

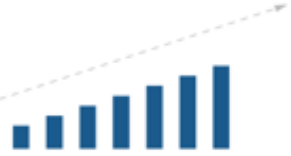


Summer Grid Reliability

- Diablo Canyon Decommissioning Engagement Panel Meeting
- September 24, 2025
- David Erne, Deputy Director, Energy Assessments Division, California Energy Commission



CEC Primary Functions



**Advancing State
Energy Policy**



**Investing in
Energy Innovation**



**Developing
Renewable Energy**



**Preparing for
Energy Emergencies**



**Achieving
Energy Efficiency**



**Transforming
Transportation**



**Overseeing
Energy Infrastructure**



**Intergovernmental
Collaboration**



Primary Roles in Energy Supply Planning and Services

CARB



- Scoping Plan
- Air Regulations
- Carbon Market/Cap-and-Trade

CEC



- California Electric Demand Forecast
- Municipal Utility Renewable Portfolio Standard (RPS) Oversight

CPUC



- Integrated Resource Planning (IRP)
- Resource Adequacy (RA)
- Load serving entity RPS Oversight

CAISO



- Market Operation
- Transmission Operation and Generator Dispatch
- Transmission Planning

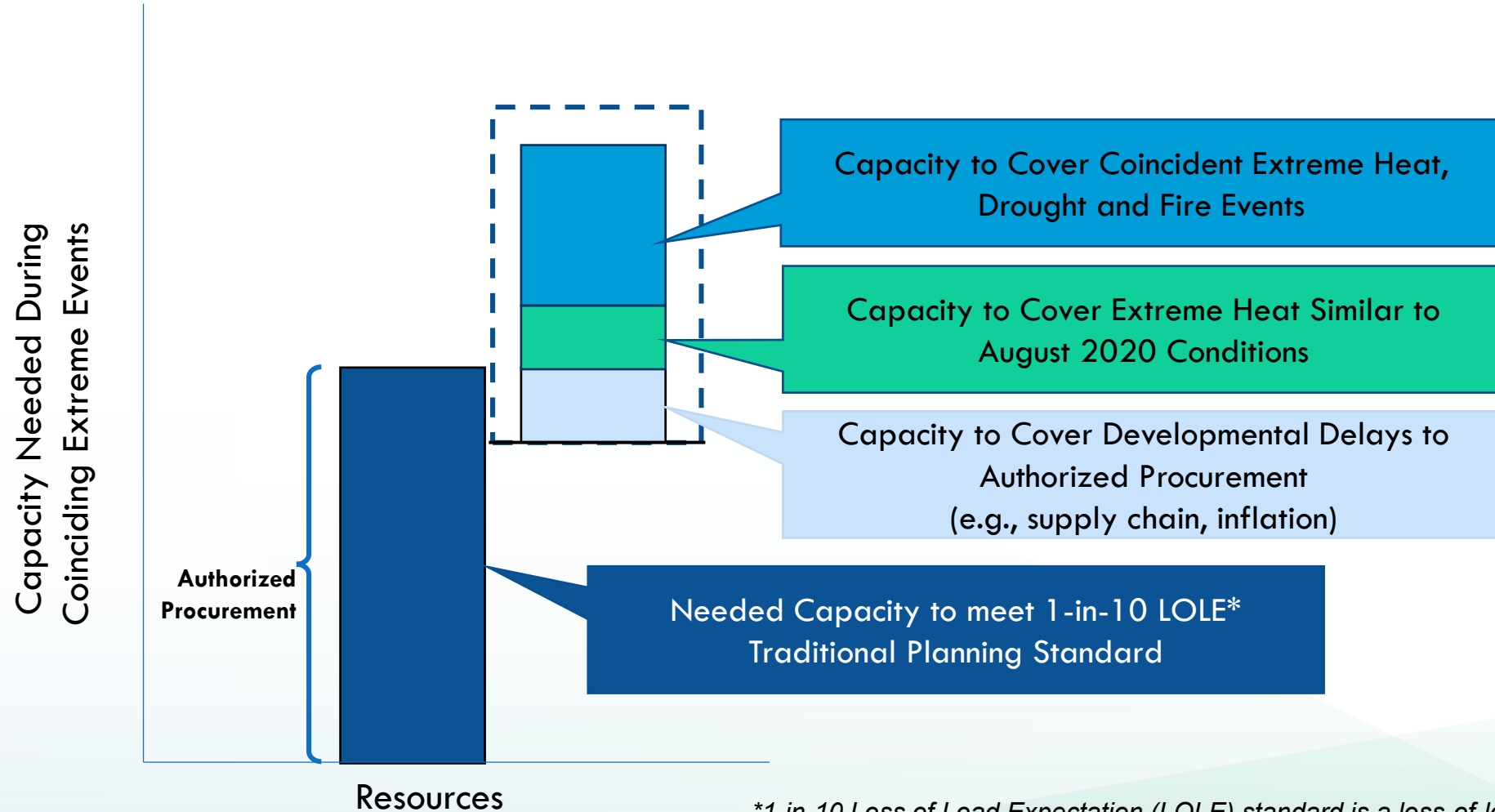
DWR



- Electricity backstop responsibilities such as the Electricity Supply Strategic Reliability Reserve Program and administering the Diablo Canyon Extension Fund



Energy Supply Planning

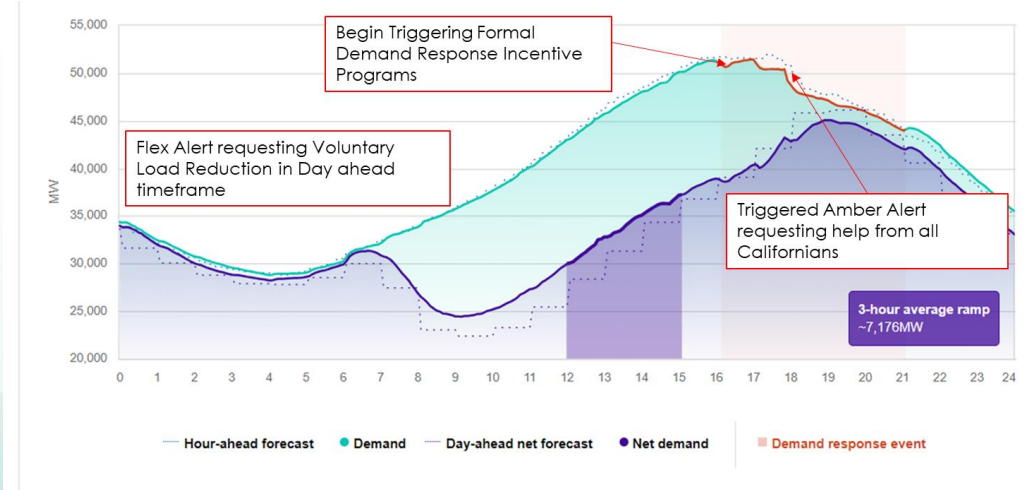
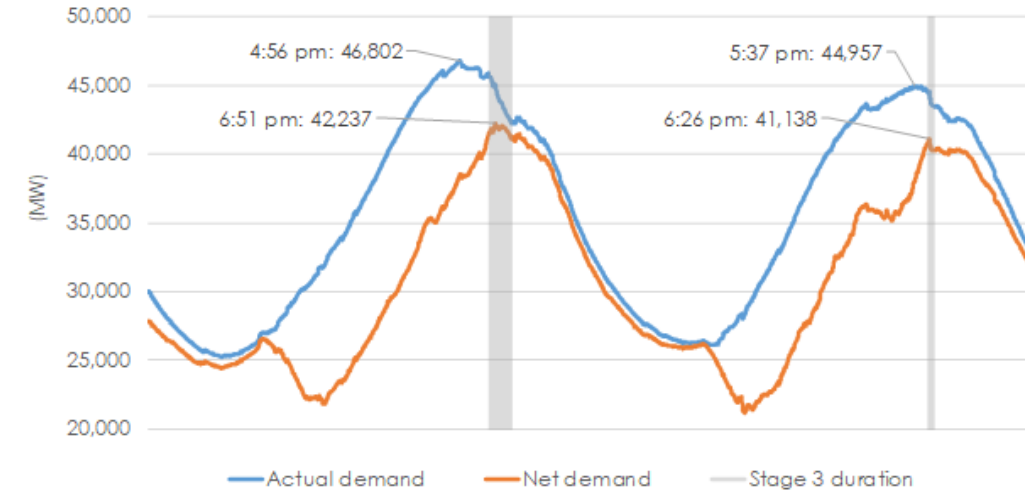


**1-in-10 Loss of Load Expectation (LOLE) standard is a loss-of-load (outage) expectation due to supply shortfall maximum of once in ten years.*



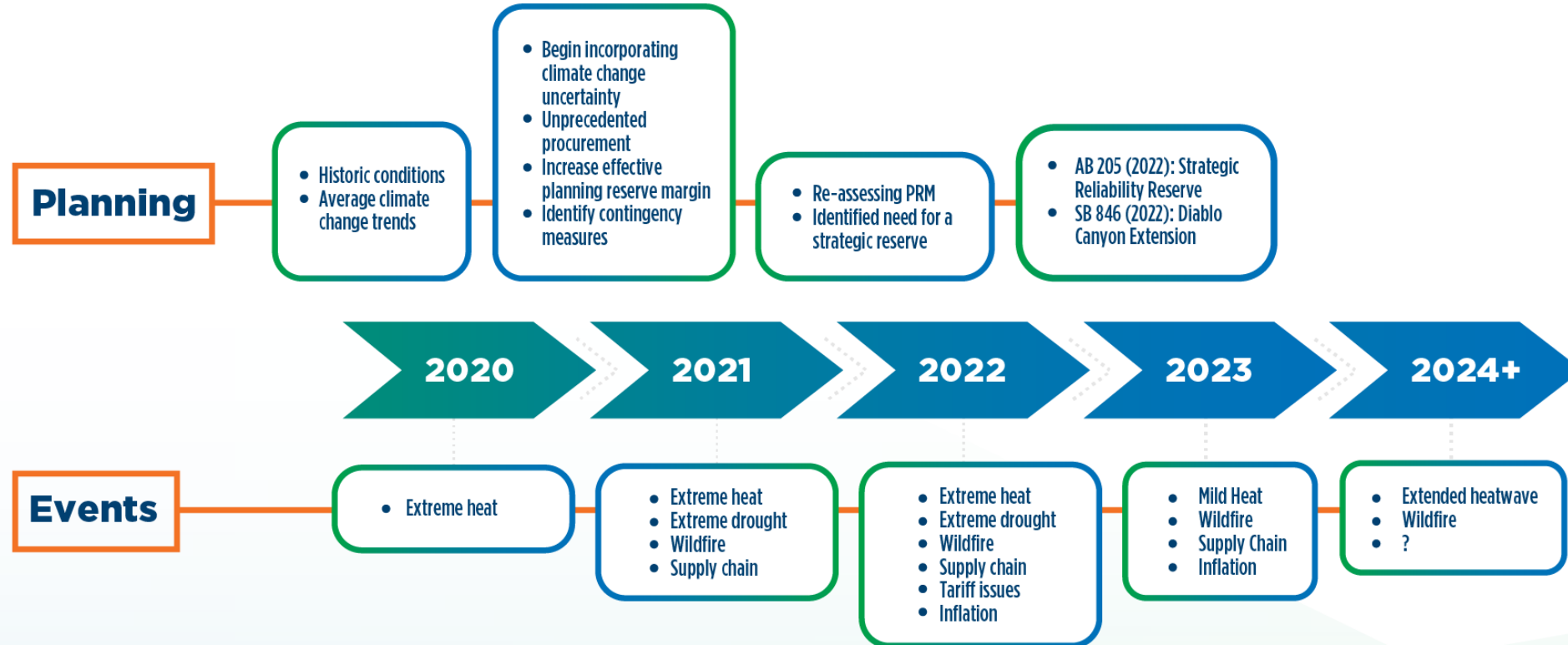
2020 & 2022 Grid Reliability Events

	2020 Rotating Outages	2022 Sept 6 Record Peak
Peak Demand	~47,000 MW	~52,000 MW
Outcome	Rotating outages (800k+ customers affected)	No outages despite historic heat and demand
Response	Late-stage emergency; limited demand response activation	Early Flex Alerts, 2,000 MW drop after text alert
Key Lesson	Insufficient resource adequacy; market issue; coordination gaps	Demand flexibility and fast public response work





Changing Grid Conditions





Grid Reliability & Clean Energy Transition

- **Improving Grid Planning Processes**
 - Improvements to forecasting for climate change-induced weather variability and electrification
 - Ordering sufficient and diverse energy resource procurement
 - Improvements to Resource Adequacy process and requirements
- **Scaling Supply & Demand-Side Clean Energy Resources**
 - Launched an Energy Development Task Force to track new energy projects and provide development support
 - Improving interconnection & permitting processes
 - Continue to assess and plan for clean energy resources and storage and demand flex resources
- **Preparing for Extreme Events (Contingency Measures)**
 - Retain existing and construct new assets & procure energy imports to backstop uncertainties
 - Expand emergency demand flex opportunities as part of strategic reliability reserves



Diablo Canyon Power Plant (DCPP) Extension

- Provided pathway to assess the need for DCPP extension and manage the extension if necessary.
- Requires exclusion of DCPP's continued operations from resource procurement planning.
- Establishes funding mechanisms and oversight for continued DCPP operations and eventual decommissioning

Agency	Key Responsibilities
CEC	<ul style="list-style-type: none">• Assess reliability need for DCPP• Evaluate if clean energy alternatives can replace DCPP before retirement• Develop a load flex goal
CPUC	<ul style="list-style-type: none">• Undertake planning for clean energy and storage procurement without DCPP• Oversee utility compliance and cost recovery• Implement direction to set new DCPP retirement dates
DWR	<ul style="list-style-type: none">• Oversees the Diablo Canyon Extension Fund• Manages loan agreement with DCPP operator to extend operations



2022 Estimated Reliability Impact

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



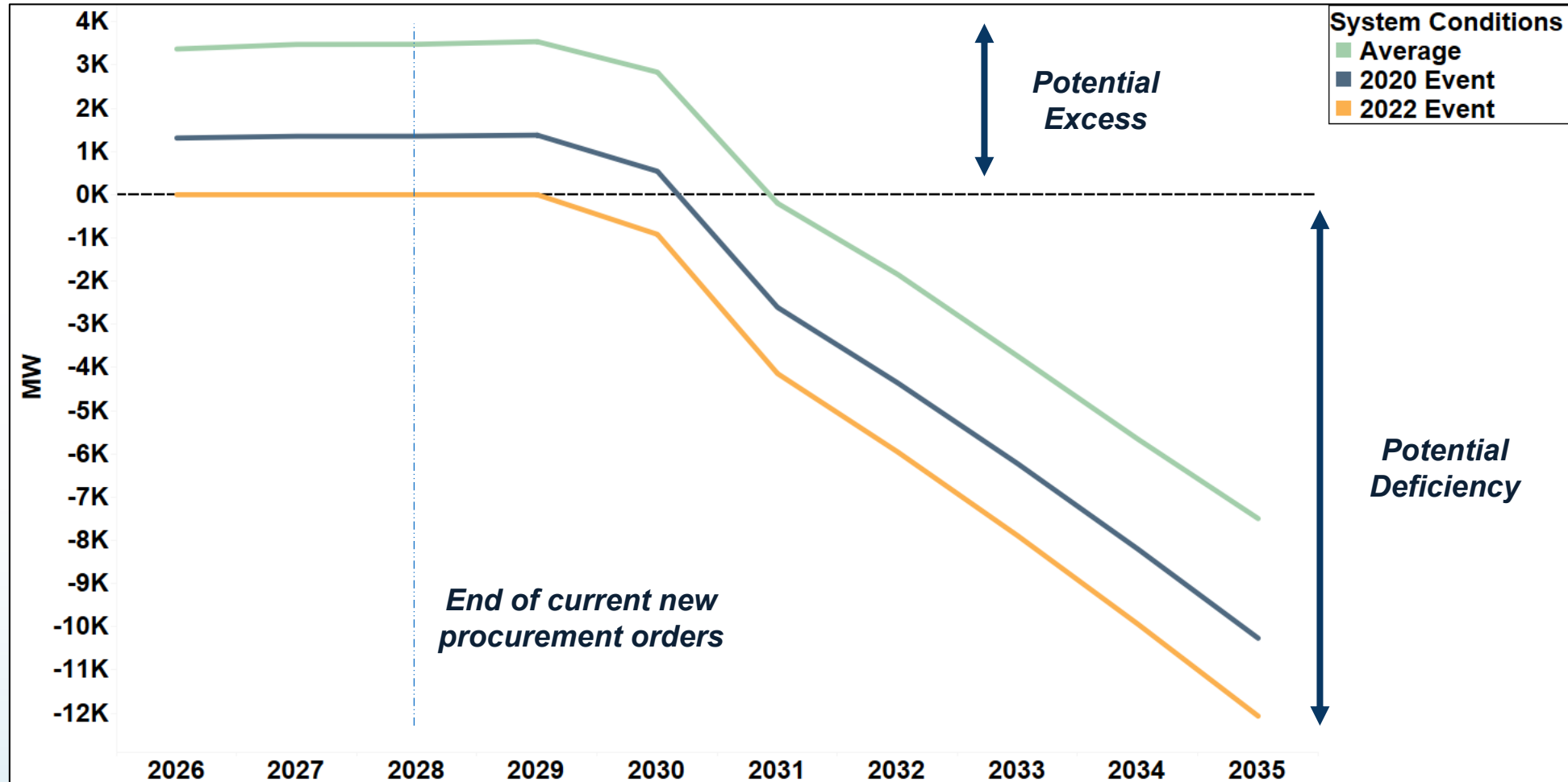
CEC Analysis for DCPD and Reliability

- **CEC Report on the Need for Extension of Diablo Canyon (March 2023)**
 - Authorized procurement sufficient to meet planning standards through 2030
 - Risks to new resource buildout
 - Supply chain issues
 - Interconnection and permitting delays
 - Climate change resulting in greater frequency of extreme events
 - Prudent to continue to pursue extension until necessary resources are online or assessment of viable alternatives is clearly established
- **Cost Comparison of Diablo Canyon (May 2024)**
 - Evaluated multiple supply and demand resource scenarios
 - No supply resources can be brought online before the planned DCPD retirement



Outlook Through 2035

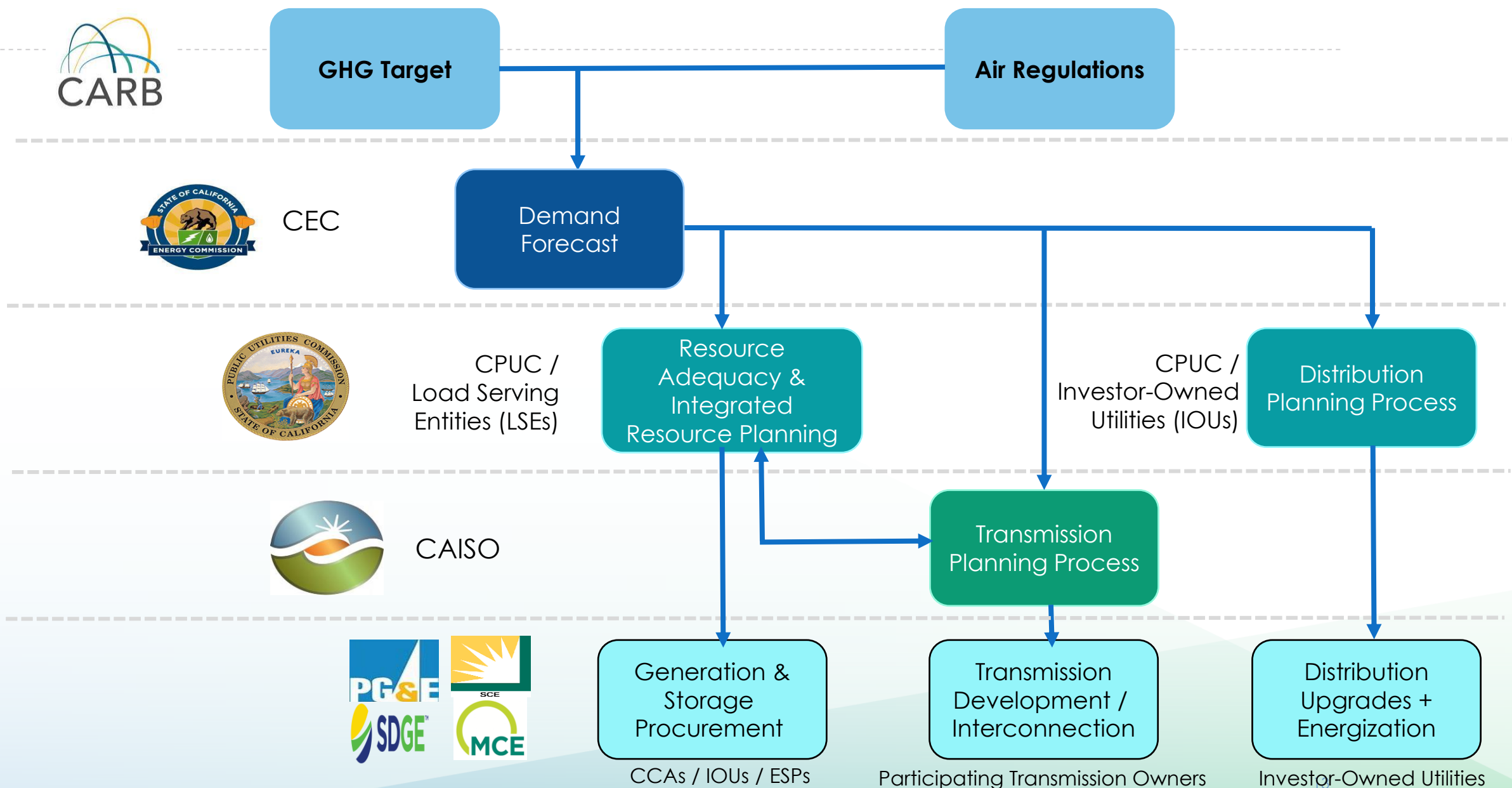
September Potential Reserve Needs





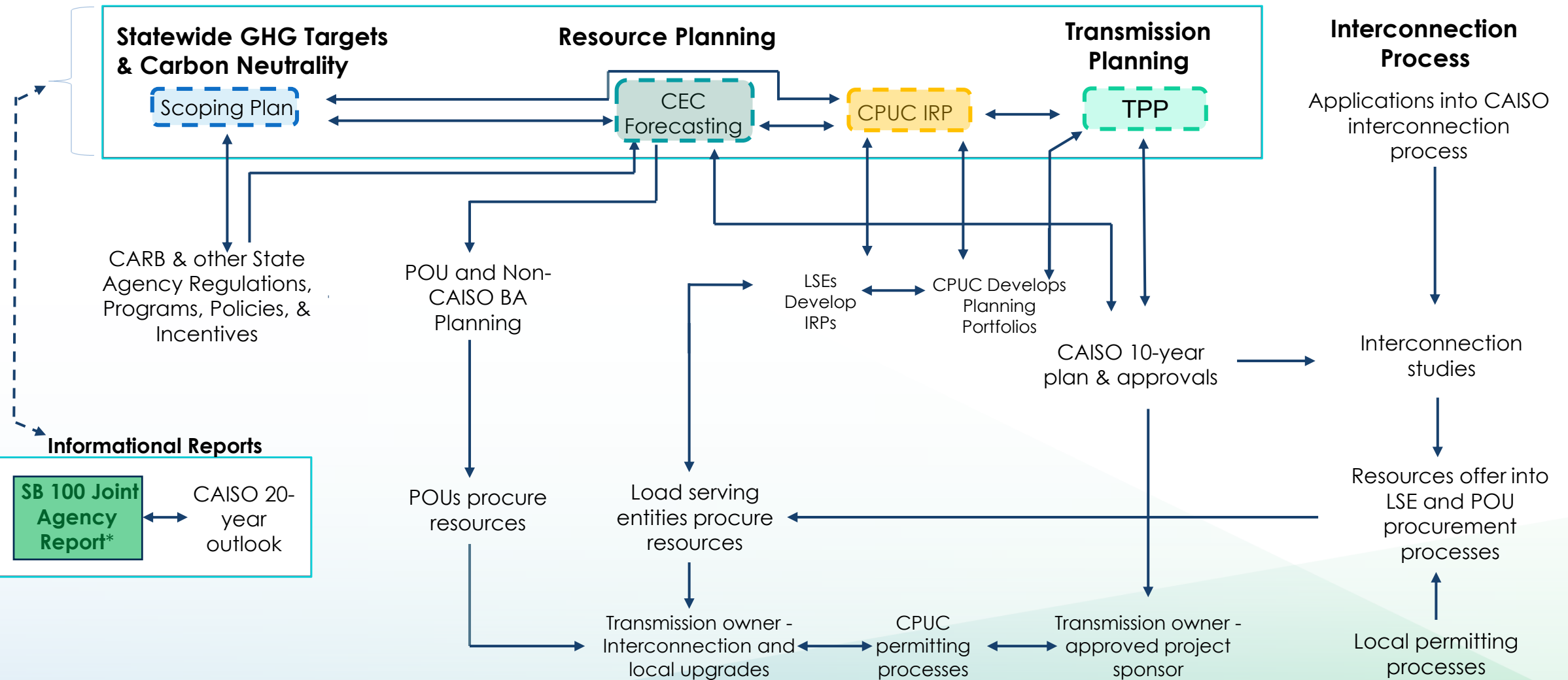
Thank You!

California Statewide Energy Planning Processes – High Level Overview



California Electricity Planning Processes

Primary Electricity Planning Processes

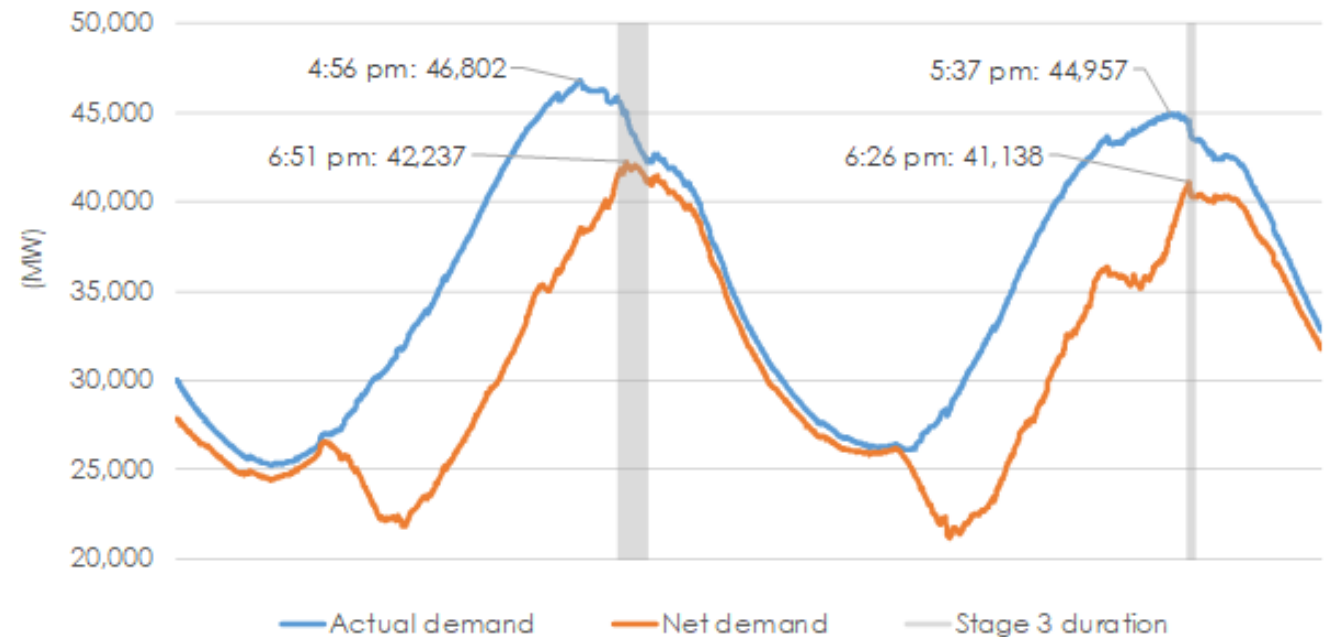


*-statutorily mandated



Summer 2020 Grid Conditions

- Rotating Outages in August 2020
 - Aug 14th: 491,000 customers impacted; outage duration 15 to 150 minutes
 - Aug 15th: 321,000 customers impacted; outage duration 8 to 90 minutes
- 5 Flex Alerts
- Gov issued 2 emergency proclamations





Outlook and Potential Reserve Needs Through 2035

Average Conditions

Year	Hour																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2026	5,889	7,798	8,967	9,277	8,014	5,912	7,470	12,015	14,687	15,681	15,345	13,350	10,108	6,598	1,800	1,343	1,420	1,412	1,276	1,067	873	-628	471	2,418
2027	5,239	7,492	8,899	9,359	8,049	5,702	7,177	12,074	15,178	16,617	16,732	14,882	11,687	8,121	3,116	2,758	2,847	2,852	2,723	2,518	2,338	-512	-401	1,460
2028	3,962	6,615	8,303	8,937	7,586	4,969	6,337	11,558	15,089	16,902	17,341	15,788	12,615	8,948	3,685	2,324	2,256	2,271	2,145	1,940	1,767	-327	-519	-181
2029	2,648	5,730	7,718	8,535	7,134	4,191	5,162	10,299	13,998	16,117	16,904	15,578	12,450	8,700	3,209	600	712	738	613	403	239	-155	-323	-457
2030	-796	2,774	5,112	6,145	4,721	1,473	1,977	6,874	10,618	12,982	14,089	12,985	9,900	6,067	354	-317	-192	-154	-276	-489	-641	-899	-1,039	-1,164
2031	-4,001	-39	2,573	3,769	2,286	-1,278	-1,246	3,421	7,220	9,824	11,250	10,376	7,341	3,433	-2,477	-3,413	-3,276	-3,229	-3,350	-3,568	-3,712	-3,964	-4,082	-4,200
2032	-5,816	-1,442	1,460	2,825	1,280	-2,622	-3,111	1,300	5,135	8,022	9,879	9,063	6,085	2,134	-3,935	-5,124	-4,976	-4,917	-5,034	-5,257	-5,388	-5,634	-5,733	-5,845
2033	-7,740	-2,956	233	1,758	133	-4,122	-5,145	-1,034	2,785	5,833	7,968	7,359	4,464	501	-5,670	-6,945	-6,788	-6,721	-6,837	-7,064	-7,186	-7,427	-7,505	-7,609
2034	-9,660	-4,456	-976	703	-1,026	-5,690	-7,366	-3,685	67	3,177	5,390	5,125	2,331	-1,610	-7,799	-8,846	-8,687	-8,616	-8,736	-8,970	-9,087	-9,325	-9,380	-9,476
2035	-11,497	-5,906	-2,161	-353	-2,207	-7,301	-9,681	-6,468	-2,817	381	2,757	2,617	-92	-3,991	-10,152	-10,817	-10,658	-10,585	-10,711	-10,954	-11,065	-11,302	-11,341	-11,433

2020 Equivalent Event

Year	Hour																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2026	4,237	6,241	7,471	7,798	6,486	4,283	5,765	10,258	12,878	13,838	13,446	11,354	7,969	4,311	-669	-1,181	-1,151	-1,154	-1,207	-1,288	-1,364	-2,689	-1,446	595
2027	3,515	5,880	7,359	7,844	6,484	4,023	5,405	10,241	13,298	14,717	14,793	12,853	9,519	5,804	611	198	232	235	184	105	34	-2,643	-2,402	-449
2028	2,124	4,907	6,682	7,348	5,944	3,201	4,456	9,607	13,093	14,896	15,307	13,678	10,367	6,548	1,091	-325	-454	-449	-498	-578	-645	-2,572	-2,646	-2,223
2029	705	3,937	6,026	6,884	5,429	2,344	3,178	8,232	11,886	14,008	14,783	13,390	10,127	6,222	527	-2,134	-2,090	-2,080	-2,129	-2,210	-2,274	-2,505	-2,570	-2,622
2030	-2,847	896	3,351	4,435	2,956	-449	-103	4,699	8,402	10,779	11,888	10,729	7,511	3,519	-2,409	-3,129	-3,080	-3,066	-3,113	-3,196	-3,255	-3,356	-3,410	-3,458
2031	-6,150	-1,996	746	2,001	460	-3,276	-3,424	1,137	4,898	7,526	8,970	8,052	4,885	815	-5,319	-6,303	-6,249	-6,231	-6,278	-6,363	-6,419	-6,517	-6,563	-6,608
2032	-8,050	-3,465	-419	1,012	-594	-4,683	-5,377	-1,083	2,715	5,639	7,534	6,677	3,570	-545	-6,845	-8,077	-8,019	-7,996	-8,042	-8,128	-8,179	-8,275	-8,314	-8,357
2033	-10,065	-5,050	-1,704	-105	-1,794	-6,254	-7,507	-3,527	254	3,347	5,534	4,892	1,872	-2,255	-8,662	-9,971	-9,910	-9,884	-9,930	-10,018	-10,065	-10,159	-10,189	-10,230
2034	-12,075	-6,620	-2,970	-1,210	-3,008	-7,895	-9,832	-6,303	-2,592	567	2,834	2,554	-361	-4,465	-10,891	-11,960	-11,899	-11,871	-11,918	-12,009	-12,054	-12,147	-12,168	-12,205
2035	-13,998	-8,138	-4,211	-2,315	-4,244	-9,582	-12,256	-9,216	-5,612	-2,361	77	-73	-2,898	-6,958	-13,355	-14,027	-13,965	-13,936	-13,986	-14,080	-14,123	-14,215	-14,231	-14,266

2022 Equivalent Event

Year	Hour																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2026	3,186	5,251	6,519	6,857	5,514	3,247	4,680	9,139	11,726	12,665	12,237	10,084	6,608	2,856	-2,240	-2,787	-2,787	-2,787	-2,787	-2,787	-2,787	-4,000	-2,666	-565
2027	2,418	4,854	6,379	6,880	5,487	2,954	4,277	9,075	12,101	13,508	13,560	11,562	8,138	4,330	-983	-1,431	-1,431	-1,431	-1,431	-1,431	-1,431	-4,000	-3,675	-1,665
2028	955	3,821	5,650	6,336	4,900	2,077	3,259	8,365	11,822	13,619	14,013	12,335	8,936	5,021	-560	-2,011	-2,179	-2,179	-2,179	-2,179	-2,179	-4,000	-4,000	-3,522
2029	-532	2,796	4,948	5,833	4,343	1,168	1,915	6,916	10,543	12,665	13,432	11,998	8,649	4,645	-1,179	-3,873	-3,873	-3,873	-3,873	-3,873	-3,873	-4,000	-4,000	-4,000
2030	-4,153	-299	2,230	3,346	1,832	-1,672	-1,427	3,315	6,991	9,377	10,488	9,294	5,990	1,898	-4,166	-4,919	-4,919	-4,919	-4,919	-4,919	-4,919	-4,919	-4,919	-4,919
2031	-7,517	-3,241	-417	876	-702	-4,547	-4,810	-316	3,419	6,063	7,518	6,572	3,322	-851	-7,127	-8,141	-8,141	-8,141	-8,141	-8,141	-8,141	-8,141	-8,141	-8,141
2032	-9,471	-4,752	-1,616	-141	-1,786	-5,995	-6,819	-2,600	1,174	4,123	6,042	5,159	1,970	-2,250	-8,697	-9,956	-9,956	-9,956	-9,956	-9,956	-9,956	-9,956	-9,956	-9,956
2033	-11,544	-6,382	-2,937	-1,290	-3,021	-7,610	-9,010	-5,114	-1,357	1,765	3,984	3,323	224	-4,009	-10,566	-11,897	-11,897	-11,897	-11,897	-11,897	-11,897	-11,897	-11,897	-11,897
2034	-13,611	-7,997	-4,239	-2,427	-4,270	-9,298	-11,401	-7,969	-4,284	-1,095	1,207	917	-2,073	-6,282	-12,859	-13,942	-13,942	-13,942	-13,942	-13,942	-13,942	-13,942	-13,942	-13,942
2035	-15,590	-9,559	-5,515	-3,563	-5,541	-11,033	-13,895	-10,965	-7,390	-4,106	-1,628	-1,784	-4,683	-8,846	-15,393	-16,069	-16,069	-16,069	-16,069	-16,069	-16,069	-16,069	-16,069	-16,069