



Executive Committee Meeting

October 12, 2021



Agenda

- Call to Order / Roll Call
- Public Comment (for items not on the Agenda)
- Action to set the Agenda and Approve Consent Items
 - Consent Public Comment

Chair Report

Executive Committee

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CEO Report

Executive Committee

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Open Positions

- ** Account Services Specialist / Analyst
- ** Building Electrification Program Manager

Los Banos Community Outreach position has been filled!

Board Subcommittees

Delivering 100% Renewables on a 24/7 Basis by 2025 Subcommittee	Procurement Subcommittee	Accelerating Decarb by 2035 Subcommittee	CC Power LDS Subcommittee
Jeff Aalfs (EC)	Carlos Romero – (A&FC)	Jeff Aalfs (EC)	
Rick Bonilla (EC)	Rick Bonilla – (EC)	Betsy Nash	
Rick DeGolia (EC)	Rick DeGolia – (EC)	Rick DeGolia (EC)	
Donna Colson (EC)	Dave Pine – (EC)	Dave Pine (EC)	
Flor Nicolas		Laura Parmer-Lohan (EC)	
Tygarjas Bigstyck			
Pradeep Gupta (DE)	Pradeep Gupta (DE)		
John Keener (DE)	John Keener (DE)		

DEAI Subcommittee Recommendation for Consultant

RFO issued: May 4, 2021

Proposals received:

Finalists: 3

DEAI Subcommittee and PCE staff interviewed finalists

Additional questions posed to finalists

Consensus reached on top consultant – last week

Recommendation to full board at October board meeting



Update on California Community Power (CC Power) Long Duration Storage Project (Discussion)

Executive Committee

October 12, 2021

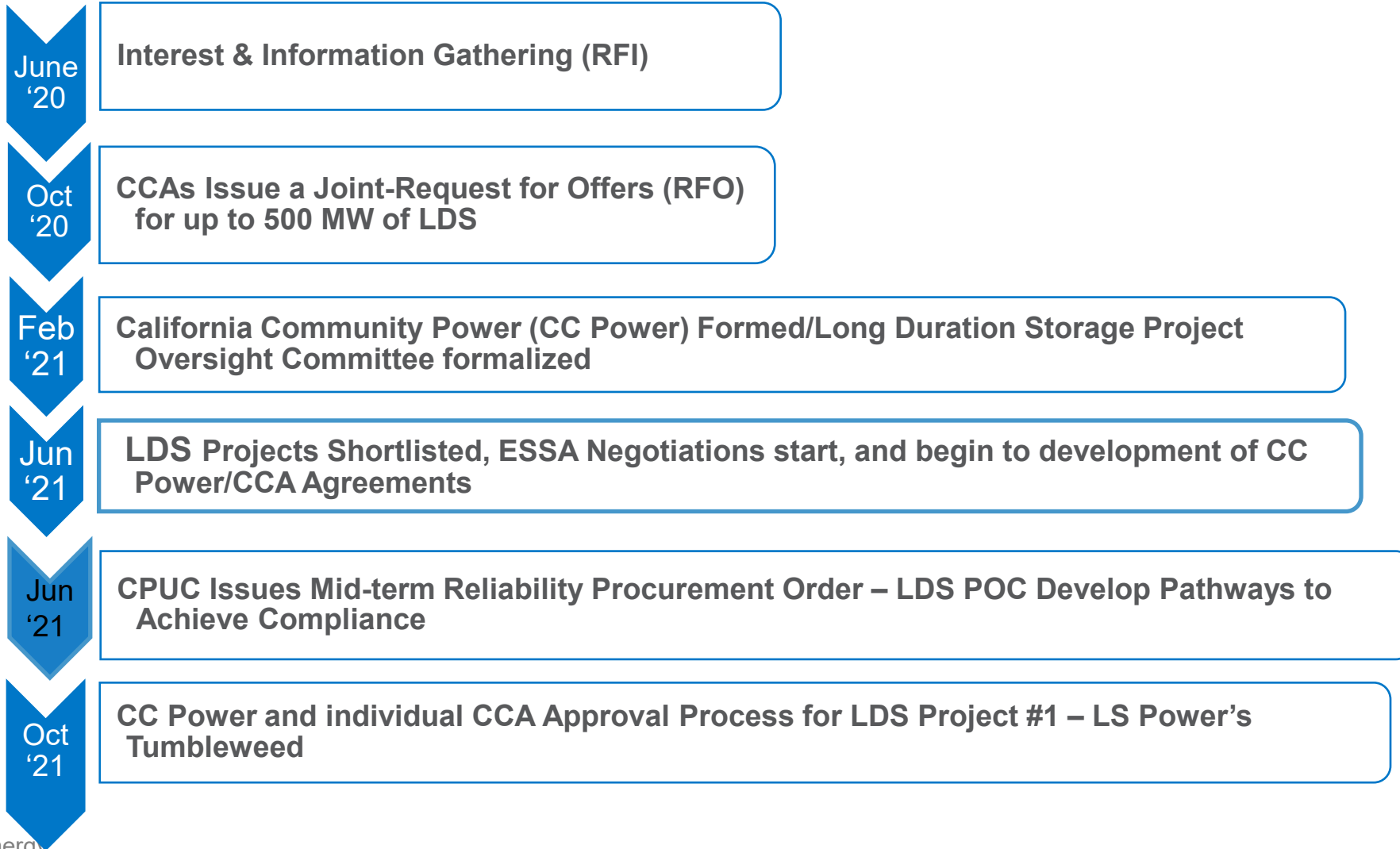
Item 5

Siobhan Doherty, Director of Power Resources

Objective

- Provide background on RFO, evaluation, shortlisting and negotiation process to support approval of an Energy Storage Service Agreement, and ancillary agreements with, LS Power for Tumbleweed Long Duration Energy Storage at a future Board meeting

RFO Background and Timeline



RFO Timeline

Activity	Original Date
Issuance of RFO	October 15, 2020
Offerors Webinar	October 28, 2020
Offer Submission Deadline	December 1, 2020
Project Shortlisting	Mid-May 2021
Developer/Buyer Negotiations	June – October 2021
CC Power 60-day Notice for Contract Approval	October 2021
CC Power Final Contract Approval (Tentative)	December 2021
Individual CCA Board Approval	December 2021 – February 2022

RFO Objectives & Requirements

Objectives

- Procure cost-effective LDS to integrate renewables & support grid reliability
- Joint-procurement to share resources and project risk
- Meet future potential IRP procurement mandates
- Technology and location agnostic with desire to evaluate emerging technologies
- Full tolls – for capacity and energy value

Requirements

- CAISO resource or Import with dynamic transfer rights
- Must be able to qualify for Resource Adequacy
- Grid-charged with minimum 8-hour discharge duration
- COD no later than June 1, 2026
- Minimum delivery term 10 years
- 50 MW minimum
- Complete bid submission

Offers

- Projects on-line as early as 2023
- 51 Entities submitted offers (over 9,000 MW)
- Total of 221 unique pricing offers
 - 160 Full Toll Offers
 - 57 RA Only Offers
- 8 Technology types
 - 18 distinct technologies
- 8,10,12-hour, and multi-day discharge durations

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

Primary Offers

- Identified 98 primary offers out of the initial list of 221
- Primary offers were chosen based on the following principles:
 - Conforming offers only
 - Lowest price
 - Shortest delivery term (10-15 years)

Evaluation Process



Conforming Y/N and shorten list to 98 offers

Review each offer and determine if it meets minimum criteria



Round 1

Evaluate and Score Projects based on 100-point scoring rubric

Quantitative and Qualitative Assessment of individual projects based on NPV, Risk, Developer experience, Technology, Environmental Impact, and Delivery Term



Round 2

Rank Projects and Identify Top Candidates for Further Analysis

Top Projects per Technology and Max of 10 -17 will undergo further Quantitative and Qualitative Assessment



Shortlist

Project Oversight Committee Recommendation

Two levels of Projects recommended for Shortlisting & Negotiations to CC Power

Two-Round Evaluation Process

- 98 Primary offers were chosen based on the following principles:
 - Conforming offers only
 - Lowest price
 - Shortest delivery term (10-15 years)

Round One

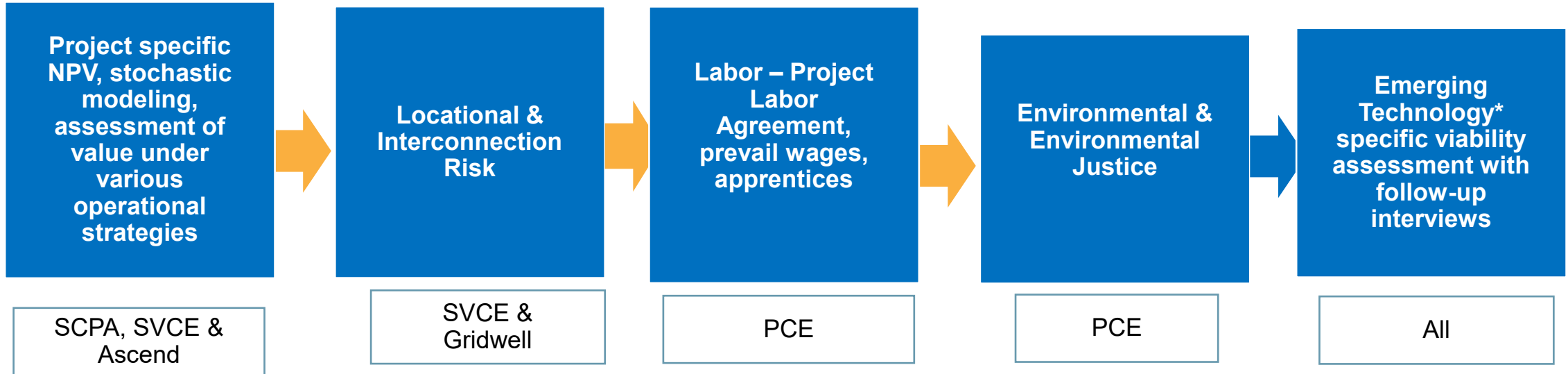


All Primary Offers were scored and ranked. Top 17 moved to Round 2

Lithium-Ion v. Emerging Technologies

- The top 10 projects were the highest scores (all li-ion).
- The remaining 7 spots were allocated to the highest scoring non li-ion projects.
 - The decision to include non li-ion and classify as “emerging technologies” was to introduce technology diversity to the potential shortlist.
 - 56 out of the 98 primary offers represented li-ion

Round 2 Evaluation Process



*Emerging technologies defined as non-Li-Ion including 2nd life EV, Gravity, Hydrogen, Liquid Air, Compressed Air, Iron Redox Flow, and Pumped Storage Hydro

Project Value

1. Cost were assumed fixed, with the exception of projects with a variable operating component
2. Expected value ranged from negative to marginally positive
3. Value highly variable and uncertain over time
 1. Location matters
 2. dependent on and how the storage is operated (day ahead vs. real time)
 3. A/S value expected to decrease over time
4. Resource Adequacy value (avoided cost) is dependent on regulatory structure

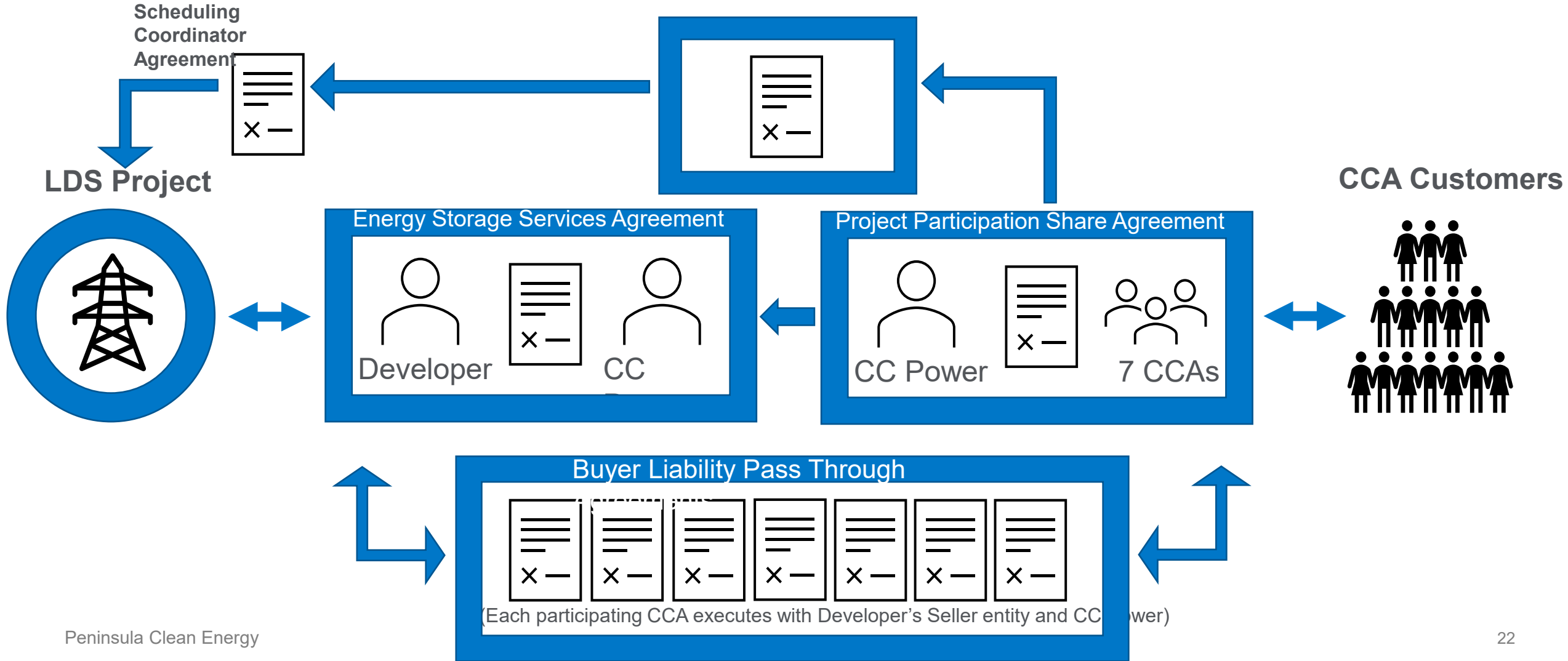
Shortlisting

- Based on updates during round 2, the POC agreed upon a two-tier shortlist.
 - Tier 1 – Offers that scored the highest and received the most confidence in delivering a long duration storage product.
 - Tier 2 – Offers that require more information for CC Power negotiating team to commit to executing a contract.
- The two-tiered approach also provides additional capacity to deal with projects dropping
- Focus of negotiations on Tier 1 Projects
- CC Power General Manager finalized Shortlist

Negotiation Team & Agreements

- Confirmation and refinement of Term Sheet Offer
 - Led to dropping a couple of projects
- Exclusivity Agreements between CC Power & Seller/Developer
- Energy Storage Service Agreement Proforma development
- Credit/Collateral Requirements
- Project Participation Share Agreement
- Operating Agreement
- Pathways – Need based on CPUC requirements, project size and CCA member interest in moving forward and specific projects

Contract Structure



Participating CCAs

- 7 CCAs agreed to move forward with joint LDS procurement



Mid-Term Reliability Decision (2023 – 2026)

- D.21-06-035 adopted by CPUC on June 24, 2021 to address mid-term reliability needs
- LSEs required to collectively procure 11,500 MW NQC of new resources
- Follow-on to November 7, 2019 CPUC decision mandating 3,300 MW NQC procurement for 2021-2023 to maintain reliability
- Contract of at least 10 years
- Allocated to LSEs by load share
- Resources must be zero-emission or RPS eligible (no fossil resources)
- 4,500 MW of obligation subject to specific category requirements (next slide)

Procurement Timing

- Timing of overall procurement requirement and specific categories is assigned in tranches between 2023 and 2026

Procurement Obligation in NQC¹ MW for All LSEs by Category and Year

Procurement Category	2023	2024	2025	2026	Total
Zero-emissions generation, generation paired with storage, or demand response resources ²	-	-	2,500	-	2,500
Firm zero-emitting resources ³	-	-	-	1,000	1,000
Long-duration storage resources ³	-	-	-	1,000	1,000
Remaining New Capacity Required			-	-	7,000
<i>Total Annual Capacity Requirements</i>	2,000	6,000	1,500	2,000	11,500

1. *Obligation is in NQC MW (not nameplate) and subject to ELCC factor (next slide)*
2. *Zero-emissions resources required to replace Diablo Canyon must be procured by 2025, but may occur in any of the years 2023-2025; therefore, the columns do not add to the total.*
3. *LSEs may request an extension by February 1, 2023 up to 2028 for the LLT resources. Minimum 8-hour discharge*

Peninsula Clean Energy Allocation

- Volumes allocated to LSEs based on load share
- Some portion of category 1 would need to come online prior to 2025 to meet targets below

Procurement Category	2023	2024	2025	2026	Total
Zero-emissions generation, generation paired with storage, or demand response resources ¹	-	-	47	-	47
Firm zero-emitting resources ²	-	-	-	19	19
Long-duration storage resources ²	-	-	-	19	19
Remaining New Capacity Required	-	-	-	-	132
Total Annual Capacity Requirements	38	113	28	38	217

1. Zero-emissions resources required to replace Diablo Canyon must be procured by 2025, but may occur in any of the years 2023-2025; therefore, the columns do not add to the total.
2. LSEs may request an extension by February 1, 2023 up to 2028 for the LLT resources

Description of Categories

- Zero-emissions resources –
 - Generating resource or generating resource paired with storage
 - No on-site emissions or be considered RPS eligible
 - Continuous power during five hours from 5 PM through 10 PM
 - *Expected qualifying resources: solar paired with storage, wind paired with storage*
- Firm, zero-emitting resources –
 - A generating facility with a
 - Capacity factor of at least 80% and have
 - No on-site emissions or be considered RPS eligible
 - Cannot have use restrictions,
 - Cannot be weather dependent,
 - *Expected qualifying resources: geothermal, biomass, biogas*
- Long-duration storage – Must have duration of 8 hours or more

Effective Load Carrying Capacity Factors

- CPUC released an ELCC study in September 2021 to convert facility nameplate to Net Qualifying Capacity (“NQC”)
- 2025 and 2026 figures are indicative and will be finalized by end of 2022

Incremental ELCCs for Storage Resources

Procurement Category	2023	2024	2025 <i>Indicative</i>	2026 <i>Indicative</i>
4-Hour Battery	96.3%	90.7%	74.2%	69.0%
6-Hour Battery	98.0%	93.4%	79.6%	75.1%
8-Hour Battery	98.2%	94.3%	82.2%	78.2%
8-Hour Pumped Storage Hydro				76.8%
12-Hour Pumped Storage Hydro				80.8%

LDS Obligation for Participating CCAs

- Long Duration Storage requirement in NQC MW and converted to nameplate using the available 2024 and 2026 ELCCs

CCA	NQC MW	Nameplate MW (2024 ELCC)	Nameplate MW (2026 ELCC)
CleanPowerSF	15.5	16.4	19.8
Peninsula Clean Energy	19.0	20.1	24.3
Redwood Coast Energy	3.5	3.7	4.5
San Jose Clean Energy	21.5	22.8	27.5
Silicon Valley Clean Energy	20.5	21.7	26.2
Sonoma Clean Power	12.5	13.3	16.0
Valley Clean Energy	4.0	4.2	5.1
Total	96.5	102.3	123.4

Obligation is
less than sought through RFO

LDS Project #1

- **Project – LS Power’s Tumbleweed**
- **Product - 69 MW/552 MWh – Tolling Agreement**
- **Location – Rosamond, Kern County**
- **Technology –Li-ion**
- **Interconnection Status - PCDS**
- **COD – 7/1/24**
- **Discharge Duration – 8 hours**
- **Price - fixed \$/kw-mo**
- **Term – 15 years**



Tumbleweed Shares per CCA

- Expected capacity share per CCA is based on a pro rata share of CPUC's Mid-term Reliability Procurement Order

Participating CCA	MTR Procurement Capacity Order LDS MW	% of MTR Requirement	Tumbleweed Allocation MW
CPSF	15.5	16%	11.1
PCE	19	20%	13.6
RCEA	3.5	4%	2.5
SJCE	21.5	22%	15.4
SVCE	20.5	21%	14.7
SCPA	12.5	13%	8.9
VCE	4	4%	2.9
Total	96.5		69.0

- Participating CCAs will seek authority to take a maximum capacity to cover:
 - Increased capacity should a CCA not obtain approval to move forward
 - Step-up capacity of up to 25% of contracted capacity

CC Power Tumbleweed Approval Process

Step 1: CC Power Board issues 60-day notice to consider ESSA for approval in December - Today

Step 2: CC Power Board approves ESSA, PPSA, BLPTA & Operating Agreement condition on individual CCA Approval

Step 3: CCAs seek respective Board Approvals of PPSA, BLPTA and Operating Agreement ✓

Step 4: Tumbleweed Agreements become effective



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

Peninsula Clean Energy Approval Process

Date	Event	
10/12	October Executive Committee	Provide background
October TBD	LDS Subcommittee	Deeper dive on project and contract
10/28	October Board Meeting	Provide Board with background on project
11/8	November Executive Committee	Provide any updates
11/18	November Board Meeting	Vote on CC Power participation Vote on Peninsula Clean Energy participation
12/16	December Board Meeting	Report back on status of CC Power vote

Summary

1. Tumbleweed NPV to participating CCAs is highly uncertain
2. Procurement of Long Duration Storage (8-hours or more) is mandated through MTR order
3. LS Power's Tumbleweed project will meet 56 to 68 percent of participating members MTR obligation
4. Tumbleweed COD is 2024, which may provide for a greater ELCC (94.3%) than 2026 COD (78.2%). Seeking CPUC clarification
5. Seeking provisions for prevailing wages, a PLA and prohibition of forced labor.



Update on California Community Power (CC Power) Labor and Environmental Policy (Discussion)

Executive Committee

October 12, 2021

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Committee Members' Reports

Executive Committee

October 12, 2021

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