



California Reliability Outlook

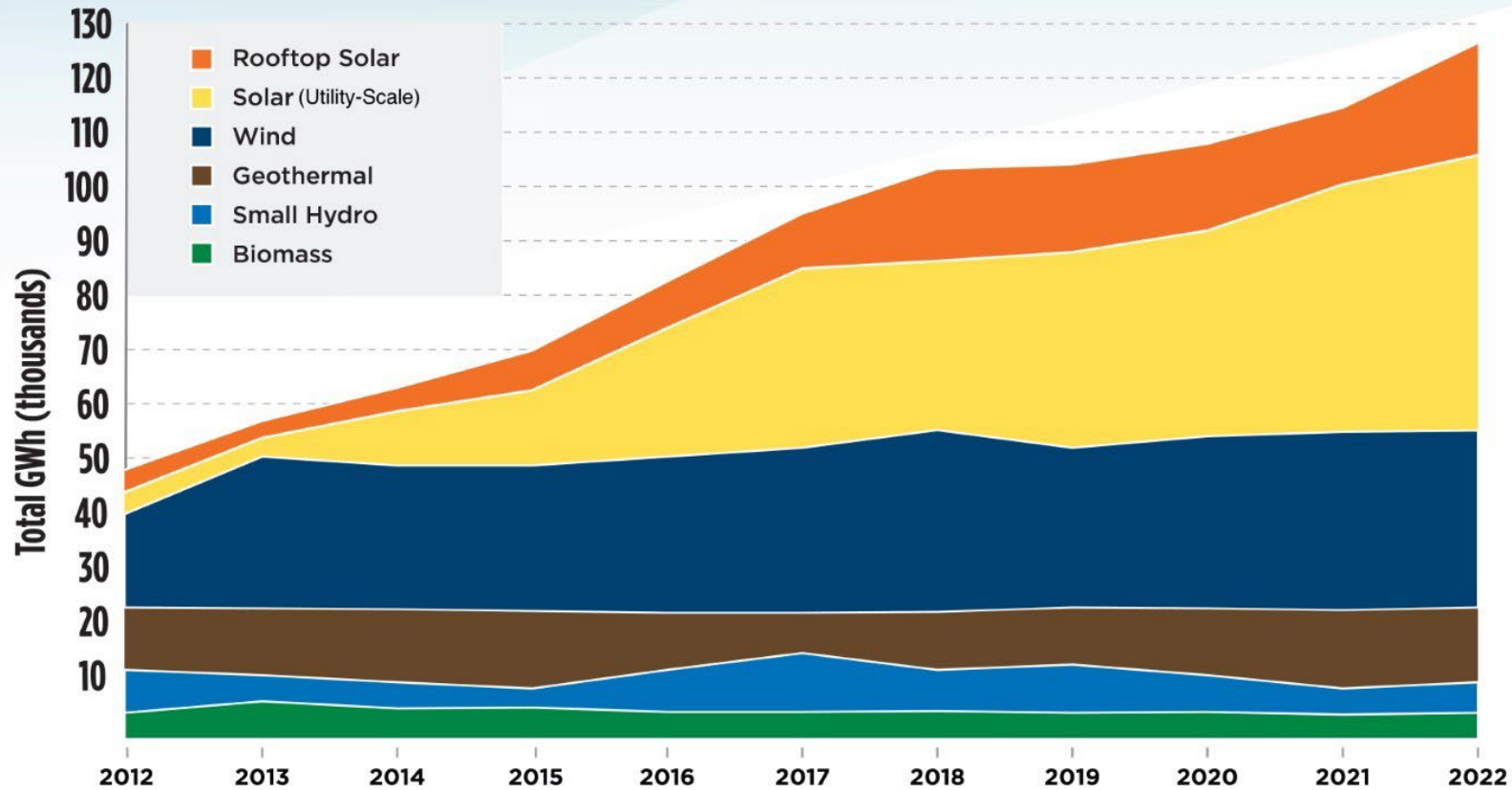
SMUD Strategic Development Committee Meeting

David Erne, Deputy Director, Energy Assessments Division
May 7, 2024



Clean Energy Progress

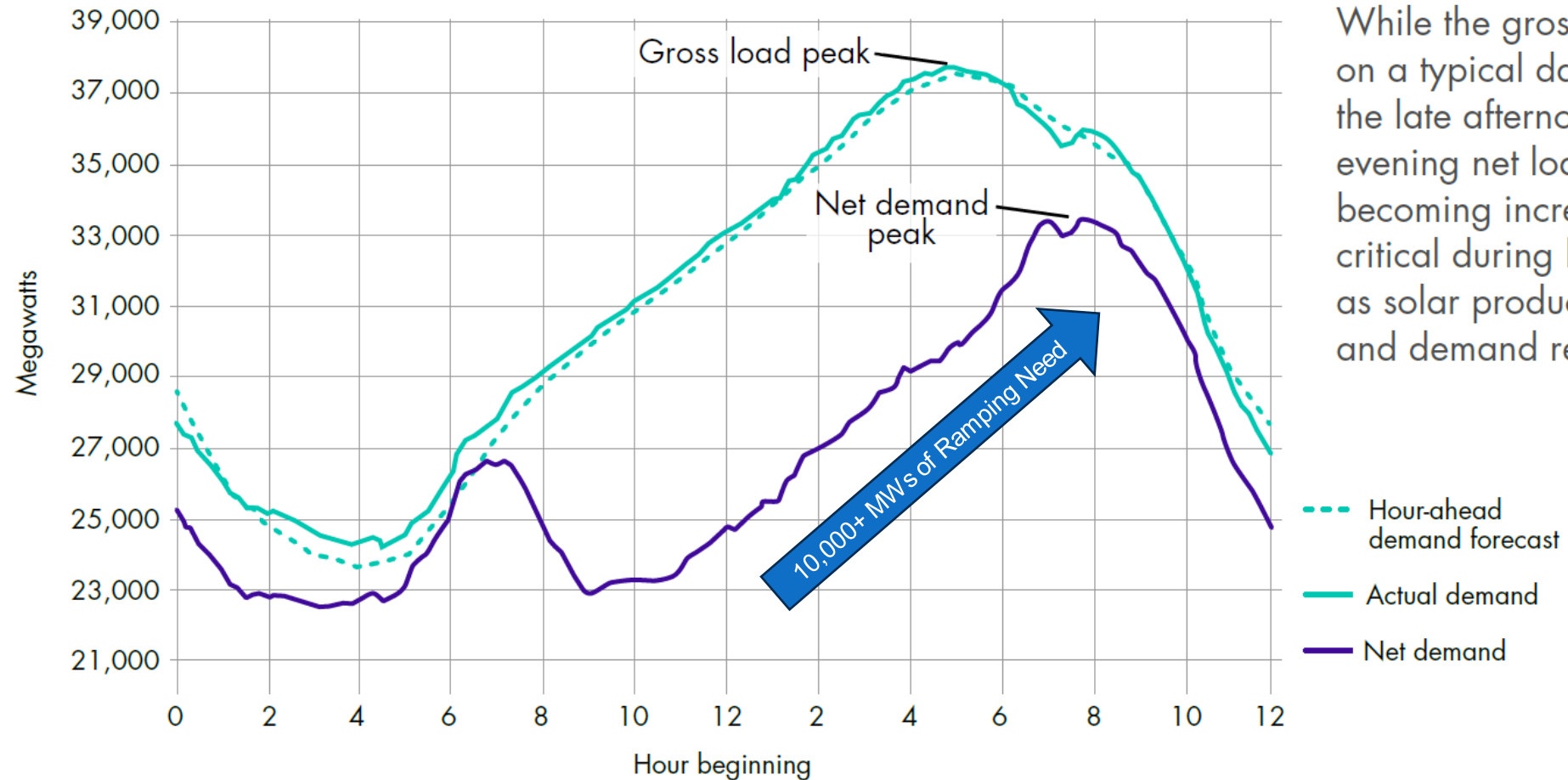
Renewable Energy Generation Growing in California



Source: California Energy Commission, Total System Electric Generation | August 2023



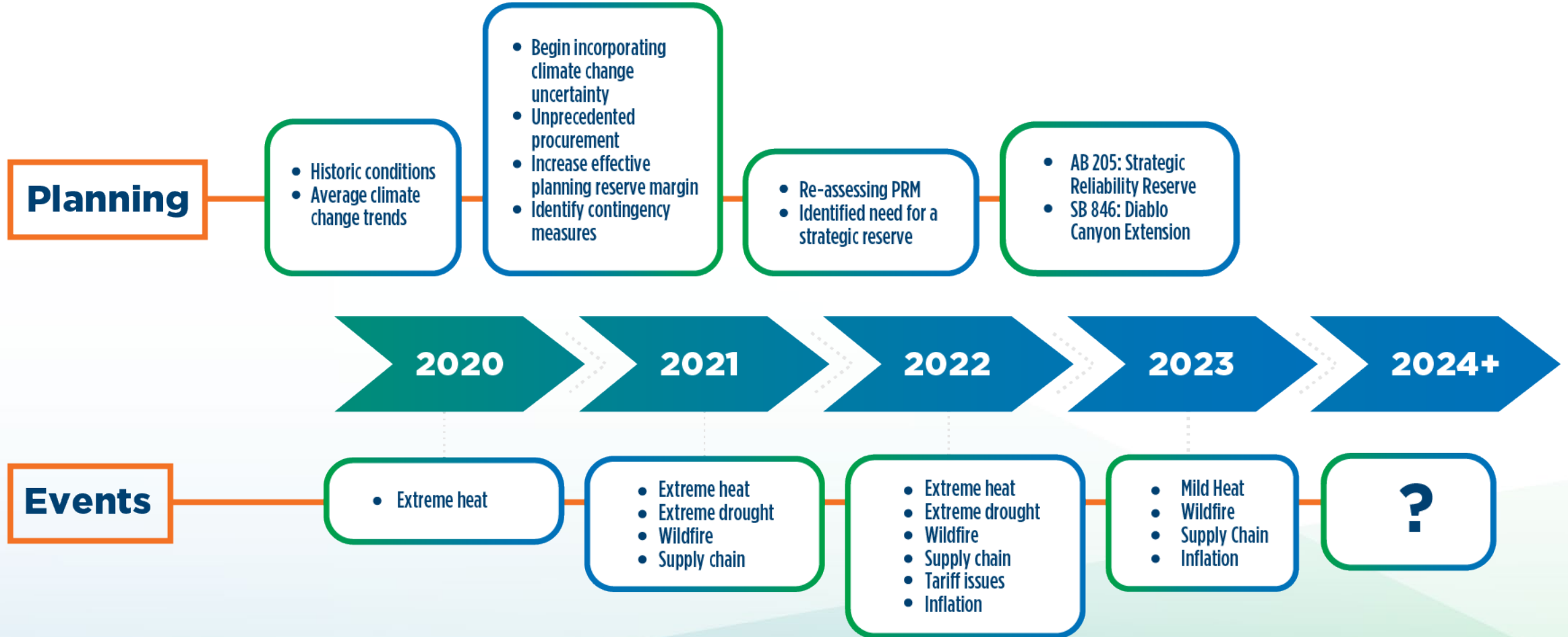
Ramping Resources Needed to Support Net Demand



While the gross load peak on a typical day occurs in the late afternoon, the early evening net load peak is becoming increasingly critical during hot weather, as solar production ends and demand remains high.



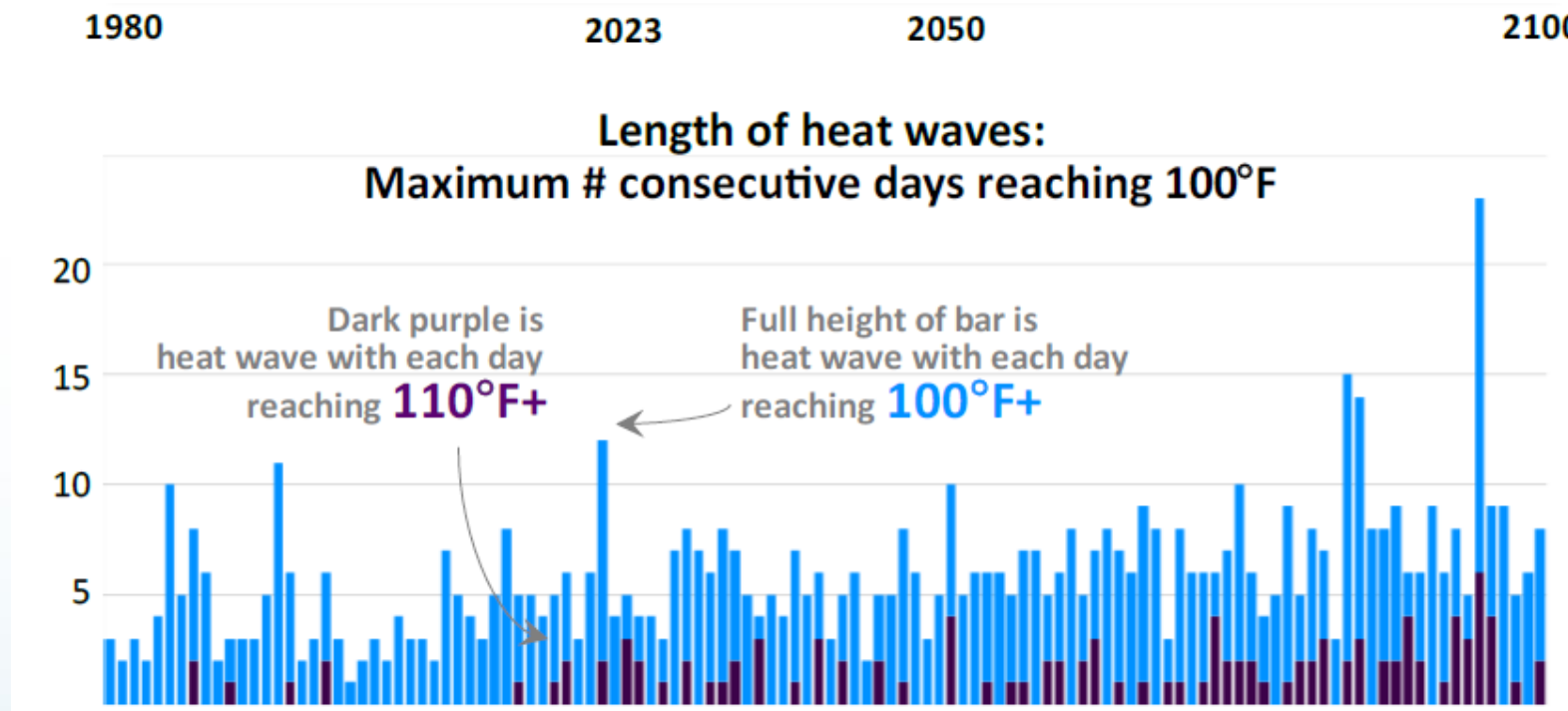
Changing Grid Conditions





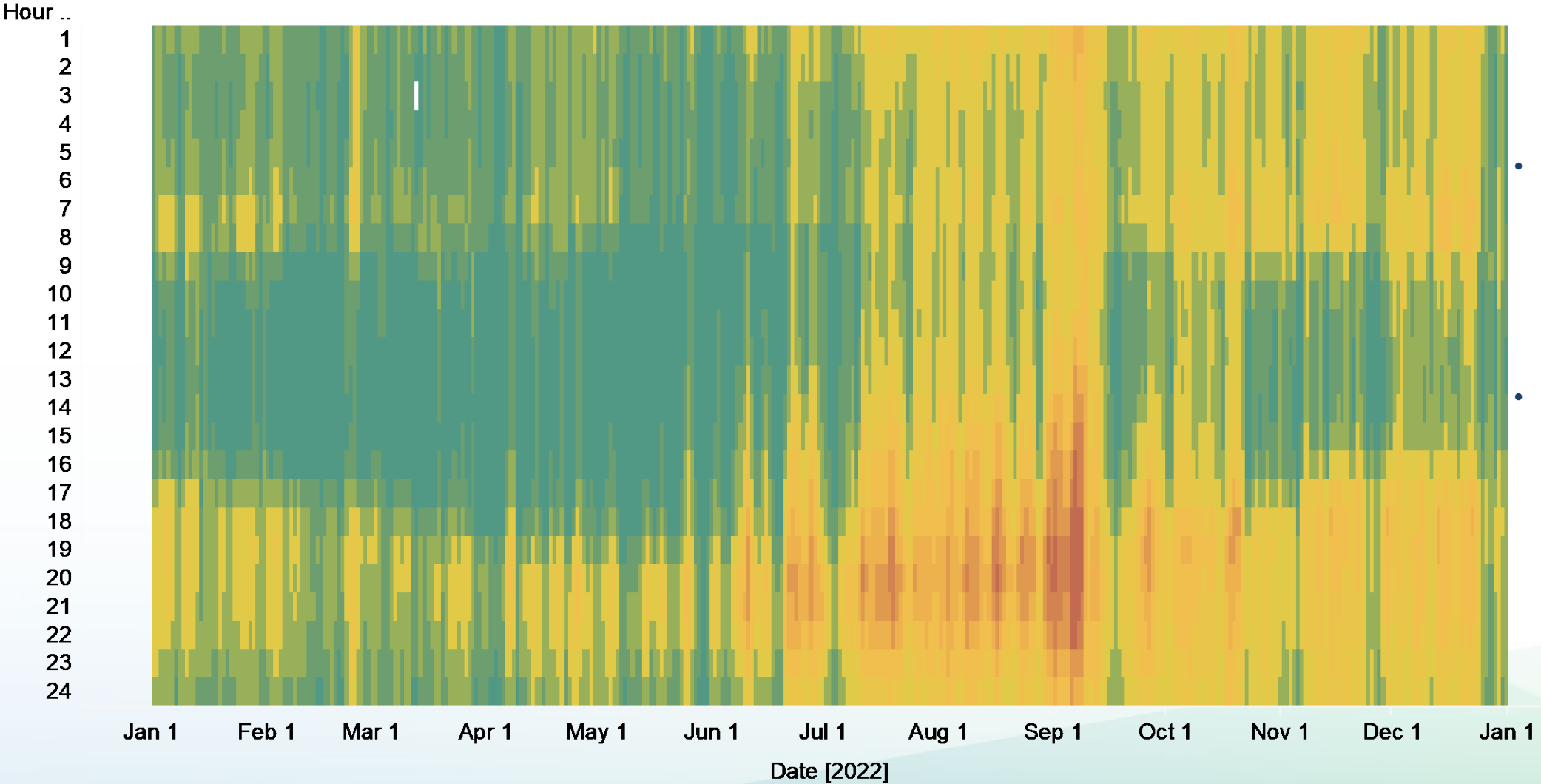
Extreme Temps Events Projected to be More Frequent

Extreme Temperature Projections — Sacramento Region





Heat Map of Gas Generation



- Natural gas generation still needed during peak-demand hours and months to maintain grid reliability.
- Load flexibility and deployment of diverse clean energy resources will help reduce reliance on natural gas generation over time.



Grid Reliability & Clean Energy Transition

- **Improving Grid Planning Processes**
 - Improvements to forecasting for climate change-induced weather variability and electrification
 - Ordering sufficient and diverse procurement
 - Improve Resource Adequacy process
- **Scaling Supply & Demand-Side Clean Energy Resources**
 - Track procurement
 - Improve interconnection & permitting process
 - SB 846 requirements, including demand flexibility goal and Clean Energy Reliability Investment Plan
- **Preparing for Extreme Events (Contingencies)**
 - Retain existing and construct new assets & procure imports to backstop uncertainties
 - Create emergency demand flexibility opportunities



Long Term Need for Contingencies

	Projected September Need for Contingencies					
	2025 MW Projection	2026 MW Projection	2027 MW Projection	2028 MW Projection	2029 MW Projection	2030 MW Projection
Planning Standards	No Shortfalls Projected					
2020 Equivalent Event	Up to 1,000	Up to 500	Up to 1,000	Up to 700	Up to 600	Up to 1,500
2022 Equivalent Event	Up to 2,600	Up to 2,000	Up to 2,500	Up to 2,000	Up to 2,000	Up to 3,000

Does not include catastrophic coincident fire event

Source: Diablo Canyon Power Plant Extension – CEC Analysis of Need to Support Reliability, March 2023



Summary of Contingencies – ~ 5GW

Type	Contingency Resource
Strategic Reliability Reserve (AB 205)	DWR Resources (Long start, short start)
	Demand Side Grid Support
	Distribute Energy Backup Assets (under development)
CPUC Ratepayer Programs	Ratepayer Programs (ELRP, Smart Thermostats, etc.)
	Capacity at Co-gen or Gas Units Above Resource Adequacy
Non-Program	Balancing Authority Emergency Transfers
	DWR State Water Project
	Thermal Resources Beyond Limits: Gen Limits
	Thermal Resources Beyond Limits: Gen Limits Needing 202c



CEC Strategic Reliability Reserve

	Demand Side Grid Support (DSGS)	Distributed Electricity Backup Assets (DEBA)
Funding	\$314 Million (Over 5 Years)	\$595 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	Statewide	Statewide
Program Status	<p>Launched Aug 2022</p> <p>Now accepting applications and incorporation lessons learned</p>	<p>Launching 2024</p>



Key Takeaways

- California is increasingly powering its economy with clean energy resources BUT we face challenges with scaling up clean energy resources, while retiring fossil fueled resources and maintaining grid reliability during climate induced extreme events.
- However, California has new investments, tools and mechanisms in place that is enabling a comprehensive, focused and multi-pronged electric supply and demand approach to ensure grid reliability during peak-demand summer months.
- We need to SUSTAIN our existing efforts, while considering new policy and investment approaches, constructs and options that place the state in a position to proactively address our challenges now and going forward.



Thank You!

