



California ISO



November 9, 2021

The Honorable Chris Holden
Chair, Assembly Committee on Utilities and Energy
State Capitol Building
Sacramento, CA 95814

Dear Chair Holden:

Following the October 2020 oversight hearing, you requested monthly reports on electric grid preparedness and reliability measures that were being taken for the summer of 2021. Over the last year, the California Public Utilities Commission (CPUC), California Energy Commission (CEC) and California Independent System Operator (CAISO) have jointly collaborated to develop and submit these reports to you and the Assembly Utilities and Energy (AU&E) committee. We have welcomed this opportunity to demonstrate how we have each planned and acted on various fronts to bolster electric grid preparedness and ensure electric service reliability for summer 2021.

While this past summer challenged our electric grid with numerous extreme heat waves, devastating wildfires and unexpected energy resource outages, we were able to avoid planned rotating outages. Despite the avoidance of such events, the energy organizations remain focused and committed to ensuring our electric grid can withstand these challenges and others that are particularly exacerbated by a changing climate during the summer months. Our organizations are fixated on planning for summer 2022 and beyond, and we are actively moving forward with additional actions to not only maintain near-term and summer electric grid reliability, but also ensure our state is on track to achieve its ambitious greenhouse gas reduction and clean energy deployment goals.

With that, we provide you with this monthly report on actions our respective organizations have taken since the August 2020 extreme heat wave and planned rotating outages. The actions summarized include those the CPUC, CEC and CAISO have taken since our last monthly report submitted to you on October 8, 2021. We thank you, again, for the opportunity to provide this report. If you or committee staff have any questions, please do not hesitate to contact any of our respective government affairs representatives: Grant Mack

(Grant.Mack@cpuc.ca.gov), Anna Ferrera (Anna.Ferrera@energy.ca.gov), or Quentin Foster (QFoster@caiso.com).

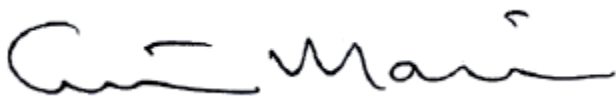
Sincerely,

A handwritten signature in blue ink that reads "Marybel Batjer". The signature is fluid and cursive, with the first name being more prominent.

Marybel Batjer
President, California Public Utilities Commission

A handwritten signature in black ink that reads "David Hochschild". The signature is cursive and somewhat stylized, with a large initial "D".

David Hochschild
Chair, California Energy Commission

A handwritten signature in black ink that reads "Elliot Mainzer". The signature is cursive and flows across the line, with a large initial "E".

Elliot Mainzer
President & Chief Executive Officer, California Independent System Operator

Combined Energy Resource Planning & Procurement Actions November 2021

Responsible Entity	Actions	Milestone(s)	Status
CPUC	<p>Emergency Reliability Rulemaking (R.20-11-003). This proceeding was initiated to establish policies, processes, and rules to ensure reliable electric service in California in the event of an extreme weather event in 2021.</p> <ul style="list-style-type: none"> ▪ In a February 11, 2021, Decision (D.21-02-028), the CPUC directed the state's three large electric investor-owned utilities (IOUs) to seek contracts for additional supply-side capacity. The electric IOUs filed Advice Letters seeking approval for approximately 564 MW by summer 2021. The CPUC approved those contracts on March 18, 2021. ▪ On March 25, 2021, the CPUC approved and directed (D.21-03-056) the electric IOUs to take multiple actions to avert the potential need for rotating outages in the summers of 2021 and 2022, including launching a new statewide Emergency Load Reduction Program (ELRP) pilot, modifying the electric IOUs' existing demand response and Critical Peak Pricing programs, funding a new statewide Flex Alert paid-media campaign, and authorizing additional capacity procurement to meet an increased planning reserve margin of 17.5 percent. The CPUC adopted clarifying guidance regarding the ELRP day-of trigger in a June 24, 2021, Decision. • A new Scoping Ruling was released on August 10, 2021, focused on Summer 2022 and 2023 reliability needs to be considered in Phase 2 of this proceeding. On August 11 and 16, 2021, respectively, an Administrative Law Judge (ALJ) Ruling issuing Party Proposal Guidance and ALJ Ruling issuing Staff Concept Paper were issued seeking party proposals on strategies and approaches for ensuring Summer readiness in 2022 and 2023. 	<p>Approve electric IOU Advice Letters in mid-March 2021</p> <p>CPUC vote on Proposed Decision on March 25, 2021</p> <p>IOU procurement and program implementation</p> <p>Proposed Decision on new proposals to ensure Summer reliability in 2022 and 2023</p>	<p>Completed</p> <p>Completed</p> <p>In progress</p> <p>Issued October 29, 2021</p>

	<ul style="list-style-type: none"> On October 29, 2021, a proposed decision (with Attachments 1 and 2) was issued directing the IOUs to take multiple actions to prepare for potential extreme weather in summers 2022 and 2023. The PD finds that a range of 2,000 to 3,000 MW of new supply- and demand-side resources would help address grid reliability concerns under the most extreme circumstances in 2022 and 2023. Among other actions, the PD orders the IOUs to procure additional incremental resources from new or existing facilities, expand and modify ELRP (e.g., by allowing for directly enrolled residential customers), modify existing IOU-administered demand response programs, develop a new smart thermostat incentive program, create two dynamic rates pilot programs, and continue and extend the Flex Alert media campaign. Comments are due November 10, 2021, and reply comments are due November 16, 2021. The first opportunity for the CPUC to vote on this PD is at the Voting Meeting on December 2, 2021. <p>More information on R.20-11-003 is available at: https://www.cpuc.ca.gov/summerreadiness/</p>		
CPUC	<p>Project Progress Tracking</p> <ul style="list-style-type: none"> In November 2020, the CPUC prepared an analysis and slide deck on new energy resources in development across multiple proceedings, available at: https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442466860 The CPUC is tracking progress on generation and battery storage projects that are currently under construction in California to ensure there are no CPUC-related regulatory barriers that would prevent them from being completed by their targeted online dates. Whenever a delay or potential delay is identified, the CPUC works with the Governor's office, other agencies, load serving 	<p>Issue Ruling on IRP LSE data aggregation by August 2021</p> <p>Issue staff report on backstop procurement by August 2021</p>	<p>Completed</p> <p>Completed</p>

	<p>entities, project developers, and/or local officials to help resolve it as soon as possible. Between May and August 2021, CPUC intervention helped ~210 MW Net Qualifying Capacity (NQC) of previously delayed projects to get back on track for their expected online dates of August 1, 2021. Similarly, CPUC and CEC efforts helped ~170 MW NQC of at-risk projects to remain on track for August 1, 2021.</p> <ul style="list-style-type: none"> ▪ On August 17, 2021, the CPUC issued a Ruling sharing an aggregation of the data collected from Integrated Resource Plans (IRPs) filed by load-serving entities (LSEs) in September 2020. The data includes information on existing, development, and planned resources. The Ruling and associated materials are located under Proposed Preferred System Plan and Portfolios for 2022-23 Transmission Planning Process at the following link: 2019-2020 IRP Events and Materials (ca.gov) ▪ The CPUC is also tracking progress against the 3,300 MW NQC (Net Qualifying Capacity) procurement ordered in Decision 19-11-016. On February 1, 2021, LSEs that elected to self-provide their procurement obligation submitted reports to the CPUC on the status of their projects. CPUC staff quality controlled and analyzed this data. In these updates, LSEs confidentially provided detailed information regarding the cause of any delays and plans for remediation. The CPUC used the data from the February 2021 filings to determine whether any of the projects under Decision 19-11-016 have suffered delays or failure that necessitate the need for backstop procurement. CPUC staff issued a report on the February 1, 2021, compliance filings on August 23, 2021. The report is available on the CPUC's website at the following link: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp-ed_staff_review_of_feb2021_data_in_compliance_with_d1911_016.pdf 		
--	---	--	--

	<ul style="list-style-type: none"> ▪ On September 1, 2021, the CPUC received data from LSEs on their existing and in-development resources under contract. These data filings are intended to update and complement the 2020 IRP data filings, but they do not represent a full IRP filing and do not include planned resources. This data is also in compliance with Decision 19-11-016, and staff will use to assess whether Tranche 1 projects have come online by the required date. ▪ Significant procurement has been ordered to meet near- and mid-term reliability needs, and the CPUC is now tracking hundreds of projects, representing thousands of MWs, expected to achieve commercial operation in the next few years. Recognizing the challenge of integrating so many energy resources into the electric grid in such a short period of time, the joint agencies and CAISO are forming an interagency task force with the Governor's Office of Business and Economic Development (GO-Biz) to address barriers to procurement through tracking, identifying, and resolving issues with individual projects that are critical for the transition to a clean energy future. The goal of this effort is to work with project developers, LSEs, utilities, and/or local officials to help mitigate problems quickly, before they can significantly impede a project's ability to reach commercial operation. 		
CPUC	<p>Improve Load Scheduling Accuracy – The CPUC is exploring technical solutions that may be needed to allow its jurisdictional IOUs to provide customer usage data to CCAs and energy service providers (ESPs) more frequently to improve load scheduling accuracy.</p> <p>Based on initial conversations with IOUs, CCAs, CAISO, and scheduling coordinators it appears that more timely access to customer usage data may not be necessary for day-ahead load forecasting in the CAISO markets.</p>	Conversations with IOUs, CCAs, ESPs, scheduling coordinators, and the CAISO	Completed

<p>CPUC</p>	<p>Replacement Resources for Diablo Canyon – In 2020, the CPUC directed all CPUC-jurisdictional LSEs to submit IRPs that include procurement of their share of replacement power for the retirement of the Diablo Canyon Nuclear Power Plant. On June 24, 2021, the CPUC ordered its jurisdictional LSEs to procure 11,500 MW NQC of new resources to address mid-term reliability needs for years 2023-2026 (D.21-06-035). The 11,500 MW NQC includes 2,500 MW of energy resources that will provide both energy and capacity on a daily basis during the hours of highest need to replace Diablo Canyon.</p> <p>On October 13, 2021, a ruling in the IRP rulemaking invited comments on natural gas issues, including whether and how gas capacity upgrades should be eligible to count towards the 11,500 MW NQC required by D.21-06-035. Parties were asked to provide comments and recommendations on the accompanying Commission staff paper titled “Considering Gas Capacity Upgrades to Address Reliability Risk in Integrated Resource Planning” as well as to the Mid-Term Reliability Analysis Staff Report the CEC adopted on September 30, 2021. These issues may be taken up in the upcoming proposed decision on the IRP Preferred System Plan, expected in Q4 2021.</p>	<p>Final Decision in June 2021</p> <p>Proposed Decision on Preferred System Plan</p>	<p>Completed</p> <p>Expected Q4 2021</p>
<p>CPUC</p>	<p>Resource Adequacy (RA) Rulemaking (R.19-11-009) – On June 25, 2021, the CPUC adopted local capacity requirements for 2022-2024 and flexible capacity requirements for 2022 applicable to CPUC-jurisdictional LSEs, as well as other refinements to the RA program including expanding required availability hours for use limited resources. The availability window for use-limited resources now includes Saturdays in addition to weekdays and increases the number of availability hours per month from 40 to 100. The decision also adopted a point-based escalating penalty structure for system RA deficiencies in order to incent RA compliance.</p> <p>On July 15, 2021, the CPUC addressed issues related to the restructure of the RA program to focus planning efforts across all hours of the day, in an effort to resolve net load peak concerns. The Proposed Decision sets forth a process and schedule for further development of the restructure</p>	<p>Issue Proposed Decision in May 2021</p> <p>Final Decision in June 2021</p> <p>Final Decision in July 2021</p> <p>Workshop Report due February 2022</p>	<p>Completed</p>

	<p>proposals which requires a minimum of five workshops over the next six months to develop the implementation details necessary for implementation in 2024. At the conclusion of the workshops, a Workshop Report shall be filed and served in the RA proceeding in February 2022. In mid-August lead parties circulated a workshop schedule to the service list reflecting nine workshops over the next six months. The first workshop was held on September 22, 2021 and covered Structural Elements. Workshops are scheduled to occur every other Wednesday from 10am-3pm, with the last meeting being held on January 19, 2022. A workshop report is required to be submitted into the RA proceeding in February 2022. Workshop material and recordings will be posted to the CPUC's RA history webpage. - Resource Adequacy History (ca.gov)</p> <p>A new RA OIR was recently added to the Commission's October 7, 2021, agenda. The OIR includes a preliminary scoping memo that breaks the proceeding into a "Implementation Track" and a "RA Reform Track. The Implementation Track would address issues that include: Planning reserve margin changes, Qualify capacity methodology changes, and changes to the ELCC values. The RA reform track would include the current RA reform work being done in Track 3B2 into the successor proceeding. The preliminary schedule calls for a PHC on November 16th and a Scoping Memo to be issued in December 2021.</p>		
CPUC	<p>Integrated Resource Planning (IRP) Procurement Framework – The CPUC hosted a workshop in December 2020 on a proposal regarding how the CPUC would order procurement to complement the procurement by LSEs in response to the planning track activities of IRP and various CPUC procurement programs. This proposed framework is intended to provide a conceptual foundation for all future procurement informed by the IRP process. The February 22, 2021, Ruling on mid-term reliability that led to D.21-06-035 (i.e., the 11,500 MW NQC mid-term reliability procurement order), also sought feedback from stakeholders on "phase one" of the proposed framework, i.e., that relating to procurement in the current cycle of IRP. D.21-06-035 operationalizes some of the features of the framework.</p>	<p>Issue PSP Ruling in August 2021</p> <p>Proposed Decision on PSP</p>	<p>Completed</p> <p>Expected Q4 2021</p>

	The development of the Preferred System Plan later in 2021 presents the next opportunity within the IRP process for stakeholder engagement and procurement action by the CPUC.		
CPUC, CAISO	<p>Flex Alert public Awareness Campaign – Following approval of funding in the Emergency Reliability Rulemaking (R.20-11-003), the CPUC has been working with the CAISO and the selected vendor to refresh and strengthen the voluntary, consumer energy conservation program.</p> <ul style="list-style-type: none"> ▪ The campaign has launched in nearly all channels, including social, paid internet search, digital, outdoor, multicultural newspapers, radio and television. ▪ Advertisements are strategically placed to reach households throughout the state and stress the importance of conservation. Advertisements contain strategies – such as pre-cooling homes and businesses – to conserve energy and minimize discomfort. ▪ We are encouraging everyone to sign up for Flex Alert notifications at FlexAlert.org, which will send out alerts by text or email. ▪ A second contract is augmenting the first one to add additional resources and reach more Californians to conserve energy at critical moments. ▪ The CPUC is coordinating with the state’s utilities and a non-profit data analytics provider, as well as the marketing contractor, to maximize the reach of the Flex Alert campaign through paid media. ▪ The CAISO launched a text function that allows consumers to get Flex Alerts via text, providing more convenience to the consumer and to potentially increase participation in conservation. ▪ The CAISO launched an API code that allows home automated thermostat companies to signal their customers when conservation is needed. This feature, which is now active, is expected to make it more convenient for consumers to participate in conservation efforts. 	Mid-June - launch	In progress

	<ul style="list-style-type: none"> ▪ The CAISO will soon be launching an improved Flex Alert registration system to increase visibility of conservation participation throughout the state. When a call is made for conservation, the system surveys registrants on their plans for participation and how others in their area are responding. ▪ As of September 3, 2021, the total social awareness campaign numbers were 86,900,523 impressions, 152,630 link clicks, 43,588,341 video plays. 		
CPUC, CEC, CAISO	<p>Capacity Procurement Mechanism (CPM) solicitation – Due to a combination of earlier-than-expected extreme heat throughout California and the West, diminished hydroelectric availability, and changes and uncertainties in the resource stack, the CPUC and CEC made a recommendation to the CAISO to leverage its backstop procurement authority for securing additional resources to help meet the anticipated demand during the summer months. The CAISO issued notices of CPM designations on July 9, July 13, July 23, August 3, August 12, August 17, August 30, September 1 and September 30, 2021. The designations are for 30-days, as provided under the tariff. Effective dates and megawatt totals are as follows:</p> <ul style="list-style-type: none"> • July 9 – 473 MW • July 10 – 70 MW • July 12 – 64 MW • July 22 – 16 MW • August 1 – 30 MW • August 2 – 195 MW • August 10 – 73 MW • August 11 – 350 MW • September 1 – 421 MW • September 10 – 3 MW • October 1 – 27 MW 	On July 1, 2021, the CAISO issued a CPM solicitation notice requesting that providers willing to accept such designations notify the CAISO. The solicitation notice was re-issued on July 23, August 23 and September 20.	Completed
CAISO	<p>Additional Capacity During July Heatwave – In response to Governor Newsom signing an emergency proclamation on July 9, 2021, to free up</p>		Completed on July 10, 2021

	<p>additional energy capacity, the CAISO was able to secure an additional 475 MW to help meet demand amid the July 2021 heatwave and wildfires that were impacting transmission.</p>		
CAISO	<p>Summer Loads and Resources Assessment – On May 12, 2021, the CAISO released its annual summer assessment evaluating the expected supply and demand, to help prepare for the hot weather months of June through September. This year’s assessment projected the energy grid will have more capacity to meet demand in 2021 than it did in 2020, a critical element for averting rotating power outages, such as those that occurred last August. However, extreme weather events that extend across the West could still pose a problem for reliability during the later months of the summer.</p> <p>The CAISO held numerous briefings for interested parties, including a public stakeholder call on May 24, 2021, to discuss the findings and provide details about the CAISO’s extensive summer readiness efforts.</p>		Completed on May 12, 2021
CAISO	<p>Summer 2021 Readiness Leadership Roundtable – On April 15, 2021, the CAISO hosted a discussion with leaders from utilities and organizations with whom the CAISO has a direct operational relationship. The focus was to review the lessons learned from last summer’s west-wide heat wave and rotating outages in California; to outline the work being done in response to the Final Root Cause Analysis; and to determine if there are additional individual or collective actions that can be taken to further support reliable operations this summer.</p> <p>Participants detailed steps they are taking to fortify grid operations since last summer. A common understanding of challenges and risks was established, as well as a commitment to deeper collaboration and coordination given the interconnected nature of the Western grid, particularly the interdependency of shared resources in tight supply conditions.</p>		Completed on April 15, 2021

CAISO	Operational Exercise - On April 21, 2021, CAISO operations hosted a "tabletop exercise" with adjacent balancing authorities to test preparedness and communication procedures for a range of potential scenarios prior to the approaching summer weather. CAISO Operations has held additional meetings with APS, BPA, LADWP, NVE, SRP, and Tucson Electric Power to review current and forecasted conditions as well as emergency procedures.		Completed on April 21, 2021
CAISO	Market Enhancements for Summer 2021 Readiness – The CAISO Board of Governors and the Federal Energy Regulatory Commission (FERC) approved the first package of market enhancements to prepare for this upcoming summer. The package consisted of (1) incentives for suppliers to submit import schedules in the hour ahead scheduling process during tight market conditions; (2) reliability demand response resource dispatch and real-time pricing enhancements; (3) energy imbalance market coordination and resource sufficiency test modifications; (4) pricing enhancements during tight system conditions; and (5) targeted generation interconnection process improvements.	Approved by the CAISO Board of Governors March 24, 2021 Approved by FERC May 25, 2021	Completed on June 15, 2021
CAISO	Load, export and wheeling priorities - The CAISO Board of Governors and FERC approved additional market enhancements that refine the prioritization of energy imports, exports, and transfers through the CAISO's balancing authority area. These changes consist of how exports cleared in the day-ahead residual commitment process are prioritized relative to CAISO load in the real-time market, enhancing requirements for designating non-resource adequacy capacity backing high priority export schedules, and market prioritization of wheel-through self-schedules.	Approved by the CAISO Board of Governors April 21, 2021 Approved by FERC June 25, 2021	Completed on August 4, 2021
CAISO	Operating Procedure 4420 Modifications – The CAISO developed criteria that will allow the use of firm load to meet the North American Electric Reliability Corporation (NERC)-required contingency reserves and the dispatch of procured spinning reserve resources. This will allow the CAISO to minimize, if not avoid, the shedding of firm load during periods of resource deficiency. On May 27, 2021, these criteria were incorporated		Completed on May 27, 2021

	<p>into the CAISO Operating Procedure 4420 Alerts, Warnings, and Emergencies.</p> <p>Note, on April 15, 2021, FERC approved modification to WECC- BAL-002-WECC-3 permanently approving modification to the Reliability Standard.</p>		
CAISO, CEC	<p>Increased Coordination with Non-CPUC-jurisdictional Entities Regarding Additional Procurement – The CAISO has completed its outreach to understand the procurement positions of non-CPUC-jurisdictional entities and concerns, if any, for summer 2021. Thus far, non-CPUC jurisdictional entities surveyed have <i>de minimis</i> levels of solar penetration and largely rely on dispatchable renewables and hydro. Nonetheless, a limited number of non-CPUC local regulatory authorities have voluntarily increased their planning reserve margins or components thereof in preparation for summer.</p>	Conducted outreach to non-CPUC jurisdictional entities	Completed July 1, 2021
CAISO	<p>Further Analysis of Proxy Demand Response (PDR) and Reliability Demand Response Resource (RDRR) Performance – Starting this summer, the CAISO implemented baseline adjustments through targeted controlled group methodology changes and changes to the adjustment factors used in the baseline calculations as permitted under the CAISO tariff. This process allowed for a more accurate assessment of demand response load reduction during extreme events. The two baseline improvement tracks instituted for the summer included: 1) exploring the use of comparison/control group methodology and 2) establishing a process/criteria for approved use of load adjustment factors outside of the min/max caps for summer 2021. On October 29, the revised draft report was completed and submitted to the CPUC and CEC for their review and feedback. Additional meetings will be scheduled with participating DR providers to review the study results specific to them.</p>	The CAISO will be hosting a public stakeholder meeting in November to review the final report.	In progress
CAISO	<p>Credits Against Resource Adequacy Obligations – The CAISO continues to work with the CPUC, local regulatory authorities, and stakeholders to resolve issues around resources credited against resource adequacy requirements. On July 1, 2021, the CAISO and the three-large investor-</p>	On September 13, 2021 the CAISO withdrew PRR 1280 to work	In progress

	<p>owned utilities submitted documentation requested by the CPUC to consider an alternative counting methodology that could ultimately lead to reducing credits against the 2022 resource adequacy obligations. This issue is pending CPUC action.</p> <p>Separately, the CAISO withdrew Proposed Revision Request (PRR) 1280 on September 13, 2021, in order to work directly with local regulatory authorities to work through concerns raised by the PRR and reduce or eliminate the practice of crediting resources against the resource adequacy obligation. The CAISO will consider at a later date whether it needs to pursue the changes proposed through PRR 1280 through a new PRR or some other mechanism. In the meantime, the CAISO will continue to use its discretion in issuing capacity procurement mechanism designations when faced with resource adequacy deficiencies.</p>	directly with LRAs on reducing credits	
CAISO	<p>Resource Adequacy Market Rule Enhancements – The CAISO Board of Governors and FERC approved the first phase of the resource adequacy enhancements initiative that included enhancements for this summer.</p> <p>Phase 1 of the initiative consisted of three changes: 1) refinements to the existing planned outage process; 2) a minimum state of charge requirement for storage resources; and 3) backstop procurement authority for local energy sufficiency.</p>	<p>Approved by the CAISO Board of Governors March 24, 2021</p> <p>Approved by FERC May 28, 2021</p>	First phase completed June 2021
CAISO	<p>Storage Enhancements and improvements to the Hybrid and Co-located Models – The CAISO worked to get multiple policies approved by the CAISO Board of Governors to enhance the existing storage model and to allow for improved usage of the hybrid and co-located models that the CAISO offers. These changes are important because a significant portion of the new capacity expected to be come online during the next few years will be storage, most of which will employ the hybrid or co-located market models. Changes that set up the hybrid and co-located resource models were approved by the Federal Energy Regulatory Commission and implemented by CAISO on December 1, 2021.</p>	<p>First phase completed on December 17, 2020</p> <p>Second phase to be</p>	In progress

	<p>Earlier this year, there were special provisions allowing storage resources to deviate from dispatch during times when co-located solar output could cause output to exceed the point of interconnection.</p> <p>Additional changes are expected to be implemented this fall, including improved ways for storage to manage state of charge through the market optimization, default energy bids and market power mitigation for storage, and additional improvements to allow co-located resources to reflect off-taker arrangements.</p> <p>Final implementation for this policy will occur in Spring 2022. This development work will include a tool to allow hybrid resources to indicate upper and lower operating limits in the real-time market to the CAISO and additional refinements to the tools modeling off-taker arrangements.</p>	implemented Spring 2022	
CAISO	<p>Energy Storage Enhancements Initiative – On April 28, 2021, the CAISO launched an initiative to explore market enhancements to continue integration of large amounts of utility-scale battery storage onto the grid over the next few years. At the end of 2020, the CAISO had about 250 MW of storage resources -- primarily 4-hour batteries -- connected to the grid. The CAISO currently has approximately 2,000¹ MW on its system and expects to have a total of 3,000 MW by the end of 2021. This growth requires changes in the CAISO market to allow storage to be efficiently compensated and dispatched to meet grid reliability needs. The market changes would create a test case in the first organized market with mass adoption of storage technology.</p> <p>On October 28, the CAISO hosted a <i>Storage Forum - Energy Markets for the Future</i>, which was open to all interested parties. The virtual event featured an important and timely discussion on energy storage and the strategies needed to improve integration of renewable and storage resources. During the forum, leading experts shared their perspectives on</p>		In progress

¹ A 300MW storage facility is temporarily out of service while root-cause analysis heating suppression event is completed.

	energy storage development, market enhancements, new technologies, and more.		
CAISO	Reliability Must-run (RMR) Designation to Preserve Grid Reliability in 2021 – In addition to the 250 MW power plant approved as a Reliability Must Run (RMR) resource by the CAISO Board of Governors in December 2020, the Board voted on March 24, 2021, to designate a 34.5 MW power plant as a system RMR resource to help ensure the reliable operation of the transmission system in 2021 and prevent its imminent retirement. The CAISO’s analysis concluded that the capacity provided by the RMR designation is necessary to maintain system-wide reliability needs and meet NERC and WECC operational standards, especially during the summer evenings.		Completed on March 24, 2021
CAISO	RMR Designation to Preserve Grid Reliability in 2022 – The CAISO Board of Governors voted on the conditional approval to extend the existing RMR contracts for 2022. Conditional approvals are sought each year due to the schedule of events each September. CAISO Management has reviewed the preliminary resource adequacy showings and determined that RMR extensions remain necessary. CAISO Management reported the results of the RMR contract extensions on the CAISO website here for the CAISO Board of Governors meeting on November 3.	Approved by the CAISO Board of Governors September 23, 2021	In progress
CEC	CEC 2020 CA Electricity Demand Update – The CEC adopted the California Energy Demand 2020-2030 Forecast Update at its January 25, 2021, business meeting. This update to the previously adopted electricity demand forecast incorporates an additional year of historical data, more recent economic and demographic outlooks, and revised vehicle electrification, self-generation and battery storage forecasts. It also includes revised hourly and monthly peak electricity demand for the CAISO control area, as well as annual peak forecasts for 1-in-2, 1-in-5, 1-in-10 and 1-in-20 weather scenarios. Additionally, as part of the 2020 IEPR, staff conducted an exploratory analysis which found that 1-in-30 temperature conditions would lead to, on average, a 1.1 percent	Volume III (demand forecast) of the 2020 IEPR was adopted at the March 17, 2021, CEC Business Meeting.	Completed

	increase in peak load beyond what would be expected for a 1-in-20 temperature event.		
CEC	2022 Stack Analysis – CEC conducted an analysis of projected demand and supply for 2022 considering both an average weather year and an extreme weather year, like California experienced in 2020. The analysis considered ongoing drought conditions and potential impact on hydro generation resources. The draft analysis was presented at the August 11 2021 Business Meeting and was approved at the September 8 Business Meeting. The results show that the state may need to access contingency measures during an extreme weather event of up to 4,350 MW. The CPUC will use the results of the analysis as they consider procurement levels in Phase 2 of its Emergency Reliability rulemaking (R.20-11-003).	Results adopted at September 8, 2021, Business Meeting	Completed
CEC	Report to the Governor on Priority SB 100 Actions to Accelerate the Transition to Carbon-Free Energy – On September 28, 2021, CEC submitted this report to the Governor, on behalf of the CEC, CPUC, CARB and CAISO, to respond to the Proclamation of a State of Emergency issued by Governor Gavin Newsom on July 30, 2021. The report discusses ongoing challenges to bring clean energy resources online, actions taken by the agencies and California Independent System Operator to address system reliability issues and accelerate the state's transition to a clean energy system and includes recommendations for priority actions to address some of these challenges.	Report submitted to Governor Newsom on September 28, 2021	Completed
CEC	Midterm Reliability Analysis – CEC developed a report of analysis on the need for future resource procurement to support reliability for the midterm (2023 – 2026). The report addresses multiple questions associated with reliability over this period, including loss of load expectation modeling, assessment of risks to reliability from a growing amount of battery energy storage system resources on the grid, and an evaluation of additional thermal generation sources that could support reliability. The report will be considered by the CPUC as part of their Integrated Resource Planning Proceeding (R.20-05-003) as they decide whether to adopt the preferred system plan by the end of 2021.	Results adopted at September 30, 2021, Business Meeting	Completed

CEC	<p>Electric Program Investment Charge (EPIC) Reliability Research and Development – CEC has invested \$80 M over the last six years to develop technologies to support demand flexibility. Of this amount, three new CEC awards (totaling \$6.2M) are anticipated to result in 28.7MW of flexible load shift this summer, 15MW from irrigation pumping. The following is the update on these three new awards:</p> <ul style="list-style-type: none"> • AgMonitor: Project executed and kicked-off on June 30, 2021. Results from Summer 2021 show 3.4 MW of permanent load shifting occurring between 4PM and 9PM for the months of June, July and August on 9 farms. The project achieved its 2021 goal of 3 MW by August and is working toward a full 7 MW by 2022 by expanding to other farms. • OhmConnect: Project executed and kicked-off on May 13, 2021. Since June 1, OhmConnect has 41,175 users on its platform, with a projected load reduction of over 25 MW. More than 50 percent of users have connected a smart device (smart thermostat or smart plug) to the platform. • Polaris Energy Services: Project executed and kicked off on May 12, 2021. Polaris has enrolled 10.7 MW of new curtailable load as of September 2021. Project goal is 25-40 MW of peak load enrollment in DR programs and/or responding to TOU price signals by March 2024. 	Completed Summer 2021 Load Shift	In Progress
CEC, CPUC	<p>Efficiency Improvements to the Natural Gas Powerplant Fleet – On December 2, 2020, the CEC, in collaboration with the CPUC, and in coordination with the CAISO, hosted a workshop to highlight to electricity stakeholders a range of options for incremental upgrades at existing natural gas power plants to increase their capacities to help address potential generation supply concerns for Summer 2021 and beyond. The workshop highlighted several projects that add up to 100 MW of additional capacity that could be available for Summer 2021. Since the workshop, the CPUC's Expedited Procurement proceeding provided a</p>	The CPUC's Expedited Procurement proceeding provided a contracting opportunity for these resources. Over 100 MW of these resources	Completed

	<p>contracting opportunity for these resources, and over 100 MW of these resources have been approved by the CPUC to date.</p> <p>Between March and June 2021, CEC's STEP Division reviewed and approved petitions for 89 MW of incremental efficiency upgrades at six powerplants including 11.5 MW of equipment upgrades from battery energy storage systems expected to be available by the start of Summer 2021.</p> <p>At the June 25, 2021, Business Meeting, the CEC commissioners approved equipment upgrades to the final two powerplant projects. These two projects will be adding an additional 47 MW of power to the grid.</p> <p>As of August 2021, all 136 MW of incremental efficiency upgrades at eight powerplants have been completed by the project owners/operators and are available for dispatch as needed for grid reliability.</p> <p>The Russell City Energy Center was dispatched on sixteen occasions, producing 350 MW to the grid for net peak demand since coming back online. Their temporary license and air permit began on August 9, 2021, and expired on November 1, 2021, and will no longer be available to operate in simple-cycle mode. The project owner will be working to restore the facility to a combined-cycle operation ahead of Summer 2022.</p> <p>On September 30, CEC published a staff paper, <i>Electric System Reliability and the Recent Role of California's Fossil Fleet</i>, which summarizes CEC activities associated with incremental efficiency upgrades and identifying additional capacity approved by CEC but not yet built.</p> <p>CEC has identified an additional 246 MW of efficiency upgrade projects to existing natural gas power plants that could support Summer 2022 reliability needs. In fact, due to procurement contract recently signed, two of the efficiency projects totaling 104 MW have filed petitions with the CEC to be online of head of summer 2022.</p>	<p>have been approved by the CPUC to date.</p> <p>The CEC has reviewed and approved multiple requests for software and equipment improvements for these projects, and additional requests are expected prior to summer.</p>	<p>Completed</p> <p>Completed</p> <p>In Progress</p>
--	---	---	--

<p>CEC</p>	<p>Governor's Emergency Proclamation and DOE 202 (c) Waiver Activities – In response, CEC launched the Temporary Emergency Generation Program to:</p> <ul style="list-style-type: none"> • Expedite post-certification petitions for changes in the design, operation, or performance requirements of existing facilities under the CEC's jurisdiction; process was adopted at the CEC's August 17, 2021 Business Meeting, • License emergency and temporary power generators of 10 MW or more; expedited process was adopted at the August 17, 2021 CEC Business Meeting, and • License battery storage systems of 20 MW or more that can discharge for at least two hours. An expedited process was presented at the CEC's September 8, 2021 Business Meeting. <p>CEC reviewed five projects totaling 30-40 MWs to operate beyond nameplate capacity with state waivers. Current NQC testing is ongoing, and staff are working with GE to evaluate if any additional capacity over what has already been reported is feasible.</p> <p>CEC reviewed another three projects totaling 91 MWs to operate beyond nameplate capacity with a federal 202 c waiver. (Those projects are included within the projects listed below under the description of the “DOE Emergency Order Pursuant to Section 202 (c) of the Federal Power Act”.)</p> <p>CEC is monitoring the compliance of the four installed temporary power generators. Two units totaling 60 MWs at Roseville Energy Park in the city of Roseville and another two units totaling 60 MWs at the site of the decommissioned Greenleaf 1 Cogen facility in Sutter County (outside Yuba City). Applications were approved by the CEC Executive Director on September 6, 2021. On October 22, 2021, CEC and CAISO principals toured the Roseville operation during a regularly scheduled compliance check.</p>	<p>CEC is monitoring the compliance</p>	<p>In progress</p> <p>Completed</p> <p>Completed</p> <p>In Progress</p> <p>In Progress</p>
------------	--	---	--

	<p>CEC approved the Expedited Battery Storage System Licensing Process at the September 8, 2021 Business Meeting. This Order allows project owners and operators to file an application for the construction of a new or expanded battery storage facility of 20 MW or more, discharge for at least two hours, and provide net peak energy by October 31, 2022. For more information on requirements and application checklist visit: Energy.ca.gov/media/6104. Two pre-filing meetings were held in October with Morgan, Lewis and Brockius LLP to discuss possible sites at the Mariposa or Wildflower Indigo facilities and with Cox-Castle-Nicholson for a possible Terra-Gen site.</p>		
CEC, CPUC, CAISO	<p>DOE Emergency Order Pursuant to Section 202 (c) of the Federal Power Act – Secretary of Energy granted California an emergency waiver allowing four natural gas-fired power plants and two power generator facilities to operate above their maximum Title V air permits from September 10, 2021, through November 9, 2021. The six facilities include:</p> <ul style="list-style-type: none"> • Midway Sunset Cogeneration Facility Unit C – 80 MW • Alamitos Energy Center – 5 MW • Huntington Beach Energy Project – 6 MW • Walnut Creek Energy Park – 17 MW • Greenleaf 1 - 60 MW • Roseville Energy Park - 60 MW 	CEC and CAISO have communicated with these facilities the possibility of being dispatched during peak hours.	Completed
CEC, CPUC, CAISO	<p>Summer 2021 Contingency Plan – The CEC, CPUC, and CAISO finalized the summer contingency plan, as recommended in the Root Cause Analysis. The plan describes the roles and responsibilities for each entity and describes coordination activities.</p>	Plan was submitted to the Assembly Utilities & Energy Committee in early August 2021.	Completed
CEC, CPUC, CAISO	<p>Integrated Energy Policy Report Workshop – Summer 2021 Reliability – The CEC, CPUC, and CASIO hosted a joint IEPR workshop. The workshop provided an overview of CEC and CAISO analysis of summer reliability conditions and actions being taken to ensure reliability for Summer 2021.</p>	May 4 Workshop	Completed

	<p>In addition to updates from CEC, CPUC, and CAISO, partnering entities, such as the California Department of Water Resources, Los Angeles Department of Water and Power, Northern California Power Agency, and Balancing Authority of Northern California provided overviews of their efforts to support reliability in the state in 2020 and their activities to support summer 2021 reliability.</p> <p>The CEC, CPUC, and CAISO hosted a second joint IEPR workshop on July 8 and 9. Day 1 addressed hydro power and drought, imports, demand response, and mid-term reliability. Day 2 addressed the relationship between natural gas and electric systems as it relates to summer and winter reliability.</p>	July 8-9 Workshop	Completed
All	<p>Demand Response Round Table – The CAISO, CEC and CPUC held a second Demand Response Round Table with industry stakeholders to discuss strategies to maximize the potential of demand response in the short and long term.</p>		Completed on March 16, 2021