Summer Reliability Update

2/15/2022

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Data presented herein is based on the best available information. CPUC staff are regularly working to refine and update this procurement data based on information from a variety of sources.

Energy Resource Development - *Expected as of Jan 2022*

New Resources (MW NQC) Expected - Oct 1, 2021-Sept. 30, 2022		
Resource Type	**Number of Projects Expected**	**MW NQC (Sept) Expected**
Biogas	2	2
Biomass	8	9
Geothermal	2	13
Hybrid solar PV + storage	13	478
Solar PV	19	92
Storage	43	2,677
Wind	6	62
Wind/import	8	0
TOTALS	**101**	**3,333 MW NQC**

Note: CPUC Staff estimates, January 2022. Subject to change.

- Staff expects this to be the outer range of new resources for 2022 that could reach commercial operation in time for summer. If realized, exceeds procurement order requirements. However, these figures support CEC's Updated Summer 2022 stack analysis (released in Jan. 22)
- These are estimates are for all new resources expected to reach commercial operation between Oct. 1, 2021, and Sept. 1, 2022, to serve reliability in Summer 2022, including at new peak 4-9 PM.
- These figures do include "Summer 2022 Reliability" projects expressly signed by IOUs to attempt to provide a higher PRM in 2022 and 2023. (Namely: SCE UOS 3 projects for 538 MW w/o NQC, PG&E 3rd Party Storage Arlington, Pomona, Sonoran 270 MW NQC, SCE 3° Party Storage Desert Sunlight 230 MW Nameplate/195 MW NQC, SDG&E 3rd Party Sagebrush 80 MW NQC)
- These figures do NOT include contract modifications to existing resources or "Summer 2022 Contingency Resources" such as Emergency Load Reduction Program (ELRP), EE/SGIP/Smart Thermostat programs/expansions, etc. which support summer reliability.

Energy Resource Development – See Summer Snapshot

SUMMER RELIABILITY SNAPSHOT - April 4, 2022

HOW TO READ THIS TABLE	Below are estimates for all resources expected to come online **between Oct. 1, 2021 and Sept. 30, 2022** to serve reliability in Summer 2022, including at new peak 4-9 PM. **Bucket 1** shows new supply resources (both RA and non-RA eligible) authorized in all CPUC proceedings (e.g., IRP, Summer Reliability, RPS, storage mandate, etc.) **Bucket 2** shows contingency resources authorized in the Summer Reliability proceeding. Both resource buckets contribute to reliability and may count toward the IOUs' effective PRM target of 22.5% Bucket 1 resources expected by Sept. 30, 2023 are also shown on the final table.

SUMMARY OF PROGRESS TOWARD SUMMER '22 TARGET

Bucket	Expected MW	Online MW	Remaining MW	*+ online since last report*
1. New Supply	2,741	1,083	1,658	
2. Contingency	820	389	431	
TOTALS	**3,561**	**1,472**	**2,089**	*+25 MW*

Bucket 1: New Supply Resources

New Supply Resources (MW NQC Sept) Expected by Sept. 30, 2022

Resource Type	No. Projects Expected	Expected MW NQC (Sept)	Online MW NQC (Sept)	Remaining MW NQC (Sept)	
biogas	3	3	2	1	
biomass	4	8	0	8	
geothermal	2	14	0	14	
solar	17	136	56	79	
solar + storage	19	547	308	239	
storage	39	1,952	649	1,303	
wind	15	82	67	15	
TOTALS	**99**	**2,741**	**1,083**	**1,658**	*+25 MW*

Energy Resources Development - *Key Issues*

CPUC Staff are tracking the key issues that come up for projects that are expected for reliability in 2022/2023, including but not limited to:

Supply Chain Issues – Most common refrain from developers/LSEs about root cause for project delay is supply chain issues, either product availability or slow shipping times.

Contracting - CPUC is tracking LSE contracting which appears to be robust for 2022 and 2023. Some LSEs expressing concern about sufficient resources that can promise 2024 online dates (and large IRP procurement requirements for 2024).

Permitting – Some jurisdictions are facing large # of storage projects, CPUC has been referring storage permitting ?s to CEC for tracking and expert assistance (if needed), but no widescale roadblocks reported.

Transmission – CAISO hosted inaugural Transmission Development Forum on 1/21/22 to help provide transparency to status of transmission projects that may be generator dependencies (will occur quarterly).

Interconnection – The perennial issue, but currently only a handful of projects have identified they need urgent acceleration of interconnection responsiveness from utilities we have been escalating on a case by case basis. Developing a plan for comprehensive outreach to utilities on all pending projects.

Construction – Labor Supply has not been raised as a near term issue but may be more of an issue in long term.

Tracking Energy Development (TED) Task Force

What is the TED Task Force? Joint Effort of **CPUC, CEC, CAISO and Governor's Office of Business and Economic Development (GO-Biz)** to track new energy projects under development.

Objective: Build on success of ad hoc 2021 efforts to **Provide project development support, as appropriate.**

Identify Barriers and Coordinate Action: Convenes to **identify barriers and mitigation strategies** to accelerate energy project development

Current Priority: **Current priority is on Near-Term** Projects (~190 contracted projects needed for summer reliability in 2022 and 2023); Possibly can expand priority to beyond 2023 as needed.

Contact Information: CPUC/Molly Sterkel (mts@cpuc.ca.gov) and Naveed Paydar (Naveed.paydar@cpuc.ca.gov).

TED Task Force Workflow

- ❖ Establish Project Tracker of energy projects in development
- ❖ Identify subset of projects added to a Project Watchlist, i.e. projects that might need assistance
- ❖ Conduct intake on general or project specific issues from load serving entities or developers or others (trade groups)
- ❖ Convene regularly to review Watchlist projects, identify priorities, coordinate mitigation efforts, and task out various interventions based on expertise (land use, permitting, interconnection, transmission, etc.)
- ❖ Communicate barriers to stakeholders
- ❖ Track progress on energy development

New Energy Resource Procurement - *Ordered vs. Online vs. In-Contract*

Takeaways -

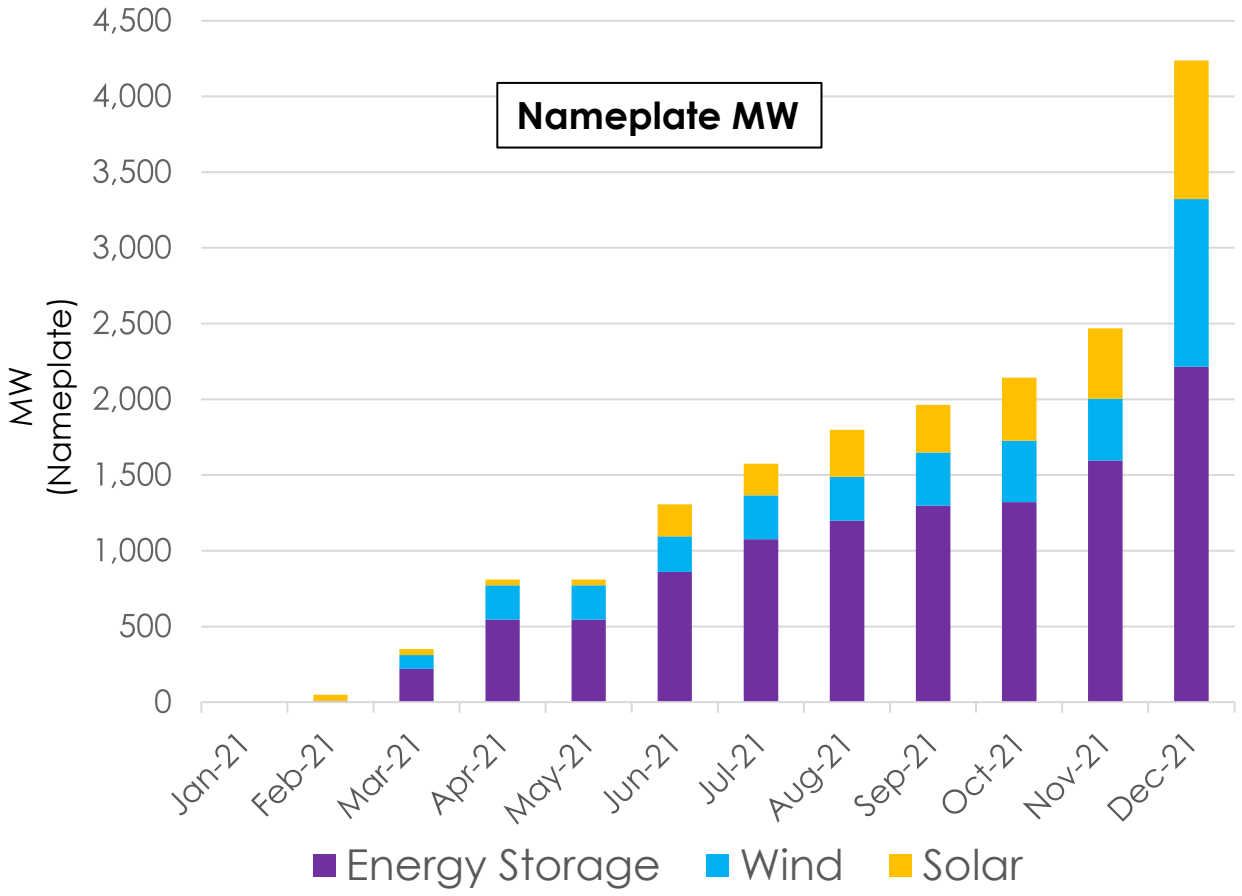
- Collectively, LSEs appear on track – or slightly ahead of schedule for new resources.
- Close attention required in coming years to ensure that ~40 LSEs bring online hundreds of new projects.
- LSEs have ~190 contracts in place for 2022 and 2023 projects, for over 5,000 MW NQC – ***all new clean resources***.

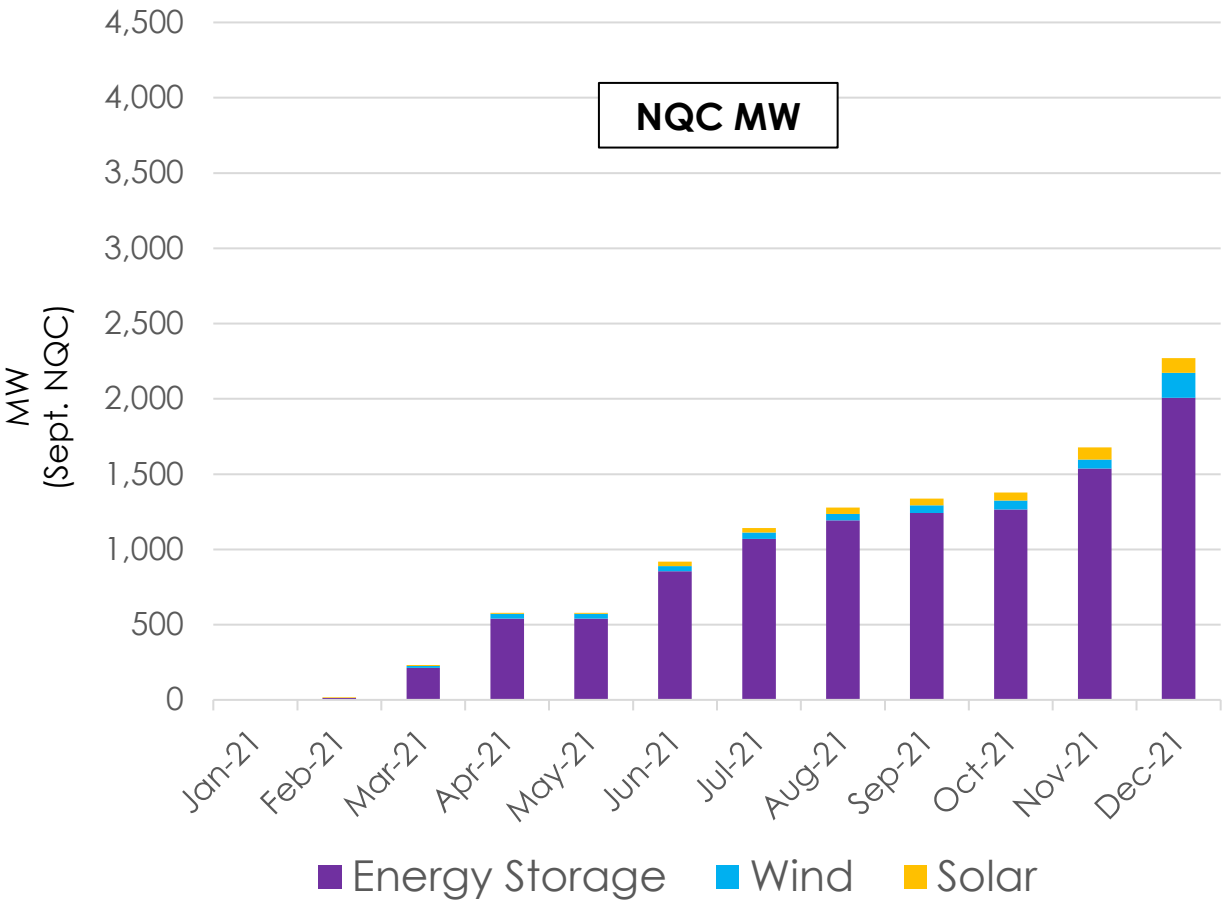
	CPUC Orders	2021	2022	2023	2024	2025	2026	Total (MW)
2	**IRP Procurement Order, "Near-Term" D.19-11-016 -** Applies to 25 LSEs. Allowed opt-outs: 18 of 43 LSEs opted out, Status Update	1,650 MW NQC by Aug 1	825 MW NQC by Aug 1	825 MW NQC by Aug 1	0	0	0	**3,300 MW NQC**
3	**IRP Procurement Order, "Mid-Term" D.21-06-035 -** Applies to all jurisdictional LSEs. No opt-outs allowed. **11,500 MW NQC** Press Release, Fact Sheet	n/a	n/a	2,000 MW NQC by Aug 1	6,000 MW NQC by June 1	1,500 MW NQC by June 1	2,000 MW NQC by June 1	**11,500 MW NQC**
4	**Total Ordered NEW RESOURCES, Cumulative**	***1,650 MW NQC***	***2,475 MW NQC***	***5,300 MW NQC***	***11,300 MW NQC***	***12,800 MW NQC***	***14,800 NQC***	***14,800 MW NQC***
5	**Online**	~2,650 MW NQC (2,270 MW NQC in the calendar year)						~2,650 MW NQC **online**
6	**Resources Expected (Under Contract) by Year**		3,350 MW NQC	2,000 MW NQC	LSEs have or will contract for additional ~6,800 MW NQC			5,350 MW NQC **contracted**
7	**Online or In-Contract, NEW RESOURCES, Cumulative**	***2,650 MW NQC (18% of total)***	***6,000 MW NQC (40% of total)***	***8,000 MW NQC (54% of total)***	***TBD***	***TBD***	***TBD***	***~8,000 MW online or in-contract***

Data available as of January 2022

Energy Resource Availability – *Online Dates by Month*

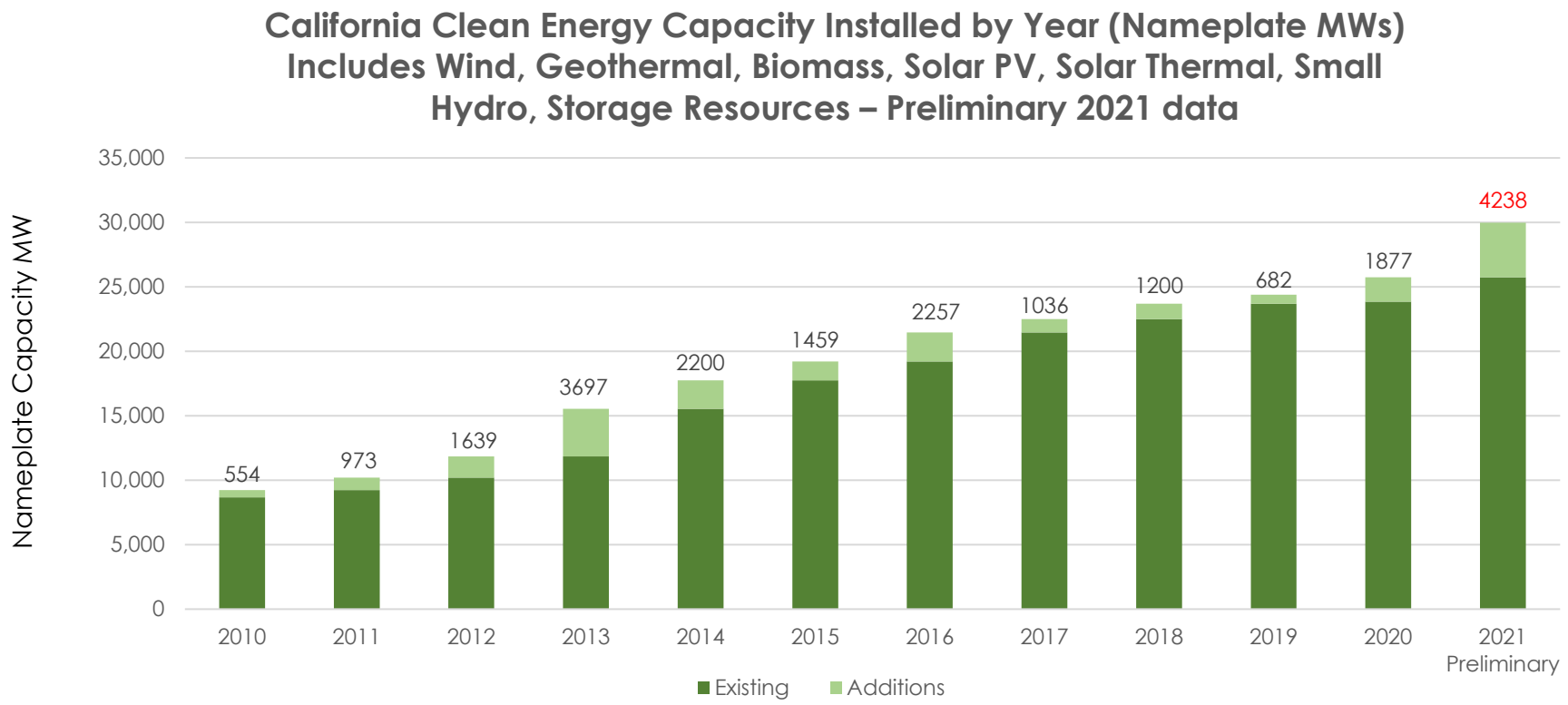
Figures: New Resources Online by Month in 2021, Technology Type, Cumulative, Nameplate MW vs. NQC MW





Data available as of January 2022

Energy Resource Availability – *New Clean Energy Capacity*



More clean energy developed for California in 2021 than any other year in the last ten years!

CPUC estimates that the cumulative 30K MW of installed clean energy nameplate capacity translates to approx. 7K MW NQC – nearly 25% of which was added in just 2021 with the addition of large amounts of new storage capacity.

Sources: California's Installed Capacity Data from 2001-2020 available at California Energy Commission. Includes CAISO and Non-CAISO Totals.
https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/electric-generation-capacity-and-energy
Only Preliminary Data from 2021. CPUC Compiled CAISO Additions (The 4,238 MW new nameplate includes 880 MW nameplate of specified clean imports for 2021 but does not include non-CAISO new installs in 2021.)

Data available as of January 2022

California Public Utilities Commission

www.cpuc.ca.gov

Energy Resource Availability

California brought more energy storage capacity online in 2021 than in any other year in history!

Table: New Resources Online in CAISO in 2021 (MW, Technology Type)

Technology Type	Net Qualifying Capacity (NQC) MW	Nameplate Capacity (MW)	Number of Projects	Resource Type
STORAGE	2,007	2,215	33	CAISO + 180 MW NQC Imports
SOLAR	99	916	10	CAISO
WIND	165	1,107	18	CAISO + 105 MW NQC Imports (700 MW Nameplate Imports)
Total New Resources	**2,271 NQC MW**	**4,238 Nameplate MW**	**61 projects**	**CAISO + IMPORTS**

Note: NQC MWs = September NQC values

How did Actuals meet Expectations in 2021?

Fairly close. CPUC staff released Status of New Resources Expected in Nov. 2020 estimating *2,388 new NQC MW* of new resources (equivalent to *4,315 Nameplate MWs* from 62 projects) to come online by Aug. 2021, relative to Nov. 2020.

Data available as of January 2022