

DOCKETED	
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ELLC WORKING GROUPS LOAD IMPACT PROTOCOLS DESCRIPTION

AUGUST 16, 2021



LOAD IMPACT PROTOCOLS BACKGROUND

- The load impact protocols were adopted on 2008
- The focus was on standardizing reporting for:
 - Ex-post impacts: What were the load impacts given the conditions and sites dispatched at the time of events?
 - Ex-ante impacts: What is the magnitude of programs resources under system peaking conditions?
- The protocols did not specify how load impacts should be applied for resource adequacy
- At the time, resource adequacy was driven by system gross peak loads, while today they are driven by net loads.
- Focus on what impacts should be estimated, what issues should be considered when selecting an approach, and what to report

PROTOCOL SUMMARY

1-3 Planning Protocols

- Make and evaluation plan
- Consider other application
- Checklist of considerations

17-23 Ex-ante Impact Protocols

- Base ex-ante on ex-post when possible
- Produce estimates for each hour and day type
- Estimate change in daily energy use
- Reporting format (table)
- Day types
- Statistical measures

4-10 Ex-post Impacts for Event Based Programs

- Time periods
- Uncertainty
- Output format
- Day types
- Production of statistical measures

24 -27 Other

- Portfolio impacts
- Sampling
- Reporting
- Process

11-16 Ex-post Impacts for Non- Event Based Resources

- Time periods
- Uncertainty
- Output format
- Day types
- Production of statistical measures

STANDARDIZED REPORTING OF IMPACTS

Southern California Edison

PY2020 Summer Discount Plan - Residential Ex Post

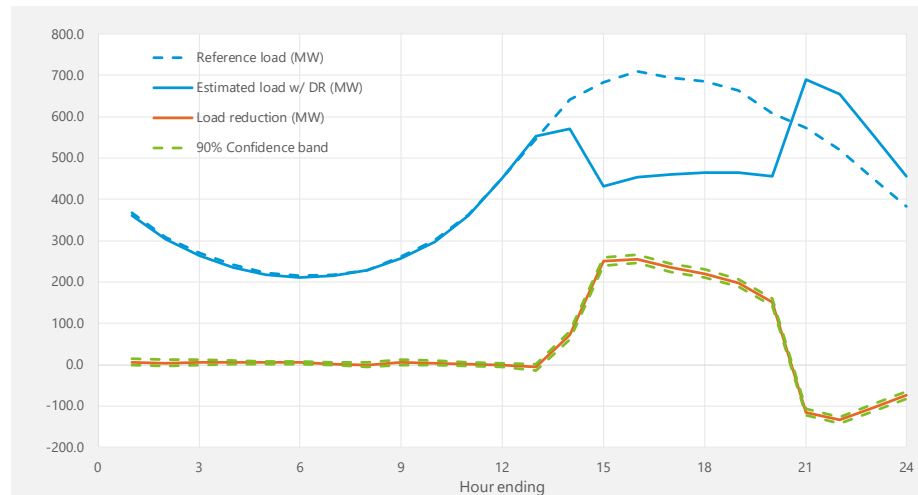


Table 1: Menu options

Program	SDP-R
Type of result	Aggregate
Category	ALL
Subcategory	All
Event date and hours	2020-08-18 (13:40-19:48 PM)

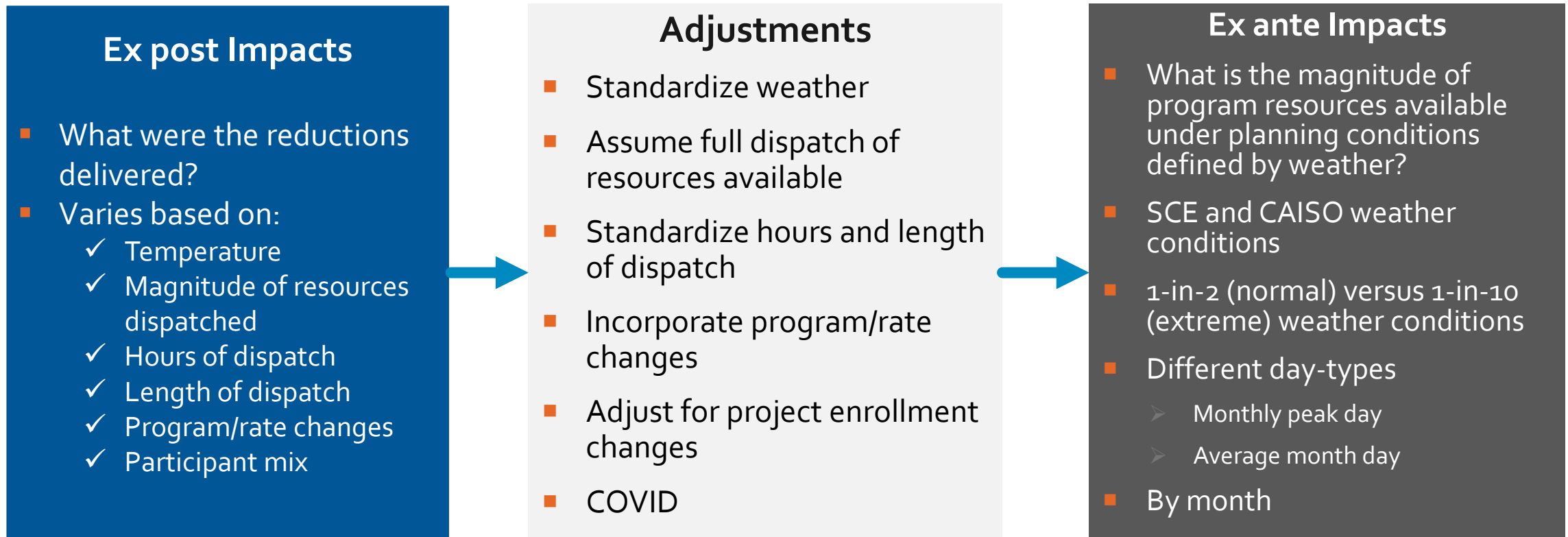
Table 2: Event day information

Event start	1:40 PM
Event end	7:48 PM
Total sites	199,557
Total devices	232,734
Total AC tonnage	846,367
Daily maximum temperature	102.6
Full event hours load reduction (MW)	232.08
Full event hours % load reduction	33.7%
All event hours load reduction (MW)	197.60
All event hours % load reduction	29.5%



Hour ending	Reference load (MW)	Estimated load w/ DR (MW)	Load reduction (MW)	% Load reduction	Avg temp (F, site weighted)	Uncertainty adjusted impact - Percentiles								Std. error	T-statistic
						5th	10th	30th	50th	70th	90th	95th			
1	366.65	360.12	6.53	1.8%	80.84	-0.88	0.76	4.17	6.53	8.90	12.31	13.95	4.51	1.45	
2	308.05	303.65	4.40	1.4%	79.91	-2.77	-1.18	2.12	4.40	6.69	9.99	11.57	4.36	1.01	
3	269.63	263.61	6.01	2.2%	78.85	0.09	1.40	4.12	6.01	7.90	10.63	11.93	3.60	1.67	
4	242.15	236.22	5.93	2.4%	77.73	1.09	2.16	4.39	5.93	7.48	9.71	10.78	2.95	2.01	
5	222.43	217.56	4.87	2.2%	76.92	0.83	1.72	3.58	4.87	6.16	8.02	8.91	2.46	1.98	
6	215.20	210.46	4.75	2.2%	76.54	0.86	1.72	3.51	4.75	5.99	7.78	8.64	2.36	2.01	
7	216.84	214.49	2.35	1.1%	76.36	-2.03	-1.06	0.95	2.35	3.74	5.76	6.73	2.66	0.88	
8	228.55	228.70	-0.15	-0.1%	76.26	-5.07	-3.98	-1.72	-0.15	1.42	3.68	4.77	2.99	-0.05	
9	262.10	256.57	5.53	2.1%	78.30	-0.22	1.05	3.70	5.53	7.36	10.01	11.28	3.50	1.58	
10	301.53	297.01	4.52	1.5%	83.13	-1.65	-0.29	2.55	4.52	6.49	9.34	10.70	3.76	1.20	
11	363.25	361.79	1.46	0.4%	88.84	-3.04	-2.04	0.03	1.46	2.89	4.96	5.96	2.73	0.53	
12	451.15	452.61	-1.46	-0.3%	93.72	-5.96	-4.96	-2.89	-1.46	-0.03	2.04	3.04	2.73	-0.53	
13	546.71	552.82	-6.10	-1.1%	97.45	-14.47	-12.62	-8.77	-6.10	-3.44	0.42	2.27	5.09	-1.20	
14	641.57	570.71	70.86	11.0%	101.11	61.29	63.40	67.81	70.86	73.91	78.31	80.43	5.82	12.18	
15	683.01	432.55	250.46	36.7%	101.78	240.43	242.64	247.26	250.46	253.65	258.27	260.48	6.10	41.08	
16	710.12	453.96	256.16	36.1%	102.55	245.48	247.83	252.75	256.16	259.56	264.48	266.84	6.49	39.45	
17	694.41	459.78	234.64	33.8%	99.99	224.29	226.57	231.34	234.64	237.94	242.70	244.98	6.29	37.30	
18	686.29	465.77	220.52	32.1%	97.35	210.27	212.54	217.25	220.52	223.78	228.50	230.76	6.23	35.41	
19	664.60	465.98	198.62	29.9%	94.96	189.73	191.70	195.79	198.62	201.45	205.54	207.50	5.40	36.77	
20	608.06	456.14	151.93	25.0%	91.92	143.01	144.98	149.08	151.93	154.77	158.87	160.84	5.42	28.03	
21	574.07	689.24	-115.18	-20.1%	87.97	-123.35	-121.54	-117.78	-115.18	-112.57	-108.81	-107.01	4.97	-23.19	
22	521.13	655.03	-133.91	-25.7%	85.33	-142.01	-140.22	-136.49	-133.91	-131.33	-127.60	-125.81	4.92	-27.20	
23	452.38	557.44	-105.06	-23.2%	83.61	-113.95	-111.99	-107.90	-105.06	-102.23	-98.14	-96.17	5.40	-19.44	
24	382.90	456.86	-73.96	-19.3%	82.25	-82.21	-80.38	-76.59	-73.96	-71.33	-67.53	-65.70	5.02	-14.74	
Daily	Reference load (MWh)	Estimated load w/ DR (MWh)	Energy savings (MWh)	% Change	Avg. Daily Weighted temp (F)	Uncertainty adjusted impact - Percentiles								Std. error	T-statistic
						5th	10th	30th	50th	70th	90th	95th			
Daily kWh	10612.77	9619.07	993.71	10.3%	87.24	956.59	964.79	981.87	993.71	1005.54	1022.62	1030.82	22.56	44.04	

EX ANTE IMPACTS REFLECT THE MAGNITUDE OF PROGRAM RESOURCES AVAILABLE UNDER PLANNING CONDITIONS DEFINED BY WEATHER



When possible, ex ante impacts are based on multiple years of historical performance during actual events

STANDARDIZED REPORTING OF EX-ANTE IMPACTS

Southern California Edison

PY2020 Summer Discount Plan - Residential Ex Ante

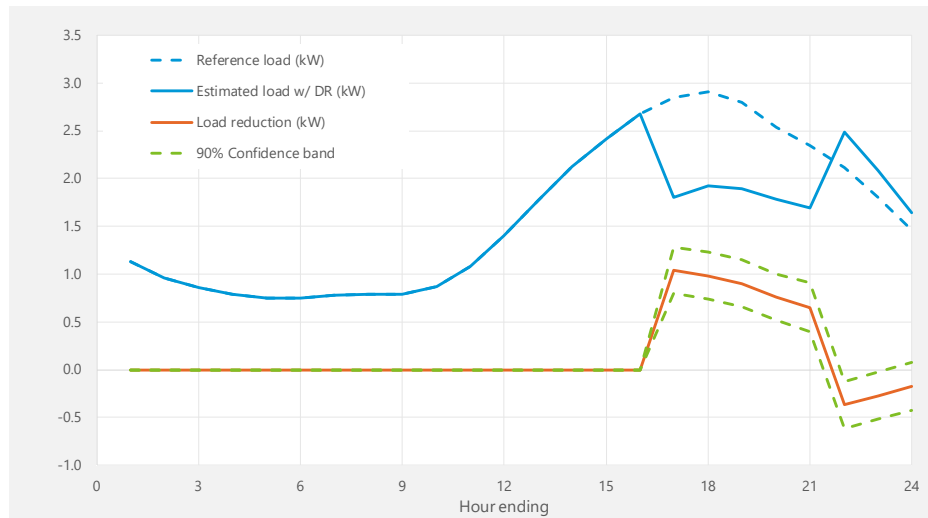


Table 1: Menu options

Program	SDP-R
Type of result	Per customer
Category	ALL
Subcategory	All
Weather Data	SCE Weather
Weather Year	1-in-2
Day Type	MONTHLY SYSTEM PEAK DAY
Month	8
Forecast Year	2021

Table 2: Event day information

Event start	4:00 PM
Event end	9:00 PM
Total sites	189,795
Total devices	221,618
Total AC tonnage	808,299
Event window temperature (F)	91.3
Event window load reduction (kW)	0.87
% Load reduction (Event window)	32.3%
COVID Index	0.50



Hour ending	Reference load (kW)	Estimated load w/ DR (kW)	Load reduction (kW)	% Load reduction	Avg temp (F, site weighted)	Uncertainty adjusted impact - Percentiles								Std. error	T- statistic
						5th	10th	30th	50th	70th	90th	95th			
1	1.13	1.13	0.00	0.0%	79.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	0.96	0.96	0.00	0.0%	78.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.86	0.86	0.00	0.0%	77.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	0.79	0.79	0.00	0.0%	76.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	0.75	0.75	0.00	0.0%	75.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	0.75	0.75	0.00	0.0%	75.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	0.78	0.78	0.00	0.0%	74.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	0.79	0.79	0.00	0.0%	74.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9	0.79	0.79	0.00	0.0%	76.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10	0.87	0.87	0.00	0.0%	81.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	1.08	1.08	0.00	0.0%	85.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12	1.40	1.40	0.00	0.0%	89.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13	1.77	1.77	0.00	0.0%	91.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14	2.12	2.12	0.00	0.0%	93.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15	2.42	2.42	0.00	0.0%	95.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16	2.68	2.68	0.00	0.0%	95.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17	2.85	1.81	1.04	36.5%	94.95	0.79	0.85	0.96	1.04	1.12	1.23	1.29	0.15	6.97	
18	2.90	1.92	0.98	33.9%	93.33	0.74	0.79	0.91	0.98	1.06	1.17	1.23	0.15	6.61	
19	2.79	1.89	0.90	32.3%	91.58	0.66	0.71	0.82	0.90	0.98	1.09	1.15	0.15	6.07	
20	2.54	1.78	0.76	29.9%	89.92	0.51	0.57	0.68	0.76	0.84	0.95	1.00	0.15	5.11	
21	2.34	1.69	0.65	27.8%	86.62	0.39	0.45	0.57	0.65	0.73	0.85	0.91	0.16	4.18	
22	2.12	2.49	-0.37	-17.4%	83.39	-0.62	-0.56	-0.45	-0.37	-0.29	-0.17	-0.12	0.15	-2.43	
23	1.81	2.08	-0.27	-15.1%	81.18	-0.52	-0.47	-0.35	-0.27	-0.19	-0.08	-0.02	0.15	-1.80	
24	1.47	1.64	-0.17	-11.9%	79.48	-0.42	-0.37	-0.25	-0.17	-0.10	0.02	0.07	0.15	-1.15	
Daily	Reference load (kWh)	Estimated load w/ DR (kWh)	Energy savings (kWh)	% Change	Avg. Daily Weighted temp (F)	Uncertainty adjusted impact - Percentiles								Std. error	T- statistic
						5th	10th	30th	50th	70th	90th	95th			
Daily kWh	38.76	35.24	3.52	10.0%	84.20										

QUESTIONS?



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