

DOCKETED

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ICCT comments to CEC AB2127 2nd report

Please refer to the attached document.

Additional submitted attachment is included below.



THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION



19 September 2023
California Energy Commission
715 P Street
Sacramento, CA 95814

Dear CEC staff,

The International Council on Clean Transportation (ICCT) submits these comments in response to the Energy Commission's Second Assembly Bill (AB) 2127 Electric Vehicle Charging Infrastructure Assessment Staff Draft Report. These comments respond to report findings with respect to medium-duty and heavy-duty (MDHD) zero-emission vehicle (ZEV) charging infrastructure.

This work reflects how well CEC is positioned to lead a consolidated and harmonized set of assumptions and interlinked models across state agencies. We encourage staff to embrace this role and make this effort a priority in order to reduce market uncertainty and give clear direction to MDHD ZEV infrastructure deployment.

We commend the Energy Commission staff for their approach. The Draft Report fills a critical information gap for utility regulators whose job is to ensure the grid is ready to meet the energy demand from transportation electrification. The study reflects a realistic projection of fleet size, activity, traffic patterns, and energy consumption of MDHD vehicles in California. We find the data sources, assumptions, and improvements to the HEVI-LOAD model that inform these findings are reasonable and well-justified.

The Draft Report contains results consistent with ICCT analysis. In May 2023 ICCT estimated the near-term MDHD ZEV charging infrastructure needs across the US in 2025 and 2030.¹ The ICCT study estimates a peak charging load in California for MDHD ZEVs of around 830 MW. The peak charging load under an unmanaged charging case in the CEC Draft Report is around 800 MW. Both studies estimate California will need around 5,500 public chargers for MDHD ZEVs in 2030. One reason for this similarity is the use of charging load profiles taken from the HEVI-LOAD model.

Differences between the two studies also exist. The ICCT analysis projects a lower number of depot chargers (47,600) compared to the Energy Commission's estimate (109,000). The gap in depot charger numbers may arise from differences in assumptions. For example, the ICCT study

¹ Ragon, P.-L., Kelly, S., Egerstrom, N., Brito, J., Sharpe, B., Allcock, C., Minjares, R., & Rodríguez, F. (2023). *Near-term infrastructure deployment to support zero-emission medium- and heavy-duty vehicles in the United States*. The International Council on Clean Transportation. <https://theicct.org/publication/infrastructure-deployment-mhdv-may23/>

assumes a charging power of up to 150 KW for depot chargers. We are also aware that top-down studies (like the ICCT study) can produce fewer estimated chargers when compared with bottom-up analysis (like the CEC-sponsored study).

The ICCT analysis contains information not found in the Draft Report. For example, ICCT estimates 5,900 MW of nameplate distribution capacity is necessary to support Class 4-8 trucks and buses in California in 2030. In Southern California alone, we estimate five counties will require 2,700 MW of nameplate capacity by this time. Out of more than 3,000 counties we analyzed across the U.S., Los Angeles County has the greatest nameplate capacity need of 974 MW by 2030. Results of the ICCT study are aggregated at the county level, and a full list of California county-by-county results are attached below.

The development of the EVSE Deployment and Grid Evaluation (EDGE) tool should aid this effort. This tool will help the Public Utilities Commission and local utilities understand where grid capacity exists now and where additions are most likely to be needed. This information can also accelerate infrastructure investment by steering project applicants towards locations likely to experience the shortest energization timelines. The EDGE tool has the potential to expedite the planning process to locate TAZs that have the greatest grid capacity deficit so that IOUs and the Public Utilities Commission can make and approve investment-grade decisions as soon as possible.

A worrying finding of the Report is the number of TAZs where peak loads are likely to exceed existing capacity. The Report finds that almost 13% of TAZs in California may experience peak EV charging loads in 2025 that would exceed available circuit capacity. EV adoption will accelerate in the second half of the decade, and this trend is reflected in ICCT estimates of 2030 grid capacity needs. Utilities generally are not planning for additions at the scale identified in the ICCT analysis. Utilities serving any circuits likely to exceed capacity must hear from CEC staff so they can begin planning immediately to address these and other grid constraints.

In closing, we thank the Energy Commission staff for producing an informative and timely draft report. We encourage staff to provide more detailed information that describes the methodology of the various models that inform their assessment. We also encourage staff to share results of the assessment with other state agencies, especially the staff of the Public Utilities Commission involved in the Freight Infrastructure Planning framework and the high DER proceeding. Staff of the California Transportation Commission, which has been tasked with a Clean Freight Corridor Efficiency Assessment under the auspices of SB 671, would also benefit from these findings. We invite staff to contact us with questions about the ICCT analysis referenced in these comments.

Kind regards,

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Appendix Key Findings from May 2023 ICCT U.S. infrastructure study

Table 1 Statewide charger totals by power and location type (Ref. Table H-1)

Power (kW)	Location type	2025	2030
50	Depot	856	3107
100	Depot	10,992	44,381
150	Depot	0	0
350	Depot	92	190
2,000	Depot	0	59
Total	Depot	11,870	47,737
50	Public	0	0
100	Public	34	837
150	Public	397	4,144
350	Public	226	362
2,000	Public	0	269
Total	Public	657	5,612
Total	All	12,527	53,349

Table 2 County-by-county results for depot chargers (Ref. Table H-2)

County	2025	2030
Alameda	453	1,828
Alpine	8	31
Amador	33	133
Butte	71	285
Calaveras	30	121
Colusa	40	162
Contra Costa	228	919
Del Norte	25	99
El Dorado	114	461
Fresno	281	1,136
Glenn	37	149
Humboldt	84	339
Imperial	134	540
Inyo	51	204
Kern	421	1,699
Kings	72	291
Lake	39	158
Lassen	36	145

Los Angeles	1,968	7,951
Madera	96	386
Marin	79	317
Mariposa	17	66
Mendocino	83	332
Merced	168	677
Modoc	27	107
Mono	34	136
Monterey	181	731
Napa	74	298
Nevada	61	247
Orange	731	2,952
Placer	149	600
Plumas	24	96
Riverside	761	3,075
Sacramento	342	1,380
San Benito	39	156
San Bernardino	923	3,731
San Diego	1,008	4,074
San Francisco	77	309
San Joaquin	297	1,198
San Luis Obispo	182	735
San Mateo	284	1,148
Santa Barbara	158	638
Santa Clara	477	1,925
Santa Cruz	75	303
Shasta	99	398
Sierra	9	34
Siskiyou	63	253
Solano	223	900
Sonoma	160	643
Stanislaus	122	491
Sutter	41	165
Tehama	41	163
Trinity	15	58
Tulare	174	703

Tuolumne	31	125
Ventura	225	909
Yolo	102	412
Yuba	26	105
Total	11,803	47,627

Table 3 County-by-county results for public chargers (Ref. Table H-3)

County	2025	2030
Alameda	28	197
Alpine	1	5
Amador	3	20
Butte	5	32
Calaveras	3	16
Colusa	5	37
Contra Costa	13	82
Del Norte	2	15
El Dorado	8	55
Fresno	22	166
Glenn	4	29
Humboldt	6	41
Imperial	10	70
Inyo	5	31
Kern	35	268
Kings	7	52
Lake	3	19
Lassen	3	21
Los Angeles	120	832
Madera	8	57
Marin	5	30
Mariposa	2	10
Mendocino	6	39
Merced	14	101
Modoc	2	10
Mono	4	23
Monterey	13	94
Napa	4	20
Nevada	5	36
Orange	39	252

Placer	10	71
Plumas	2	10
Riverside	47	331
Sacramento	20	133
San Benito	3	15
San Bernardino	67	499
San Diego	64	451
San Francisco	4	25
San Joaquin	22	165
San Luis Obispo	13	93
San Mateo	15	94
Santa Barbara	11	73
Santa Clara	27	182
Santa Cruz	5	32
Shasta	9	66
Sierra	1	5
Siskiyou	7	53
Solano	13	89
Sonoma	10	62
Stanislaus	10	74
Sutter	3	20
Tehama	5	43
Trinity	2	9
Tulare	14	101
Tuolumne	3	16
Ventura	14	90
Yolo	7	53
Yuba	2	12
Total	795	5,527

Table 4 County-by-county data for nameplate capacity on local distribution grid

County	2025	2030
Alameda	52	225
Alpine	4	4
Amador	7	18
Butte	10	35
Calaveras	6	15
Colusa	8	24
Contra Costa	27	109
Del Norte	6	13
El Dorado	15	58
Fresno	34	150
Glenn	7	21
Humboldt	12	43
Imperial	17	69
Inyo	9	27
Kern	50	229
Kings	11	40
Lake	7	20
Lassen	7	19
Los Angeles	217	974
Madera	13	51
Marin	11	38
Mariposa	5	9
Mendocino	12	41
Merced	21	90
Modoc	6	13
Mono	7	19
Monterey	23	93
Napa	11	34
Nevada	9	32
Orange	81	348
Placer	19	75
Plumas	6	12
Riverside	85	379
Sacramento	39	166
San Benito	7	19

San Bernardino	104	482
San Diego	113	505
San Francisco	11	36
San Joaquin	36	156
San Luis Obispo	23	94
San Mateo	33	134
Santa Barbara	20	80
Santa Clara	54	231
Santa Cruz	11	37
Shasta	13	54
Sierra	4	4
Siskiyou	10	37
Solano	26	109
Sonoma	20	77
Stanislaus	16	65
Sutter	7	21
Tehama	8	26
Trinity	5	8
Tulare	22	92
Tuolumne	6	16
Ventura	27	110
Yolo	14	53
Yuba	6	13
Total	1,447	5,952