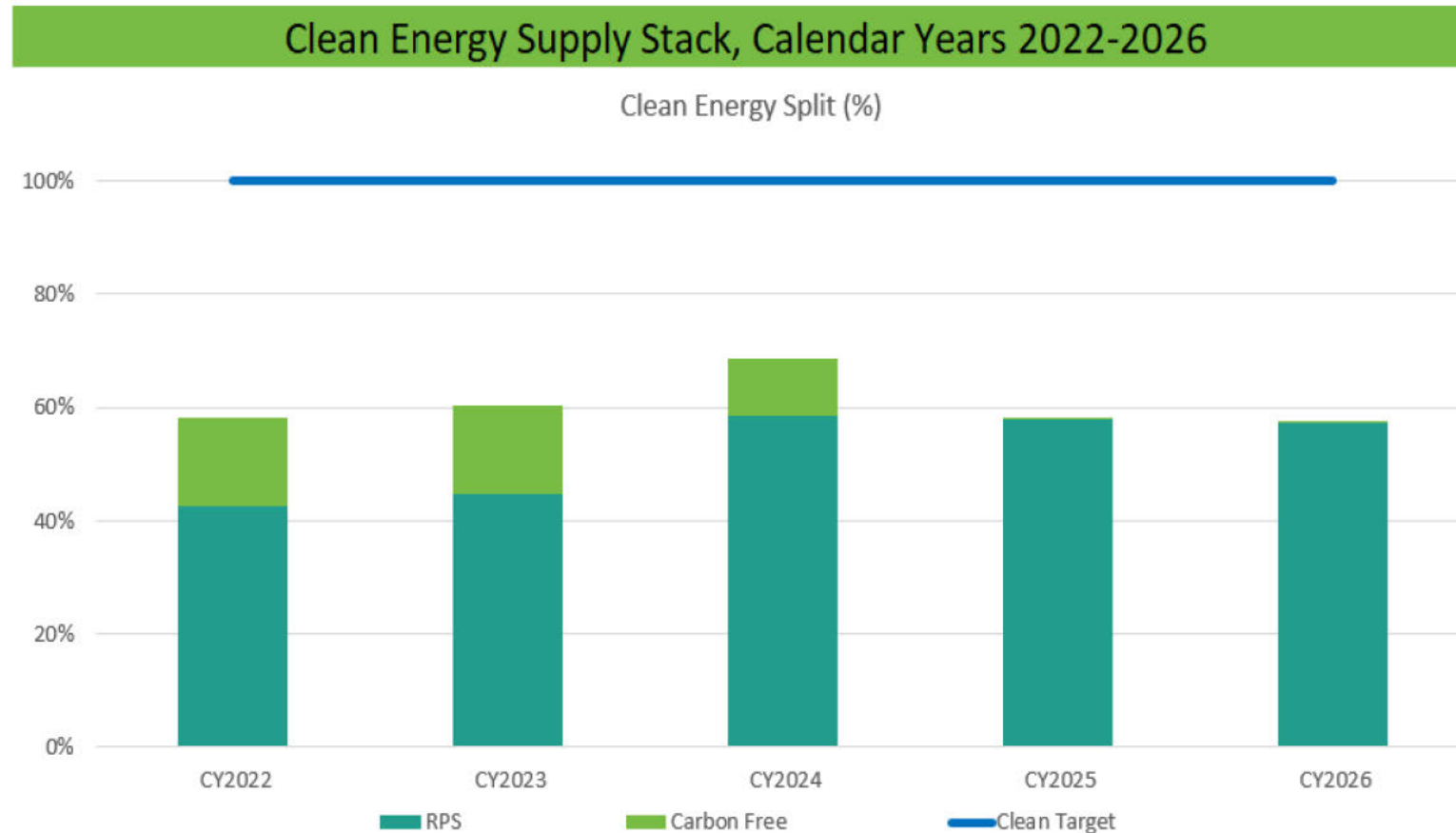


PPA Expected Commercial On-line Dates over the next 9 quarters

| | |
|---------------|--|
| 2021- Q4 | Slate & Big Beau Solar + Storage |
| 2022 – Q1 | Coso & Casa Diablo Geothermal |
| 2022 – Q3 | Rabbitbrush Solar + Storage |
| 2022 – Q4 | Yellow Pine Solar + Storage & Atlas Solar |
| 2023 – Q1 | Mountain View & Cameron Crest Wind |
| 2023 – Q2, Q3 | Angela & Aratina Solar + Storage |
| 2023 – Q3, Q4 | Victory Pass & San Luis West Solar + Storage |

Clean Energy Progress

Carbon-free, non-RPS, resources continue to be in short supply due to dry hydro conditions





Reliability and Resource Adequacy Reform

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

1. Drivers:
 1. RPS – 60% by 2030 and 100% Carbon-free by 2045
 2. Phasing out of natural gas resources
 3. Retirement of Diablo Canyon Nuclear Power Plant
 4. Changes in peak load
2. CEC's Mid-term Reliability Assessment
3. CPUC's Workshops on long-term Resource Adequacy Reform – 2024 & Beyond
4. CAISO's Resource Adequacy Enhancement initiatives
5. CPUC's Integrated Resource Plan – Preferred System Plan
6. Procurement Orders



Multiple Procurement Decisions in last 24 months ... And we're not done

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

| | | |
|---|---|---|
| 2019 | { | • 3,300 MW (online Summer 2021-23) – SVCE's share 67 MW |
| 2021 March | { | • Emergency procurement (online Summer 2021) – IOUs responsible |
| 2021 June (Mid-term Reliability Procurement) | { | • 11,500 MW (online 2023-2026) – SVCE's share 237 MW |
| 2021 TBD | { | • 5,000 MW (online 2022-23) |

Mid-term Reliability Procurement Order

CPUC Orders 11.5 GW of new resources on-line by 2026 to replace Diablo Canyon Power Plant – Mid-term Reliability 2020 IRP (R. 20-05-003)

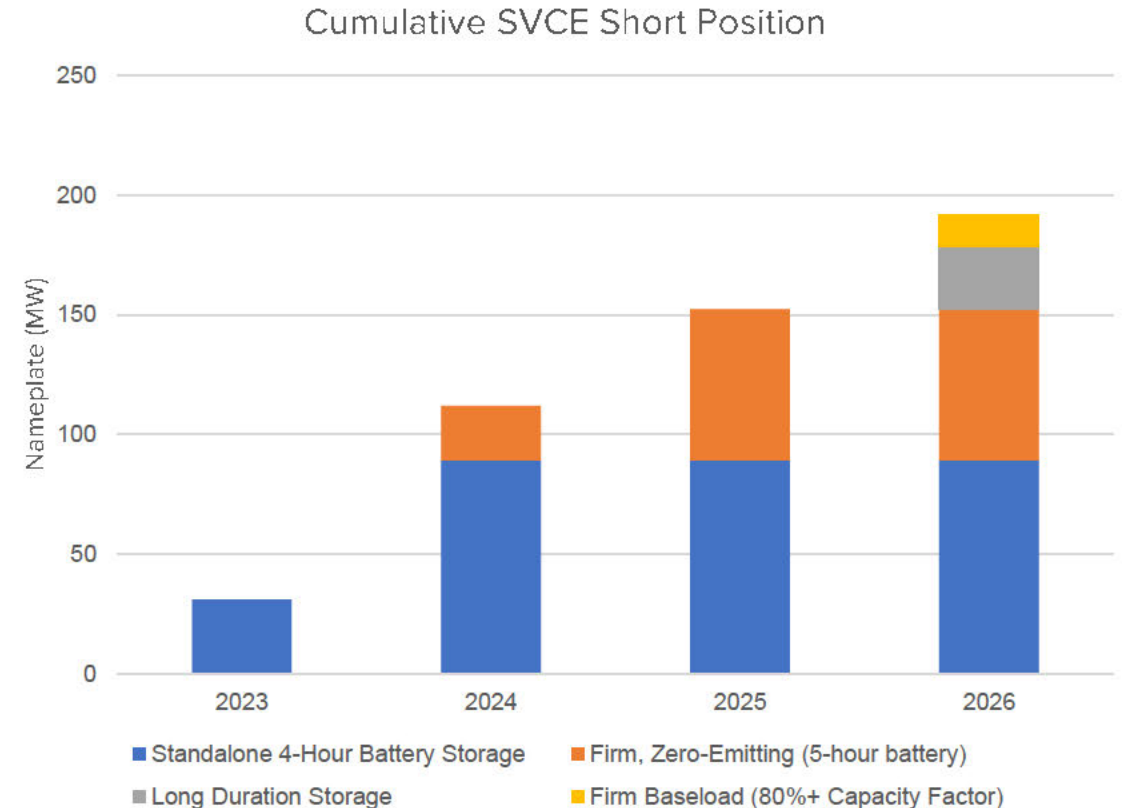
| Procurement Category | 2023 | 2024 | 2025 | 2026* | Total |
|---|--------------|--------------|--------------|--------------|---------------|
| Zero-emissions generation, generation paired with storage, or demand response resources, required <i>by</i> 2025, not necessarily in 2025** | - | - | 2,500 | - | 2,500 |
| Firm zero-emitting resources* | - | - | - | 1,000 | 1,000 |
| Long-duration storage resources* | - | - | - | 1,000 | 1,000 |
| Total annual capacity requirements | 2,000 | 6,000 | 1,500 | 2,000 | 11,500 |



Future Clean Procurement

SVCE's share of 11.5 GW is 237 MW – Open Position 192 MW

1. Long Duration Storage (8-hours)
CC Power RFO – in process
2. Firm Clean Resources – baseload
geothermal/biomass
CC Power RFO Fall 2022
3. Standalone storage (4-hours) &
Solar + Storage (5-hours)
SVCE RFO late 2021 to early 2022



California Community Power

- Formed in February 2021
- 10 CCAs combined buying power
- Advance local and state climate goals
- Represent 3 million customers and more than 145 municipalities
- Procure new, cost-effective clean energy and reliability resources



LDS RFO – Objectives & Requirements

- October 2020 – RFO for up to 500 MW of Long Duration Energy Storage for a subset of CC Power Members
- Procure cost-effective LDS to integrate renewables & support grid reliability
- Joint-procurement to share resources and project risk
- Meet future IRP procurement mandates
- Grid-charged with minimum 8-hour discharge duration
- CAISO resource or Import with dynamic transfer rights
- Meet Resource Adequacy requirements
- COD no later than June 1, 2026
- Minimum delivery term 10 years
- 50 MW minimum

[Press Release](#) & [Fact Sheet](#)



ENERGY STORAGE

The First Major Long-Duration Storage Procurement Has Arrived

California's community-choice aggregators are moving ahead of the traditional utilities.

JULIAN SPECTOR | OCTOBER 16, 2020



Pumped hydro will compete with newfangled technologies to supply 500 megawatts to California communities.

54

(X)

LDS RFO Status

Evaluation, Ranking, Shortlisting & Negotiations

Offers: Over 220, 9,000 MW, 8 technology types

Round 1 Evaluation: 98 unique Conforming offers evaluated – economics, location, technology, environmental, developer

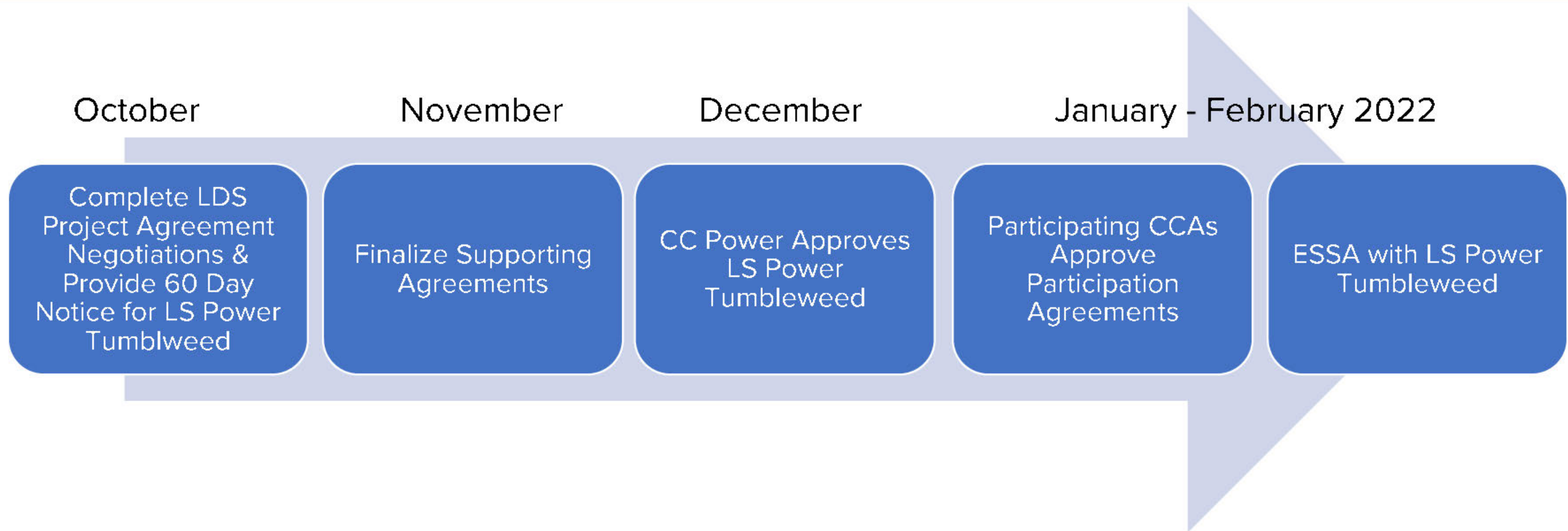
Round 2 Evaluation: Top 17 projects, deep evaluation of economics, risk and interconnection. Follow-up interviews with Emerging Technology developers

Shortlisting: 6 Projects (4 L-ion and 2 emerging technology)

Negotiations: June 2021 started negotiating Energy Storage Service Agreements (ESSAs)

| Technology |
|--|
| Battery aqueous-air flow lithium-ion zinc |
| Chemical Flow iron redox flow vanadium flow |
| Compressed Air |
| Fuel Cell – Hydrogen |
| Hybrid hydrogen, combined-cycle gas gen li-ion, combined-cycle gas gen |
| Mechanical – Gravity |
| Pumped Hydro |
| Thermal ice (HVAC) liquid air molten Salt molten Salt & Gas gen volcanic stone water heat exchange |

CC Power – LDS Project #1 Approval Process



Process will be repeated for additional LDS Project Agreements – condition on negotiations and interest from other CCAs

SVCE Approval Process for LDS Project #1

1

September 2021 - Risk Oversight Committee Review of RFO Process, Agreements and Approval Process

2

October 2021 – Risk Oversight Committee Review of LS Power Tumbleweed (LDS Project #1)

3

November 2021 – Obtain input from the Executive Committee related to CEO vote at CC Power Board meeting in December on LS Power Tumbleweed approval

4

December 2021 – Seek Board approval of LS Power Tumbleweed Agreements – condition on CC Power approving

Summary & Next Steps

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

- Projected Power Supply Costs reflect increased cost due to reliability, hydro and scarcity of resources.
- Resource Adequacy reform produces planning and procurement challenges.
- More procurement orders to come
- Next Steps:
 - Now – February 2022: LDS Procurement via CC Power
 - Q4 '21: RFO for Firm Clean Resource Procurement via CC Power
 - Q1 '22: RFO for Stand-alone storage and additional Solar plus Storage
 - 2022 Integrated Resource Plan

THANK YOU!

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