DOCKETED	
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Project Title:	Reliability Reserve Incentive Programs
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Document Title:	Presentation - Demand Side Grid Support Program and Distributed Electricity Backup Assets Program
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Demand Side Grid Support Program and Distributed Electricity Backup Assets Program

Lead Commissioner Workshop

January 27, 2023 – Session 1

Introduction & Goals for Today

Building the Strategic Reliability Reserve

- Session 1: Demand Side Grid Support Program
  10:00 a.m. – 11:45 a.m.
- Session 2 Distributed Electricity Backup Assets Program
  1:15 a.m. – 2:30 p.m.

Public comments due 5 pm, February 17, 2023

We would like to hear from you!

- Q&A: Zoom Q&A function
- Comments: Zoom “Raise Hand” function
- CEC Docket 22-RENEW-01

Schedule – Session 1

Morning – Session 1

10:00 a.m. – 11:45 a.m.

- Introduction
- Comments from the Dais
- Summer 2022 Reliability Overview
- DSGS Program 2022 Implementation Timeline and Lessons Learned
- Potential Modifications to DSGS Program Guidelines
- Q&A
- Public Comment
- Lunch Break

Afternoon – Session 2

1:15 p.m. – 2:30 p.m.

- Introduction
- Comments from the Dais
- DEBA Program Overview
- DEBA Program Proposed Framework and Development Plan
- Q&A
- Public Comment
- Closing Comments

Strategic Reliability Reserve (AB 205)

CEC Reliability Reserve Incentive Programs (AB 205)

	Demand Side Grid Support (DSGS)	Distributed Electricity Backup Assets (DEBA)
Funding	$295 Million (Over 5 Years)	$700 Million (Over 5 Years)
Incentivized Activities	Use of load reduction resources during extreme events	Purchase of cleaner and more efficient distributed energy assets that would serve as on-call emergency supply or load reduction
Eligibility	POU customers* *AB 209 modified to allow statewide; CEC deliberating potential expansion	Statewide
Program Status	Launched Aug 2022 Now accepting applications and incorporation lessons learns	Under Development

Role of DSGS & DEBA Investments

Strategic Reliability Reserve (AB 205)
DSGS & DEBA

Clean Energy Reliability Investment Plan (CERIP) (SB 846)

Meeting Clean Energy Goals: Planning support, Deployment of Long Lead Time Resources, with some funding for emergency support

Comments from the Dais

Summer 2022 Reliability Overview

Presenter: Deana Carrillo, Director,
Reliability, Renewable Energy and Decarbonization Incentives Division

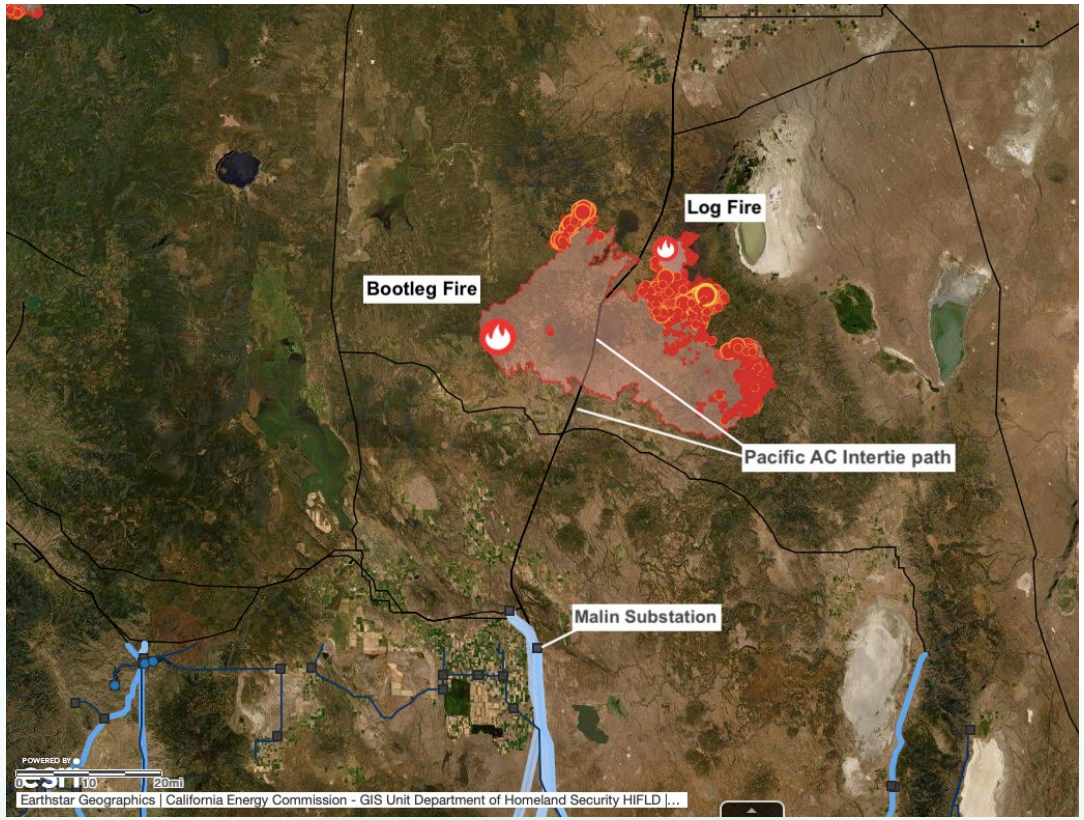
2020 and 2021 Challenges

2020

- CAISO experienced rolling outages on August 14 and 15

2021

- Oregon Bootleg fire in July
- Lost 4,000 MW of capacity simultaneous to a heat event

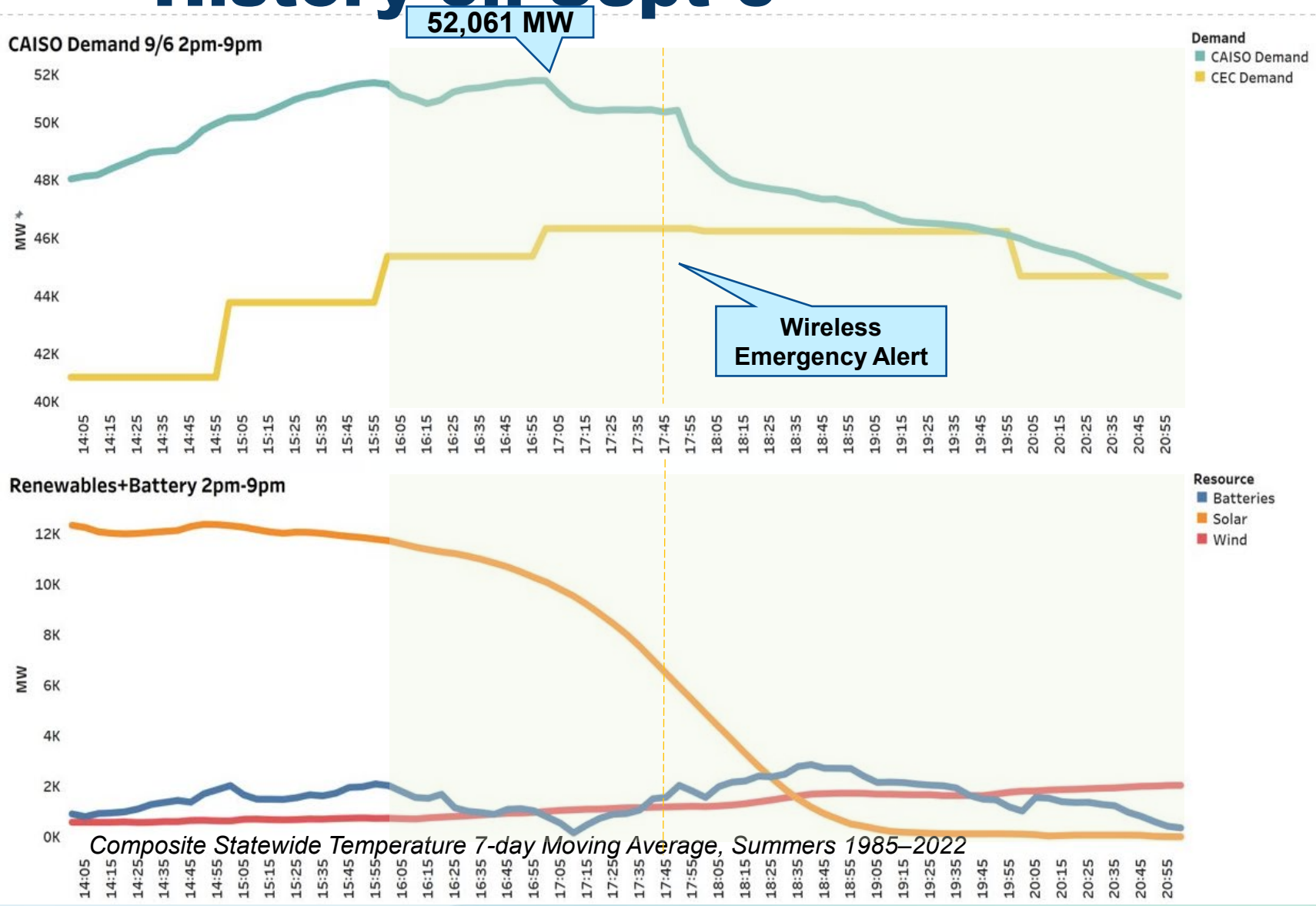


2022 Estimated Impact on Reliability

Issue	2022	2025
Inherent difference between procurement and updated forecast	1,700 MWs	1,800 MWs
Project Development Delay Scenarios (estimated)	600 MWs	1,600-3800 MWs
Extreme weather and fire risks	4,000-5,000 MWs	

In total the risk in a coincidental situation could be 7,000MW in 2022 & 10,000MW in 2025

CAISO Experienced Highest Load in its History on Sept 6



Composite Statewide Temperature 7-day Moving Average, Summers 1985–2022

- Expected 1-in-2 Demand for Sept 2022 based on 2020 CED was ~44,600 MW
- We were on track for a peak of ~53,000 before demand side load reductions were called on
- Preliminary analysis suggest we would have needed to plan for a near 26% PRM to get through a day such as Sept 6th

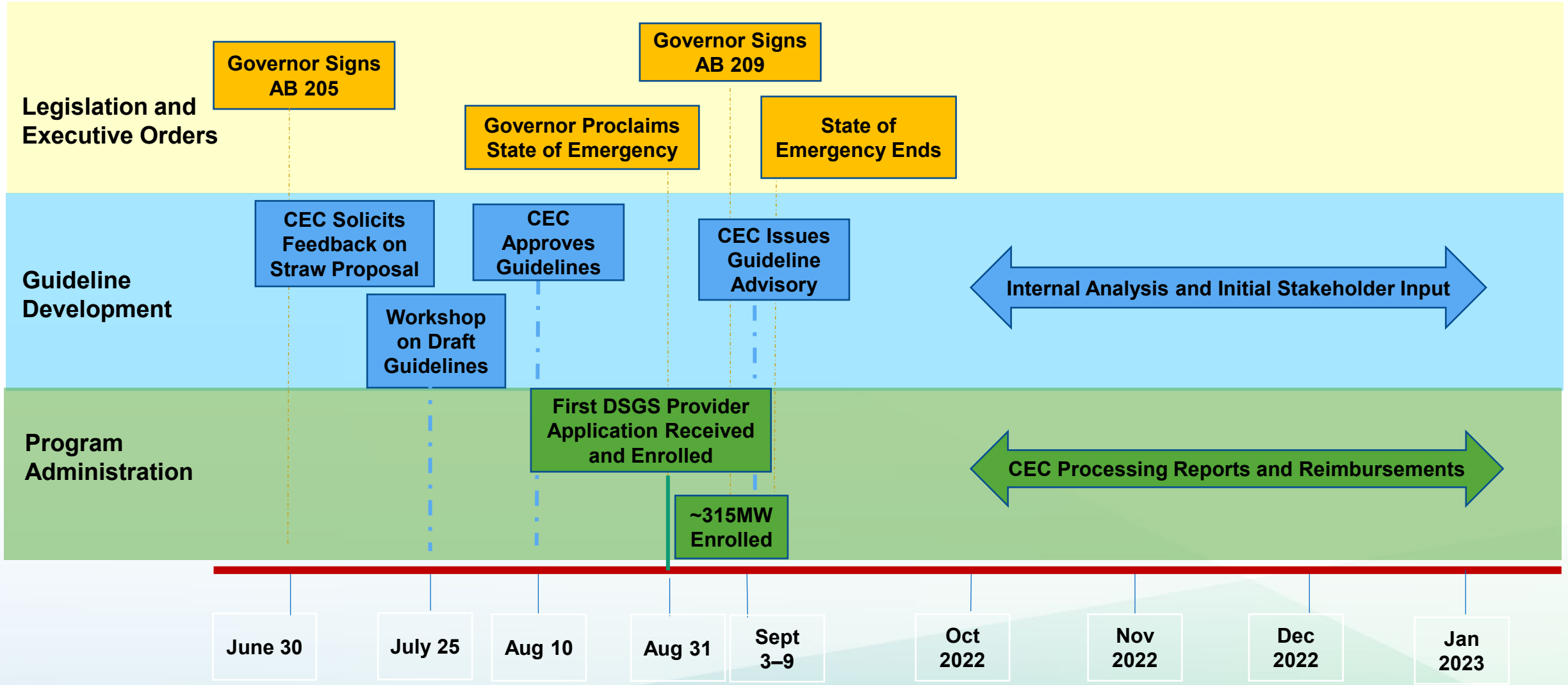
How We Got Through September 2022

- Close coordination among GO, CEC, CPUC, CAISO, and DWR
- CAISO estimated
  - 1,267 MW market DR
  - 1,216 MW non-market resources (incl. Flex Alert, ELRP, SRR)
- DWR
  - Maximized hydro generation 471 – 911 MW
  - Shifted pumping 150 MW
- DGS – warm shutdown of 25 buildings
- DSGS Initial Launch – 315 MW
- Substantial voluntary reduction as a result of CalOES emergency alert

Demand Side Grid Support (DSGS) 2022 Program Implementation Timeline and Lessons Learned

Presenter: Ashley Emery, Manager, Reliability Reserve Incentives Branch

DSGS 2022 Implementation Timeline



DSGS Program Changes to Meet Labor Day Grid Needs - Enrollment

	Initial Guidelines	Guideline Advisory During 2022 State of Emergency
Eligibility	• Open only for customers in POU territory (AB 205)	• Open to water districts in IOU territory not participating in ELRP or other DR program (AB 209)
Enrollment	• POUs enroll directly with CEC, customers enroll with POU • Aggregators of customers must enroll as participants with a POU	• Customers and aggregators of customers could enroll directly with CEC through streamlined application process
Incentive	• $250/MWh Standby Payment • $2,000/MWh Energy Payment • Capacity Payment and Bid Structure • Reimbursement of incremental increases in demand charges, if any	• $250/MWh Standby Payment • $2,250/MWh Energy Payment

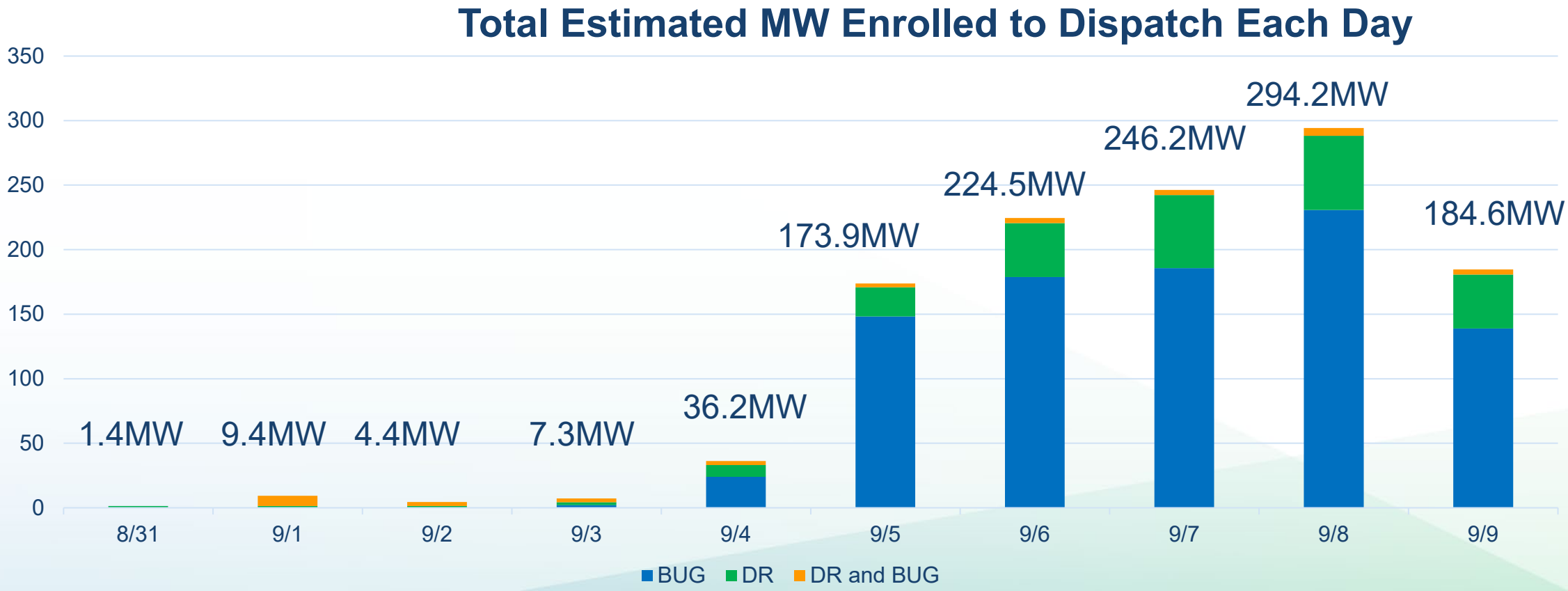
DSGS Program Changes to Meet Labor Day Grid Needs - Dispatch

CAISO Notification	Initial Guidelines	Guideline Advisory During 2022 State of Emergency
EEA Watch Period	• All resources on standby	• **All resources may dispatch** pursuant to the Emergency Proclamation.
EEA 1 Period	• Non-combustion resources dispatch • Combustion resources on standby	• Non-combustion resources dispatch • **Combustion resources may dispatch**
EEA 2 Period	• All resources dispatch	• (No change)
EEA 3 Period	• All resources dispatch	• (No change)

DSGS Impact: Estimates Based on Enrollment

Over 44 Individual Entities Participated

Over 315 MW Enrolled



DSGS Lessons Learned and Initial Stakeholder Feedback

- Program should have built-in contingencies to accommodate unanticipated conditions and needs during emergency events
- CEC, utilities, and participants are challenged with the administrative complexities of quick, direct enrollment of customers
- Communication to utilities and participants should be streamlined and simplified
- Incentive amounts may not cover all associated costs
- Need for California Independent System Operator (CAISO) and energy market to have visibility into the energy load provided
- Need for host utility to have visibility into customer and aggregator activity

Stakeholder Perspectives on Summer 2022 and Lessons Learned

Potential Modifications to DSGS Program Guidelines

Presenter: Erik Lyon, Advisor, Vice Chair Gunda

Opportunity for Demand Solutions

Incremental capacity potential across resource utilization profiles

Meeting RA Requirements (Historical 1-in-10 LOLE)

(Nuclear) (Hydro) (Gas Peaker)

Load-Modifying DR Economic DR Reliability DR

Incremental DEBA & DSGS Investments: (Beyond 1-in-10 LOLE)

Fuel Cells
Linear Generators
Microgrids

Smart Thermostats

Storage

Vehicle-to-Grid

Back-up Generators

Controlled Ag & Water Pumping (Tanks, Controls, Software)

Policy Goals and Considerations

Pursue Program Designs to:

- **Ensure Resource Adequacy** and CAISO wholesale market participation over emergency programs
- Maximize **incremental capacity** and load reduction from demand-side resources
- Ensure **high performance** under peak & critical conditions
- Promote regular & **active participation** of clean resources in wholesale energy markets
- Provide **alternative pathway** for non-ISO customers and customers facing integration barriers
- **Grow DR and DER** markets
- Provide **incentive parity** between resource types
- **Simplify administration** during and after emergencies
- Reduce **ratepayer impacts**
- **Minimize combustion** resource use outside of emergency conditions

CEC and CPUC Collaborating & Exploring Additional Opportunities

Statutory Eligibility (AB 209)	• All energy customers, except those enrolled in demand response or emergency load reduction programs offered by CPUC jurisdictional entities. • The CEC, in consultation with the CPUC, may adopt additional participation requirements or limitations.

Proposed IOU Customer Segments for DSGS	• Customers using backup generators
	• Water agencies (e.g., water utilities, wastewater facilities, irrigation)
	• Potential New Concepts/Segments (TBD):
	  • Demand response incremental to CPUC programs (Expansion of Base Interruptible Program)
	  • Other?

Potential DSGS Guideline Modifications: Eligibility and Enrollment

	Current Guidelines	Potential Modifications

Eligibility	• Open only for customers in POU territory (AB 205)	• Exploring expansion to certain IOU customers (AB 209)
		  • Customers using backup generators
		  • Water agencies (e.g., water utilities, wastewater facilities, irrigation)
		  • Demand response incremental to CPUC programs

Enrollment	• POUs enroll directly with CEC, customers enroll with POU • Aggregators of customers must enroll as participants with a POU	• Incorporating aggregators of customers as DSGS providers, with host utility visibility • Allowing customers to directly enroll, with host utility visibility

Potential DSGS Guideline Modifications: Dispatch Periods and Incentives

	Current Guidelines	Potential Modifications
Dispatch Periods	• Non-combustion resources: EEA 1 • Combustion resources: EEA 2	• Non-combustion resources: EEA Watch • Ensuring dispatch periods can adjust consistent with executive orders

Incentives	• $250/MWh Standby Payment
	• $2,000/MWh Energy Payment
	• Option 3: Capacity Payment and Bid Structure
	
	Also Provides
	• Reimbursement of incremental increases in demand charges, if any
		• Implementing and modifying Option 3
		• Netting incentive amount based on full dispatch period
		  • Example: Event from 6-9PM
		  • 6-7PM: 2 MWh drop from baseline
		  • 7-8PM: 3 MWh drop from baseline
		  • 8-9PM: 2 MWh **increase** from baseline
		  • Net Load Drop During Event: 3MWh
		  • Incentive calculated based on 3MWh net load drop

Current Option 3: Capacity Payment and Bid Structure

Incentive	• Monthly capacity payment for non-combustion resources
Cal-ISO Market-Integrated Approach	• Register as proxy demand resource • Bid into ISO day-ahead market in 4 consecutive hours between 4-9PM until meet max dispatch requirements • Bid rate not greater than $500/MWh
Non-ISO Market-Informed Approach	• Resources in non-ISO balancing authority areas or not served by an ISO-integrated utility distribution company • Dispatch when the Cal-ISO day-ahead hourly marginal cost of energy surpasses a reference price selected by the DSGS provider (no greater than $500/MWh)) • Only intervals for which the marginal cost of energy is at least $200 per MWh will be counted toward the maximum required dispatch.
Alternative	• Non-ISO DSGS providers may develop requirements suitable to the operations of the applicable balancing authority that contribute to reliability within the balancing authority area • Submit to CEC for approval

Alternative Options Proposed by Stakeholders (Not Comprehensive)

DR Energy Matching Incentive	DR Capacity Incentive – Market Integrated	DR Capacity Incentive – Non-Market Integrated
• Supplement third-party demand response providers' CAISO energy market revenues • Incentive applies to all energy delivered to the CAISO grid using an approved CAISO baseline methodology	• Supplemental capacity incentive based on delivered DR capacity • Rate varies by quarter • Delivery based on CAISO Demand Response Energy Measurement for a single peak load hour (4–9 p.m.) during times of highest grid strain (e.g., system-wide day-ahead market locational marginal price ≥ $150/MWh)	• Annual per kW-year incentive for committed power capacity • Price-based trigger (e.g. IOU day-ahead LMP ≥$200, top 3 hours), or Flex Alert or EEA • No energy market participation

CEC's Approach to Develop DSGS

Phased Approach to Accommodate Policy, Market and Operational Complexity	
2022	**Phase 1**: Expedited Development and Launch

2023	**Phase 2**:
	• Incorporate lessons learned to streamline and simplify participation and test approaches to maximize DR
	• Prepare for 2024 and beyond
	  • Explore and resolve policy tensions and operational complexities across multiple utilities, programs and balancing areas
	  • Secure a third-party administrator to streamline and modernize procedures and evaluation

2024 & Beyond	**Phase 3**: • Scale • Unlock & grow cleaner resources for Strategic Reliability Reserve

Next Steps for DSGS

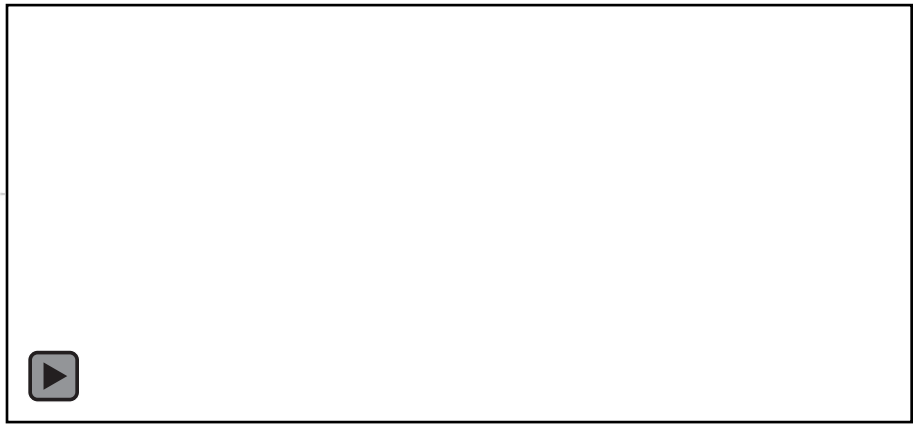
Target Dates (Subject to Change)	Milestone
January 27–February 17	• Workshop Public Comment Period
Winter 2023	• Prepare Draft Modified Guidelines
Winter/Spring 2023	• Workshop and Public Comment Period on Draft Modified Guidelines
Spring 2023	• Staff Consideration of Public Comments • Post Final Draft Modified Guidelines
Late Spring/Early Summer 2023	• CEC Consideration of Modified Guidelines at Business Meeting
Early Summer 2023	• Improved Program Guidelines for Summer 2023

DSGS: Questions for Consideration

1. What structure or provisions would best support cost-effective Resource Adequacy procurement while also enabling the development and growth of the Strategic Reliability Reserve to responds to extreme events?
2. How best can the Program unlock untapped DR or other stranded resources under its statutory constraints?
3. As aggregators and others participate in DSGS directly:
   - What is the most effective approach for host utilities to have visibility?
   - What would be an effective method to ensure customers are not participating in multiple programs?
4. Should DSGS be provided to other use-cases in IOU territories? If so, what use-cases and how?
5. What other program modifications should be considered?

Q&A

Public Comment



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Lunch Break

Demand Side Grid Support Program and Distributed Electricity Backup Assets Program

Lead Commissioner Workshop

January 27, 2023 – Session 2

Schedule – Session 2

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Strategic Reliability Reserve (AB 205)
DSGS & DEBA

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Meeting Clean Energy Goals: Planning support, Deployment of Long Lead Time Resources, with some funding for emergency support

Comments from the Dais

Distributed Electricity Backup Assets Program

Presenter: Ashley Emery, Manager, Reliability Reserve Incentives Branch

CEC Reliability Reserve Incentive Programs

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DEBA Potential Projects

Bulk Grid Investments

Efficiency upgrades, maintenance, and capacity additions to existing power generators

- Equipment upgrades
- Clean back-up generation or storage
- Waste heat to energy

Distributed Resources

New zero- or low-emission technologies, including, but not limited to, fuel cells or energy storage, at existing or new facilities

- Load flexibility controls, SCADA systems, demand-response aggregation software
- Battery storage
- Fuel cells
- Linear generators
- Microgrids
- Vehicle-to-grid integration
- Pumped hydro
- Combined heat and power
- Other emerging technologies

DEBA Statutory Requirements (AB 205)

Guidelines

- Developed in consultation with CARB
- Must consider estimated useful life of equipment

Loading Order

- Demand response and efficiency resources
- Renewable and zero-emission resources
- Conventional resources

Funding Conditions

- Participate as an on-call emergency resource during extreme events
- Power generators must comply with mandatory GHG reporting requirements

DEBA Program Timeline

Fall 2022

Workshop and Initial Stakeholder Input (RFI)

Winter 2022/

Spring 2023

Program Development

Public Workshops & Stakeholder Feedback

2023

DEBA Initial Launch

DEBA Program Proposed Framework and Development Plan

Presenter: Deana Carrillo, Director,
Reliability, Renewable Energy and Decarbonization Incentives Division

RFI Stakeholder Feedback

- CEC gathered information through a Request for Information (RFI) on November 7, 2022
- Received more than 30 responses related to the DEBA program
- Responses addressed:
  - Characteristics of resources that can address reliability needs
  - Financial and non-financial hurdles to resource deployment
  - Possible project evaluation criteria and incentive amounts
- Given the diversity of resources and projects in RFI responses, staff is proposing a program design that can accommodate a variety of projects

DEBA Preliminary Investment Plan

Category	Budget Over Five Years
Bulk Grid Investments Efficiency upgrades, maintenance, and clean capacity additions to existing power generators;	~$150M
Distributed Resources New zero- or low-emission technologies, including, but not limited to, fuel cells or energy storage, at existing or new facilities	~$500M
CEC & Administrative Costs (Third Party Program Implementer for DEBA & DSGS)	Up to $50M
Total	**$700M**

DEBA: Development Plan

Phase 1: Spring/Summer 2023

- Guidelines with basic program parameters
- Grant Funding Opportunities for MW available Summer 2023/2024

Phase 2: Fall 2023–Spring 2024

- Evaluate lessons learned from 2023
- Revise guidelines based on lessons learned
- Additional Grant Funding Opportunities

Phase 3: On-going

- Continue to evaluate program effectiveness and address lessons learned

DEBA: Potential Initial Grant Funding Opportunities

Potential Summer 2023 Challenge Grant

- $50M

Bulk Grid Investments

- $150M

Distributed Assets Investments

Preliminary Proposed DEBA Framework – Bulk Grid Investments

- Must fund efficiency improvements to improve generation capacity
- Must be clean capacity additions to existing power generators, consistent with mandatory reporting greenhouse gas emissions and market-based compliance mechanisms
- Must comply with California Code of Regulations 1769 for any project change modification at an existing power generator, as applicable
- Must serve as emergency supply or load reduction for the state's electrical grid during extreme events
- Recipients cannot receive DSGS payments

Preliminary Proposed DEBA Framework – Distributed Resources

- Must provide incremental load reduction or supply during an emergency event through any emergency load reduction program, such as ELRP or DSGS

- Incentivized capacity must be additive to support extreme events, and therefore not included under an LSE Resource Adequacy Program
  - XX-year term, could scale based on estimated useful life or incentive amount

- Repayment penalty for non-performance during emergency events

<u>Ineligible</u>

- Standalone solar or other variable resources
- Diesel back-up generators
- Residential storage or resources eligible for incentives from other state programs (e.g. Self-Generation Incentive Program (SGIP))

Other Concepts for Discussion

- Incentive values for projects could be capped by:
  - % of Equipment Cost (Capital Expenditures)
  - $/per MW, not to exceed $X/per MW

- CEC working to obtain third party administrator to support EM&V and reconciliation with required participation as an emergency resource

<u>Other</u>

- CEC is considering a potential set-aside to provide matching funds to leverage federal opportunities (IIJA)
- Targeted investments in state and local government facilities

Potential DEBA Project Evaluation Criteria

Portfolio Diversity	• Project selections will support a diverse portfolio of resources
Loading Order	• Aims to achieve electricity reliability and prioritizes feasible, cost-effective demand response and efficiency resources, then feasible, cost-effective renewable and zero-emission resources, and then feasible, cost-effective conventional resources (statute)
Resource Longevity	• Anticipated useful life of the resources in relation to the state's climate and air quality requirements (statute)
Capacity	• Emergency supply and/or load reduction available to the state • Maximum hours available for dispatch during peak load events (4-10pm)
Cost	• $/MW for portion of project budget requested from DEBA • Eligible matching funds or other committed project financing
Readiness	• Estimated project completion date • Anticipated interconnection or supply chain delays
Equity	• Benefits to Disadvantaged Communities and/or low-to moderate income communities • Tribal resiliency
Co-Benefits	• Benefits beyond energy system reliability, including critical infrastructure resilience (emergency services, potable water, wastewater)

DEBA: Questions for Consideration

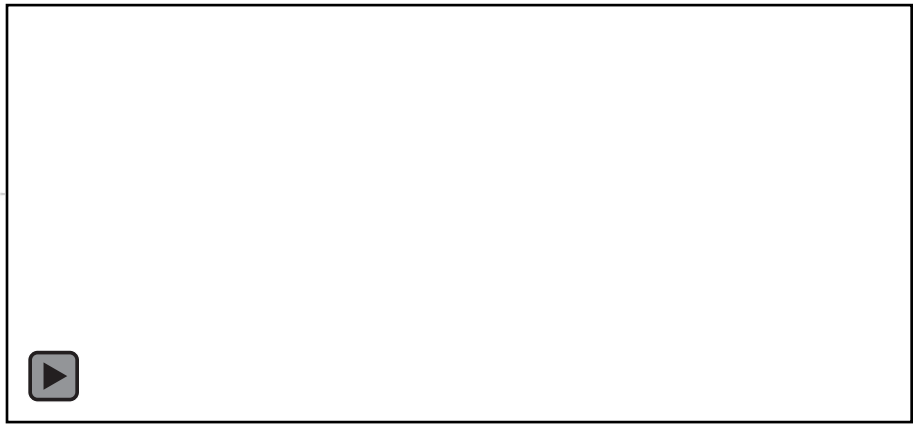
1. How best can DEBA invest in assets for emergency load reduction without interfering in the Resource Adequacy Program or creating clean stranded assets? How can it best do both?
2. Are the proposed program frameworks reasonable? What modifications could unlock additional resources for emergency events?
3. Are there additional criteria that the CEC should consider when evaluating projects? How should the CEC rank or weight the evaluation criteria?
4. What are reasonable exceptions to non-performance in an emergency event?
5. What level of funding is needed to spur the development of a project?

Next Steps for DEBA

Target Dates (Subject to Change)	Milestone
January 27–February 17	• Workshop Public Comment Period
February - March	• Prepare Draft Guidelines
March	• Workshop and Public Comment Period on Draft Guidelines
Spring 2023	• Staff Consideration of Public Comments • Post Final Draft Guidelines • Potential Challenge Grant
Spring/Summer 2023	• CEC Consideration of Guidelines at Business Meeting
Summer 2023	• Grant Funding Opportunities Issued
Fall 2023	• Initial Awards Announced

Q&A

Public Comment



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Thank you!

Closing Comments