MEMORANDUM

TO Riverside Public Utilities (Riverside)

FROM GDS Associates, Inc.

DATE March 13, 2025

RE 2025 CMUA Energy Efficiency Potential Forecasting Study

INTRODUCTION

This memo provides the Riverside Public Utilities (Riverside) results of the California Municipal Utilities Association (CMUA) Energy Efficiency (EE) Potential Forecasting Study conducted in 2025 by GDS Associates, Inc. (GDS). The results described here are specific to the Riverside service territory and account for unique characteristics of the service area, customer base, climate zone, economic conditions, and other relevant factors. This memo provides a summary of the EE Savings Forecast and Fuel Substitution/Electrification Efficiency program opportunity, as well as a description of the data provided in the detailed results spreadsheet file provided to the utility. Energy efficiency potential is followed by fuel substitution and electrification efficiency opportunities.

SUMMARY OF ENERGY EFFICIENCY POTENTIAL

This potential study provides a roadmap for Riverside as they develop strategies and programs for energy efficiency. The development of market potential estimates for a range of feasible measures is useful for program planning and modification purposes.

The Riverside energy efficiency program target for the next 10 years (sum of incremental annual, 2026 through 2035) is set at 80,107 MWh. This results in an average annual target of 0.36 percent of total projected energy sales. Figure 1 provides the market potential for the residential and non-residential sectors, as well as the total incremental potential as a percentage of total sales for the 10-year period of 2026 to 2035.

FIGURE 1. NET INCREMENTAL MARKET POTENTIAL BY SECTOR (MWH) AND PERCENT OF SALES

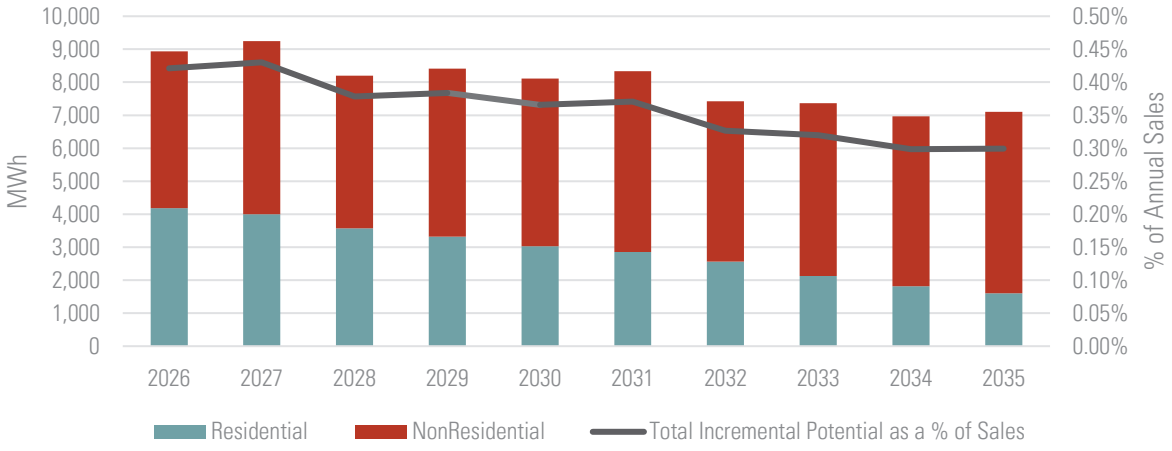

Table 1 below includes the specific inputs used to create Figure 1. The annual energy and demand impacts are provided. The energy impacts are shown as a percentage of forecasted sector-level and total sales. Incremental annual savings range from 6,971 MWh to 9,244 MWh, which corresponds to 0.30% to 0.43% of the forecasted sales.

TABLE 1 NET INCREMENTAL MARKET POTENTIAL BY SECTOR – ENERGY AND DEMAND

10 Year Energy Goals (Incremental Net MWh)										
ALL Sectors (MWh)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Market Potential	8,936	9,244	8,203	8,413	8,109	8,339	7,423	7,366	6,971	7,103
Res Market Potential	4,186	4,002	3,577	3,320	3,031	2,850	2,567	2,123	1,815	1,601
Non-Res Market Potential	4,751	5,242	4,626	5,093	5,078	5,489	4,856	5,243	5,156	5,502
Total Potential as a % of Total Sales	0.42%	0.43%	0.38%	0.38%	0.37%	0.37%	0.33%	0.32%	0.30%	0.30%
Res Potential as a % of Res Sales	0.60%	0.56%	0.50%	0.46%	0.41%	0.38%	0.34%	0.28%	0.24%	0.20%
Non-Res Potential as a % of Non-Res Sales	0.33%	0.36%	0.32%	0.35%	0.34%	0.36%	0.32%	0.34%	0.33%	0.35%

10 Year Demand Goals (Incremental kW)										
ALL Sectors (kW)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Market Potential	2,955	2,983	2,733	2,714	2,548	2,579	2,279	2,166	1,887	1,809
Res Market Potential	1,674	1,605	1,475	1,376	1,229	1,206	1,055	897	665	545
Non-Res Market Potential	1,282	1,378	1,258	1,338	1,319	1,372	1,224	1,269	1,222	1,264

At a glance, Riverside's results include:

- A 2026-2035 average annual gross savings target of 0.44% of forecasted retail sales
- A 2026-2035 average annual net savings target of 0.36% of forecasted retail sales
- No claim of savings from codes and standards (C&S)

Detailed Results

GDS has provided Riverside with a detailed results file which includes the summary information described above, as well as additional detailed results. The results file includes the following information:

- 10-yr gross incremental and cumulative annual energy and demand savings
- 10-yr net incremental and cumulative annual energy and demand savings
- 20-yr cumulative annual technical, economic and market potential by sector – energy and demand
- 20-yr incremental annual market potential by sector – energy and demand
- 20-yr market potential by program
- 20-yr market potential by end-use
- 20-yr costs by program
- Comprehensive measure mapping list

SUMMARY OF FUEL SUBSTITUTION AND ELECTRIFICATION EFFICIENCY

The analysis of fuel substitution and electrification efficiency opportunities provides a roadmap for the Riverside as they develop strategies and programs to support fuel substitution and electrification efficiency. The development of program opportunity estimates account for converting fossil fuel heating (space heating and water heating), and cooking for a range of feasible measures associated with the eTRM fuel substitution measures. As the market for fuel substitution moves forward and the disposition of proposed CARB zero-emission rules for space heating and water

heating become clearer, the results are useful for program planning and modification purposes. Fuel substitution and electrification are described separately, with a focus for fuel substitution on the 2026-2029 timeframe, prior to the modeling assumption of proposed CARB rules coming into effect in 2030.

The Riverside fuel substitution opportunity identifies a market opportunity from 2026-2029 of 7,219 net equivalent MWh (eMWh).[1] This result grows from 1,799 in 2026 to 1,812 in 2029. Electricity sales are expected to increase by 1,520 MWh due to in-program measures over the 2026-2029 timeframe. Figure 2 provides program opportunities related to eMWh, MWh load increases, the combined residential and non-residential sectors, as well as the total net eMWh savings. Fuel substitution savings beyond 2029 are solely based on cooking measures, which may be speculative and subject to change given program design decisions and priorities.

FIGURE 2. NET INCREMENTAL FUEL SUBSTITUTION PROGRAM OPPORTUNITY (MWH) AND SAVINGS

Table 3, below, includes the specific inputs used to create Figure 2. The annual energy and demand impacts are provided. The energy impacts are shown as a percentage of forecasted sector-level and total sales.

TABLE 2 10-YEAR FUEL SUBSTITUTION ENERGY RESULTS, ENERGY AND DEMAND

ALL Sectors (eMWh saved)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Incremental Program Opportunity (eMWh saved)	2,180	2,182	2,186	2,191	66	80	93	100	101	95
Res Incremental Program Opportunity	2,051	2,054	2,057	2,063	41	50	58	60	55	44
Non-Res Incremental Program Opportunity	128	128	128	128	25	30	35	41	46	51
ALL Sectors (actual MWh growth)										
Total Incremental Program Opportunity (MWh growth)	-380	-380	-380	-379	-27	-33	-38	-41	-41	-38

[1] Fuel substitution savings are calculated by converting therm savings from gas to equivalent kWh (ekWh). Therm savings are multiplied by 29.3 to create ekWh and divided by 1,000 to create eMWh. The increased electricity from these loads is subtracted from the eMWh to arrive at the net ekWh or net eMWh of savings.

ALL Sectors (eMWh saved)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Res Incremental Program Opportunity	-357	-356	-356	-356	-17	-22	-25	-26	-24	-19
Non-Res Incremental Program Opportunity	-24	-24	-24	-24	-9	-11	-13	-15	-18	-19
ALL Sectors (net eMWh savings)										
Total Incremental Program Opportunity (net eMWh)	1,799	1,802	1,806	1,812	39	47	55	59	60	57
Res Incremental Program Opportunity	1,695	1,697	1,701	1,707	23	29	33	34	31	25
Non-Res Incremental Program Opportunity	105	105	105	105	15	18	22	25	28	31
Total Incremental Program Opportunity as a % of Total Sales	-0.018%	-0.018%	-0.018%	-0.017%	-0.001%	-0.001%	-0.002%	-0.002%	-0.002%	-0.002%
Res Incremental Program Opportunity as a % of Res Sales	-0.051%	-0.050%	-0.050%	-0.049%	-0.002%	-0.003%	-0.003%	-0.003%	-0.003%	-0.002%
Non-Res Incremental Program Opportunity as a % of Non-Res Sales	-0.002%	-0.002%	-0.002%	-0.002%	-0.001%	-0.001%	-0.001%	-0.001%	-0.001%	-0.001%

ALL Sectors (kW)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Incremental Program Opportunity	-26	-26	-26	-26	-2	-3	-3	-4	-4	-5
Res Incremental Program Opportunity	-23	-23	-23	-24	0	-1	-1	-1	-1	0
Non-Res Incremental Program Opportunity	-3	-3	-3	-3	-2	-2	-3	-3	-4	-4

The Riverside electrification efficiency opportunity identifies a market opportunity from 2030-2035 of 16,577 MWh in savings. This result is driven by the proposed CARB zero-emission rules and possible energy efficiency adoption level that could come through programs. These results are predicated on the proposed CARB rules, but indicate a significant program opportunity in the future should those rules come to pass. Figure 3 provides the program opportunity for energy savings relative to possible load growth driven by the proposed CARB rules and share of total energy sales after adding the impact of the proposed CARB rules to the baseline forecast. These savings and impacts are highly speculative and dependent on the implementation and timing of proposed CARB rules, as well as future program design decisions.

FIGURE 3. NET INCREMENTAL ELECTRIFICATION EFFICIENCY PROGRAM SAVINGS AND LOAD IMPACTS (MWH)

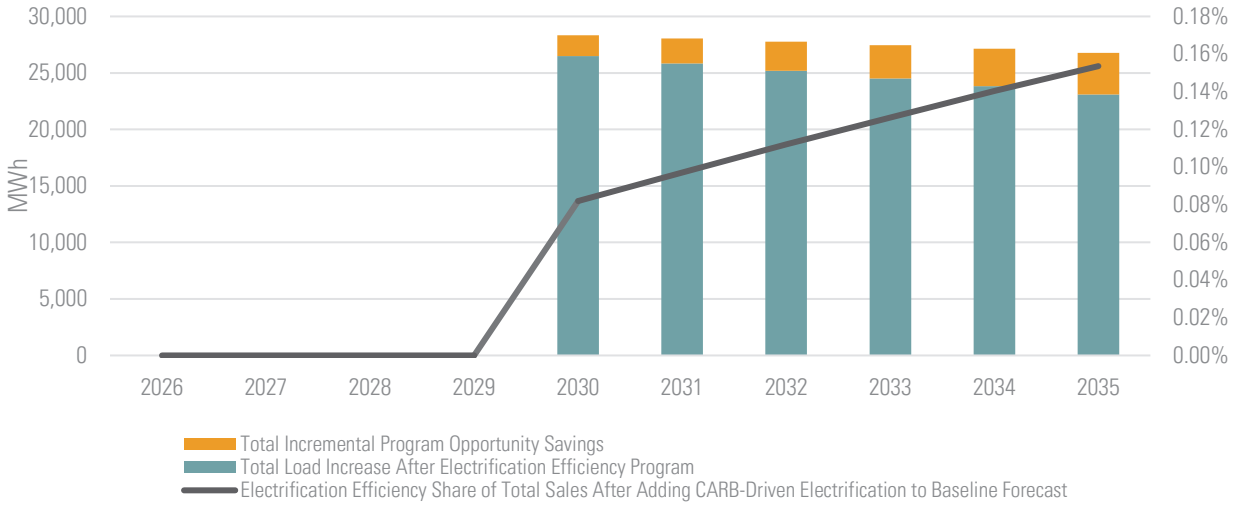

Table 4, below, includes the specific inputs used to create Figure 3. The annual energy and demand savings opportunities are provided, along with annual load growth factors.

At a glance, Riverside's fuel substitution and electrification results include:

- Growing net eMWh program savings opportunities through 2029, followed by a sharp decline to the modeled impact of proposed CARB rules.
- Minor load growth from fuel substitution programs through 2029.
- A large growth in electrification efficiency opportunities from 2030-2035, with substantial opportunities to offset load growth.

Detailed Results

GDS has provided Riverside with a detailed results file which includes the summary information described above, as well as additional detailed results. The results file includes the following information:

- 10-yr gross incremental and cumulative annual energy and demand impacts from fuel substitution and electrification efficiency
- 20-yr incremental annual market impacts by sector impacts from fuel substitution and electrification efficiency load and demand growth, as well as program impacts

TABLE 3 10-YEAR ELECTRIFICATION EFFICIENCY ENERGY RESULTS, ENERGY AND DEMAND

ALL Sectors (MWh)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Cumulative Increased Electricity	0	0	0	0	28,342	28,053	27,762	27,458	27,134	26,787
Res Cumulative Increased Electricity	0	0	0	0	16,072	16,027	15,975	15,908	15,821	15,718
Non-Res Cumulative Increased Electricity	0	0	0	0	12,269	12,026	11,787	11,550	11,313	11,069
Total Cumulative Program Opportunity Savings	0	0	0	0	1,842	2,210	2,579	2,947	3,315	3,684
Res Cumulative Program Opportunity Savings	0	0	0	0	365	438	511	584	657	730
Non-Res Cumulative Program Opportunity Savings	0	0	0	0	1,477	1,772	2,067	2,363	2,658	2,953
Total Load Increase After Electrification Efficiency Program	0	0	0	0	26,500	25,842	25,183	24,511	23,819	23,103
Res Load Increase After Electrification Efficiency Program	0	0	0	0	15,707	15,588	15,463	15,324	15,164	14,987
Non-Res Load Increase After Electrification Efficiency Program	0	0	0	0	10,793	10,254	9,720	9,188	8,655	8,116
Total Cumulative Program Opportunity as a % of Total Sales	0.00%	0.00%	0.00%	0.00%	0.08%	0.10%	0.11%	0.13%	0.14%	0.15%
Res Cumulative Program Opportunity as a % of Res Sales	0.00%	0.00%	0.00%	0.00%	0.05%	0.06%	0.07%	0.08%	0.08%	0.09%
Non-Res Cumulative Program Opportunity as a % of Non-Res Sales	0.00%	0.00%	0.00%	0.00%	0.10%	0.12%	0.13%	0.15%	0.17%	0.18%

ALL Sectors (kW)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Incremental Program Opportunity	0	0	0	0	0	709	851	993	1,134	1,276
Res Incremental Program Opportunity	0	0	0	0	0	8	10	12	14	15
Non-Res Incremental Program Opportunity	0	0	0	0	0	701	841	981	1,121	1,261