LUMA

Interim Resource Adequacy Update

Summer 2025 Outlook - Summary

March 10, 2025

Executive Summary

LUMA closely monitors generation portfolio performance trends and their impact on customers

- Annual Resource Adequacy (RA) reports accurately predicted last 3 years' performance trends
- LUMA's focus has been on predicting cost and load shed impacts from generation sector
- LUMA initiated a "Summer Update" focused on May 1st through October 31st risks (e.g. hurricane, heat wave, loss of another baseload generator)

Recent deterioration of legacy generation fleet raises significant concerns over worsening situation

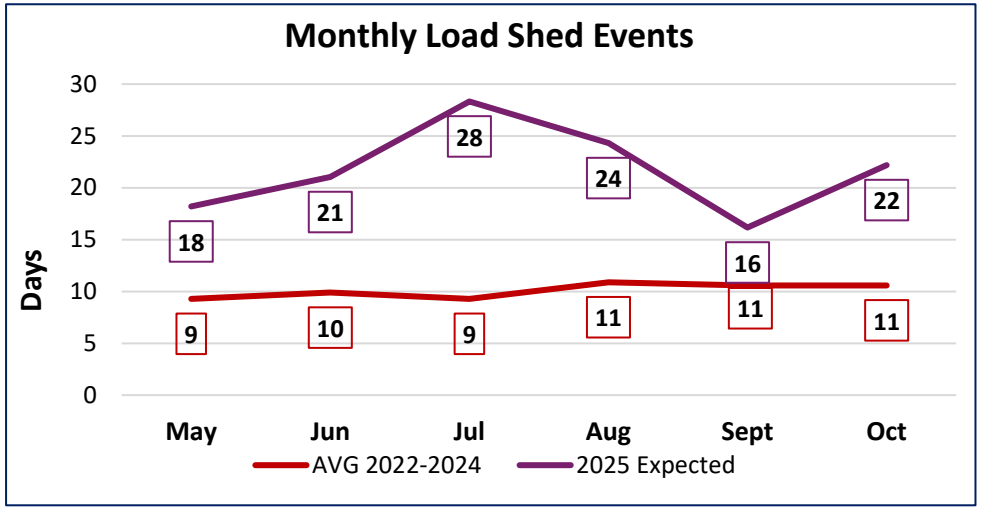
- 1,500 MW of baseload generation will be offline on June 1st
- Genera recently informed LUMA that Aguirre 1 will be out of service until no earlier than 2026
- Forced outages becoming more frequent and lasting longer

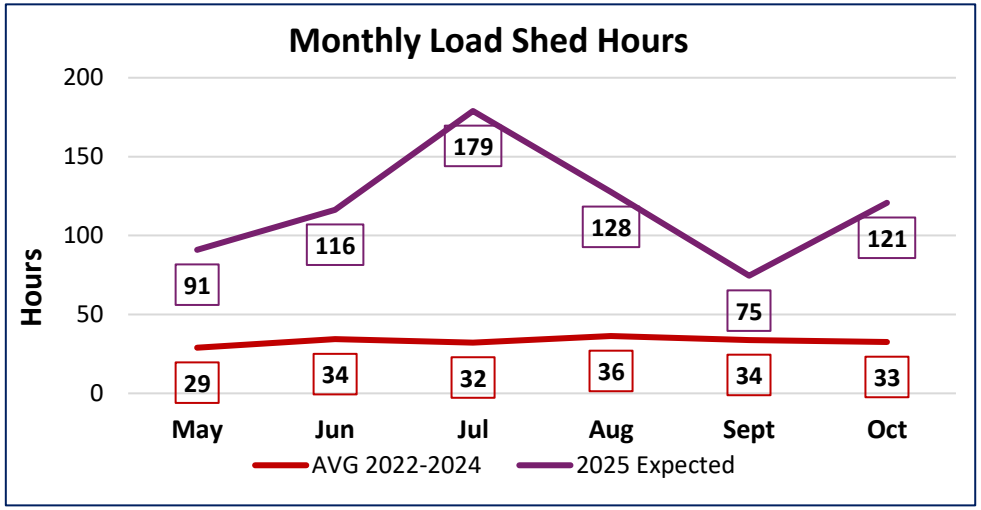
Resource adequacy models were updated last week to reflect current generation fleet state

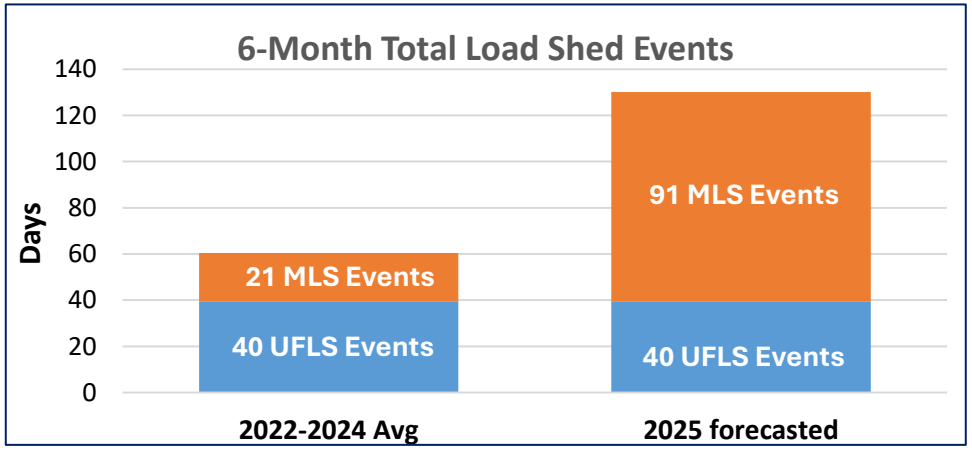
- "Expected case" reflects over five load sheds per week during summer
- Feasible risk scenarios could make load sheds a daily event under worst case
- While the focus is on the next six months, crisis can extend if no immediate generation is brought online

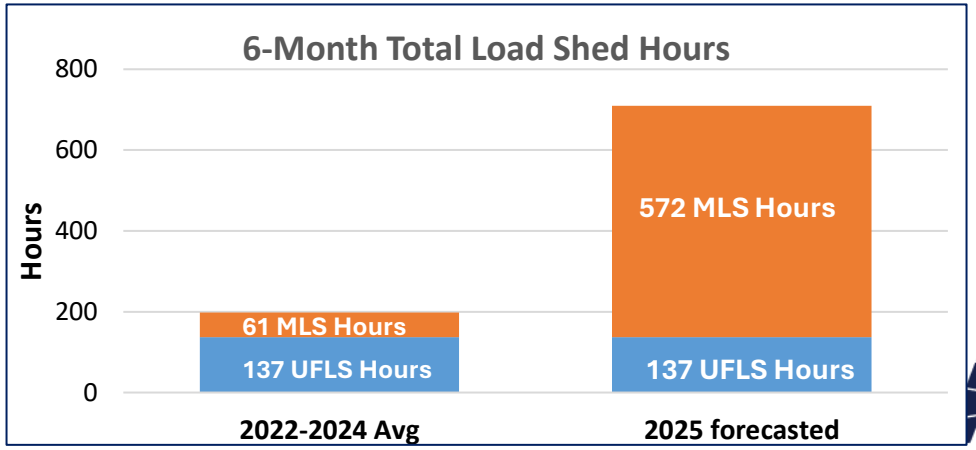
The number and duration of load shed events will more than double this summer relative to prior years

Some month-to-month shifts could result from adjusting outage schedules, expanding customer programs, etc.
Load Sheds presented here include MLS plus UFLS events









MLS = Manual load shed
UFLS = Under frequency load shed

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Generation reserves are inadequate for most hours in every single day of the year, but this will be much worse in summer 2025

Prudent Utility Practices(1) would shed load below 400 MW Reserves (red cells) and disconnect at least some customers while reserves are limited. Historically, and given frequency of shortfalls, this has not been implemented. Applying Prudent Utility Practices reduces system stress and risks to system stability and resilience.

2025 Forecast Average Hourly Reserves by Month (MW)

Hour	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Avg by hour
1	473	403	220	466	594	483	440
2	568	476	315	577	680	583	533
3	643	519	400	674	736	648	603
4	682	559	456	735	780	700	652
5	707	583	485	758	794	716	674
6	684	576	479	732	773	684	655
7	683	581	497	745	771	663	657
8	671	570	484	755	796	695	662
9	679	571	494	759	814	716	672
10	704	594	539	807	856	751	709
11	747	627	591	859	888	776	748
12	756	633	602	876	884	761	752
13	742	614	607	872	867	740	740
14	668	565	565	823	800	659	680
15	560	498	469	708	691	547	579
16	445	414	344	560	559	397	453
17	319	326	218	375	445	256	323
18	248	251	127	235	364	176	234
19	191	169	39	129	275	92	149
20	97	86	-90	17	213	66	65
21	90	53	-134	-6	216	81	50
22	127	122	-94	55	264	141	103
23	207	206	-17	151	364	251	194
24	331	298	84	290	482	372	310
Monthly Avg	501	429	320	540	621	498	

July 2025 Forecast Average Hourly Reserves by Day (MW)

July 2025 reserves forecast

Hour \ Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	256	332	209	445	279	168	129	104	146	284	158	34	179	181	191	122	-28	-30	286	161	155	394	381	279	48	9	106	333	377	310	528
2	348	383	340	554	386	260	223	198	281	393	269	156	263	242	231	206	39	71	403	232	243	507	493	372	133	23	189	416	453	421	644
3	402	447	418	616	463	374	332	264	315	480	357	217	345	310	359	314	143	166	467	305	352	553	568	462	203	188	292	499	513	488	699
4	443	519	503	660	459	448	387	313	347	502	379	339	427	349	469	353	203	212	538	368	419	594	599	517	270	281	404	550	595	542	725
5	435	544	507	660	517	515	415	332	419	558	390	382	475	375	482	390	231	239	543	414	440	635	623	532	294	332	448	550	591	596	844
6	387	525	532	672	540	526	430	314	391	548	415	424	532	377	519	372	201	248	573	456	411	602	605	537	288	398	489	520	521	508	676
7	486	518	613	716	591	575	439	342	399	539	397	422	592	396	459	328	208	243	606	494	434	598	621	544	322	448	562	484	541	528	638
8	455	484	611	711	592	611	385	326	363	512	290	495	659	352	424	302	156	254	590	577	393	561	571	533	315	531	567	475	507	456	578
9	402	490	660	701	636	632	384	385	344	478	322	485	624	369	388	316	185	295	588	609	377	591	595	576	316	549	603	474	514	445	589
10	371	544	704	750	715	709	408	354	380	507	382	543	647	452	439	375	224	286	653	662	450	646	666	664	380	612	717	522	526	442	623
11	434	613	769	783	783	781	462	510	379	490	437	569	687	522	476	464	272	378	677	735	448	657	746	682	431	658	754	573	646	557	723
12	488	647	786	766	780	802	548	468	408	432	445	663	692	554	470	465	316	427	698	725	417	679	733	668	463	664	755	514	599	531	760
13	538	667	802	684	778	798	514	442	375	470	425	669	685	554	517	457	310	467	735	725	406	698	747	627	476	681	755	502	593	505	876
14	580	608	779	692	716	761	429	397	345	457	394	603	657	513	375	425	285	332	714	707	433	680	710	627	475	683	699	499	564	402	800
15	480	523	707	623	618	655	318	221	378	321	275	501	536	360	354	317	222	321	613	692	346	548	570	532	362	564	574	327	491	335	647
16	375	392	649	545	415	503	186	63	327	153	181	341	421	211	187	150	114	298	472	562	338	360	344	351	176	396	492	262	345	309	495
17	290	206	497	480	210	298	80	27	318	29	22	268	210	9	25	-83	-78	307	275	337	254	314	285	117	18	172	396	271	207	260	435
18	230	80	381	446	67	120	-36	3	230	-13	-92	189	123	-102	-15	-188	-216	258	147	163	236	207	167	53	-138	13	316	254	153	243	357
19	131	-24	322	372	-37	-51	-110	-69	221	-69	-157	98	36	-161	-98	-304	-288	199	62	27	173	129	57	-115	-242	-78	245	170	59	155	221
20	-17	-103	188	255	-168	-161	-213	-214	25	-172	-284	-64	-98	-294	-192	-472	-428	110	-50	-88	52	-8	-28	-258	-349	-186	85	51	-85	64	77
21	-55	-129	140	231	-195	-230	-243	-272	-123	-198	-308	-110	-166	-333	-254	-502	-430	53	-97	-198	-18	-26	-79	-326	-355	-206	14	-32	-118	37	11
22	-28	-97	183	238	-151	-251	-242	-222	-115	-147	-314	-66	-137	-243	-200	-412	-395	61	-30	-191	5	27	-23	-294	-358	-187	40	7	-53	60	109
23	11	-48	225	286	-87	-189	-171	-144	-39	-65	-220	-36	-50	-141	-156	-297	-300	108	46	-109	145	100	56	-244	-239	-101	127	104	47	147	193
24	137	86	337	374	28	-4	-28	-11	50	55	-126	68	39	-44	-17	-181	-356	236	76	12	262	211	179	-110	-143	-23	195	230	168	233	278

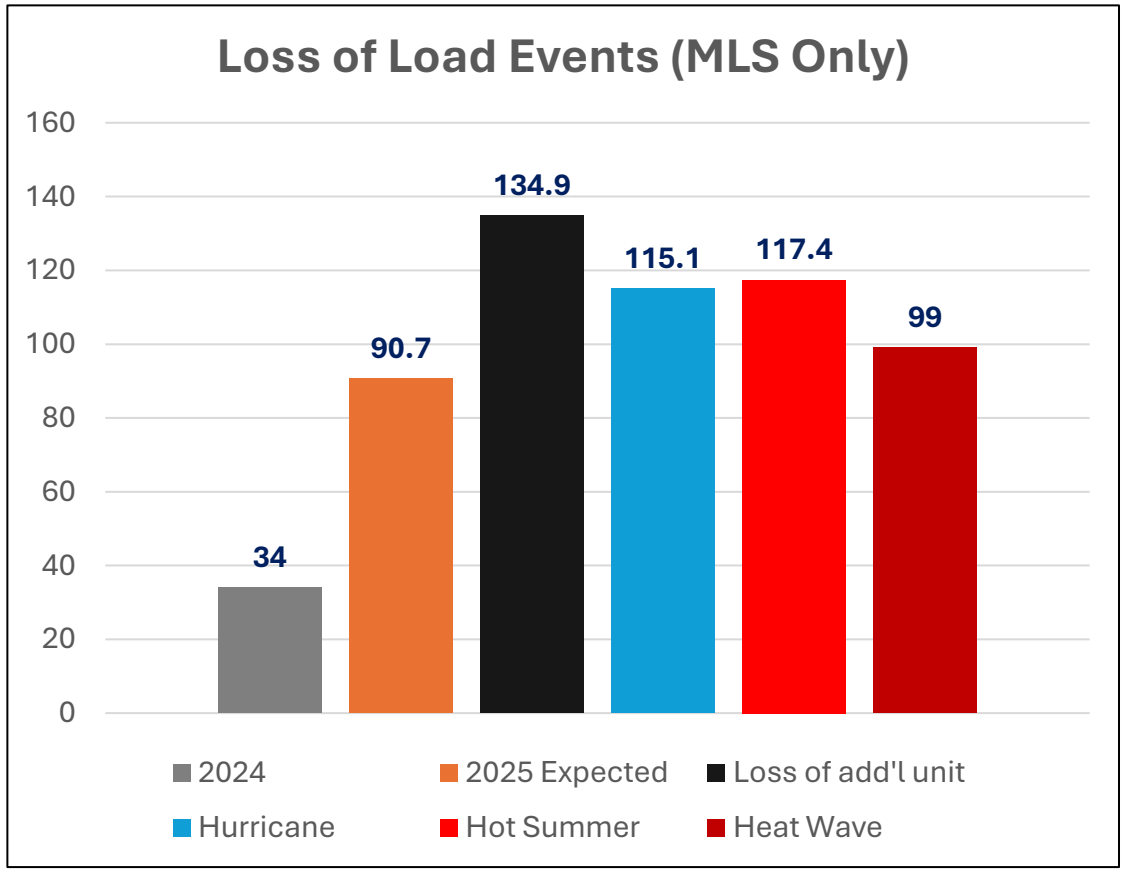
Legend

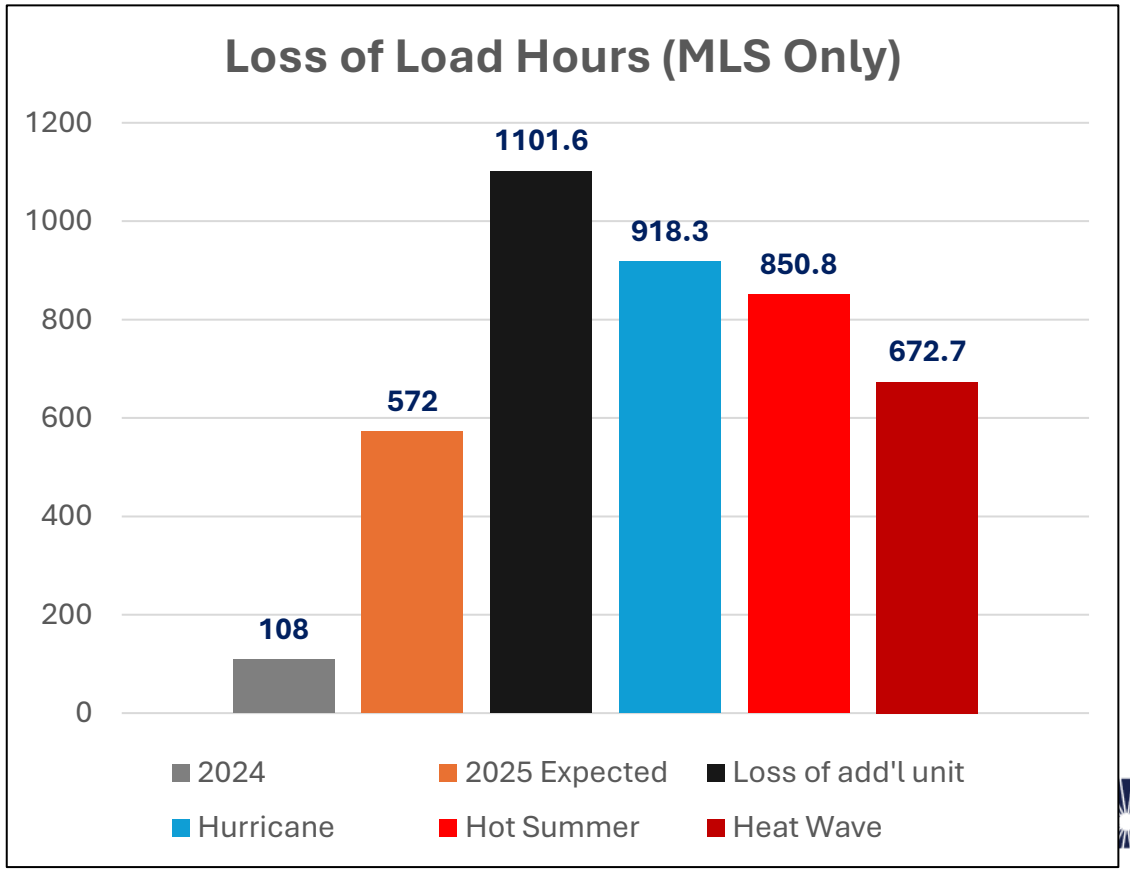
Reserves (MW): <0 MW | 0 MW – 750 MW

(1) NERC Guidelines and LUMA's System Operations Principles approved by the Energy Bureau in spring 2022

Other risk scenarios will increase load shed activity this summer significantly beyond levels in the Expected Case

Loss of Load Events represent manual load shed (MLS) only, for the 6-month summer period
Each bar represents impact of expected MLS generation shortfalls **PLUS** that additional sensitivity shown in legend
Charts suggest the impact of losing another baseload unit greater than a Category 3 hurricane or prolonged heat wave





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