

Exhibit to Agenda Item #1

Provide the Board internal and external presentations and discussion on the status of energy efficiency and building electrification.

Board Strategic Development Committee and Special SMUD Board of Directors Meeting

Tuesday, June 10, 2025, scheduled to begin at 6:00 p.m.

SMUD Headquarters Building, Auditorium

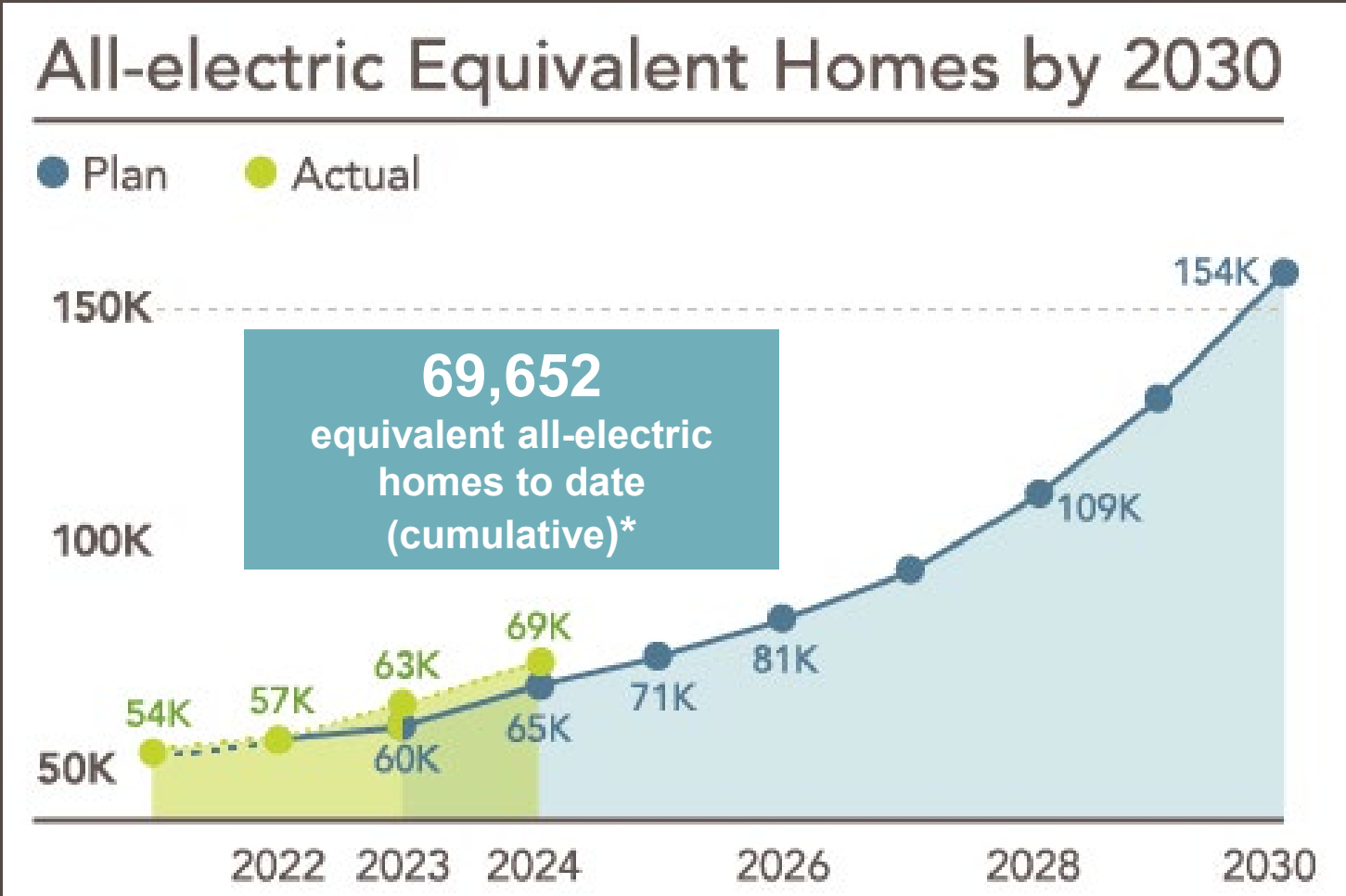


Building decarbonization overview

102,395
metric tons
of carbon

saved in 2023
from EE and BE

*Through Q1 2025.



Building decarbonization saves money for SMUD's customers and improves home comfort and efficiency

By helping customers electrify, SMUD maximizes the benefits of our affordability commitment to our customers.

Carbon reduction potential from all-electric buildings:



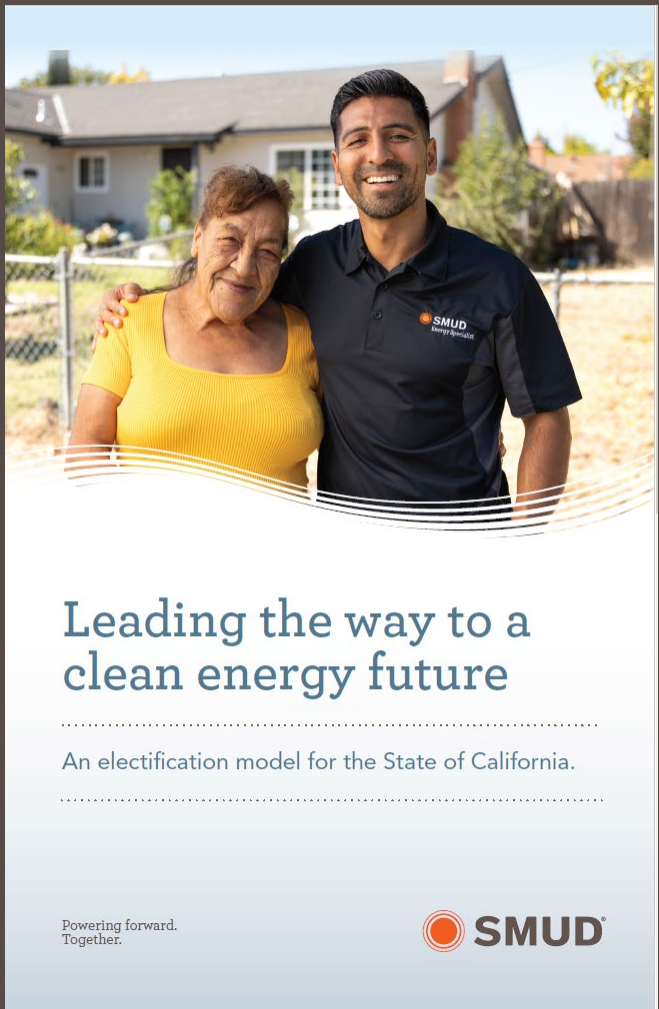
-CALGREEN MANDATORY EMBODIED CARBON MEASURES
-CARB: STRATEGY FOR EMOBIDED CARBON IN BUILDINGS
(AB 2446, (HOLDEN, 2022))

Estimated Residential
BE Savings:

Up to
**\$500 energy
savings/year
today**

Up to
**\$900 energy
savings/year in
2030**

When replacing conventional
water and space heating
equipment with heat pumps



Policy framework

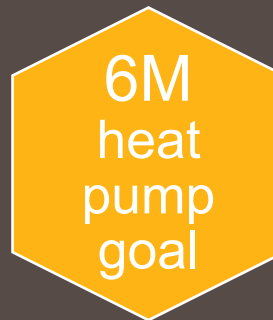
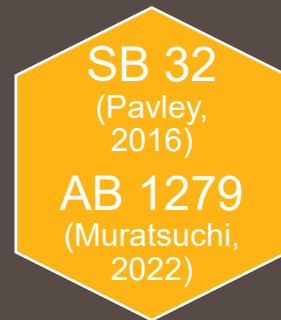
State

Energy efficiency (EE)



- Identify achievable & cost-effective EE, set goals, & implement an EE program while accounting for feasibility (Public Utilities Code Section 9505)
- Statewide EE “doubling” and inclusion of fuel substitution
- CEC scrutiny of SMUD progress

Building electrification (BE) & decarbonization



- 40% reduction of greenhouse gas emissions below 1990 levels by 2030
- Net zero by 2045

SMUD

Strategic Directive (SD) 9:

Pursue energy efficiency and electrification to reduce carbon emissions by 365,000 metric tons from buildings and 1,000,000 metric tons from transportation in 2030 (the equivalent of 112,000 single family homes and 288,000 passenger vehicles electrified).

Zero Carbon Plan (ZCP):

154,000 cumulative equivalent all-electric homes

Evolution of decarbonization at SMUD

2007 -
2017

- 2007 1.5% of retail sales recommended to Board
- Through 2017, exceeding target without codes & standards

2017

- CEC Report: *Senate Bill 350: Doubling EE Savings by 2030*
- SMUD advocacy to account for fuel substitution in EE and importance of a unifying carbon metric

2017 -
2018

- SMUD establishes carbon goal
- Shift from EE to market transformation approach with BE
- IRP integration of BE as a framework for carbon savings on customer side to offset total portfolio emissions

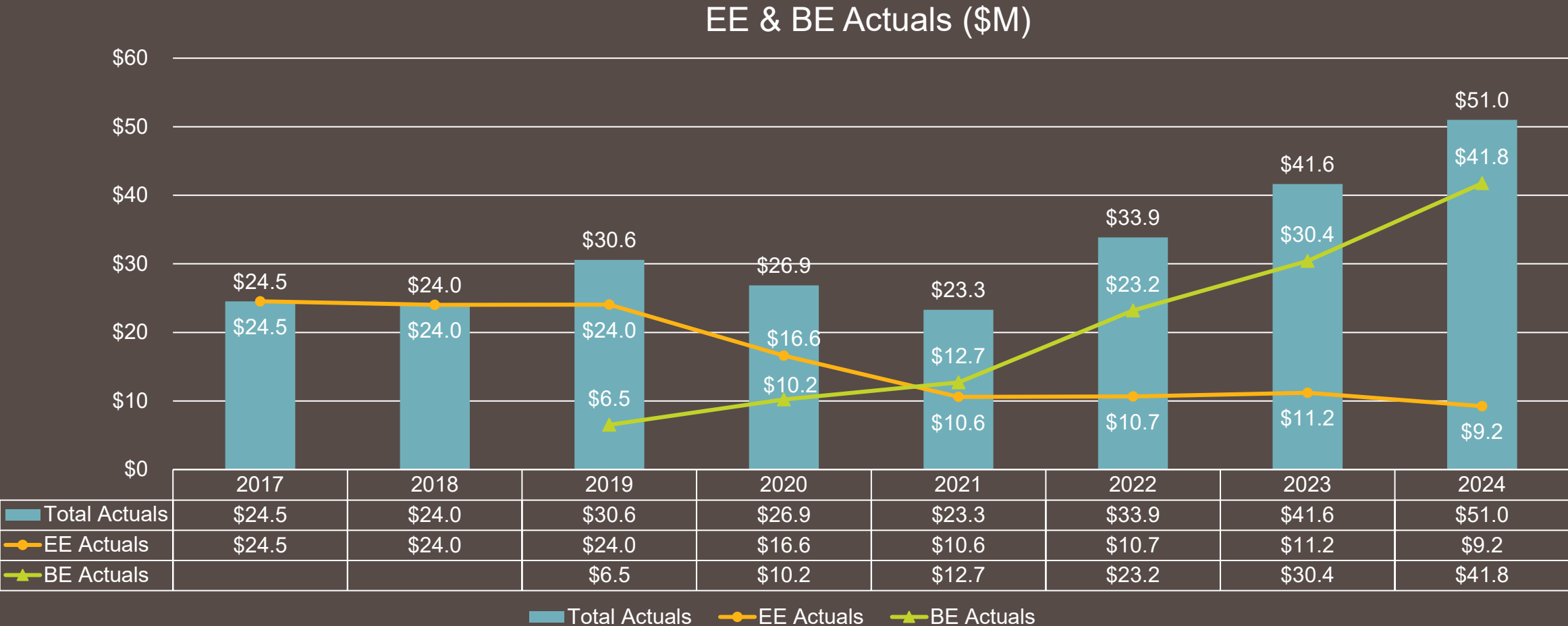
2020

- 2020: SD-9 updates for EE & BE
- COVID: Pause in planned portfolio expansions
- Budget cuts

Post-
2020

- BE growth rationale: carbon benefit and associated revenue
- 2021: Zero Carbon Plan (ZCP) adopted

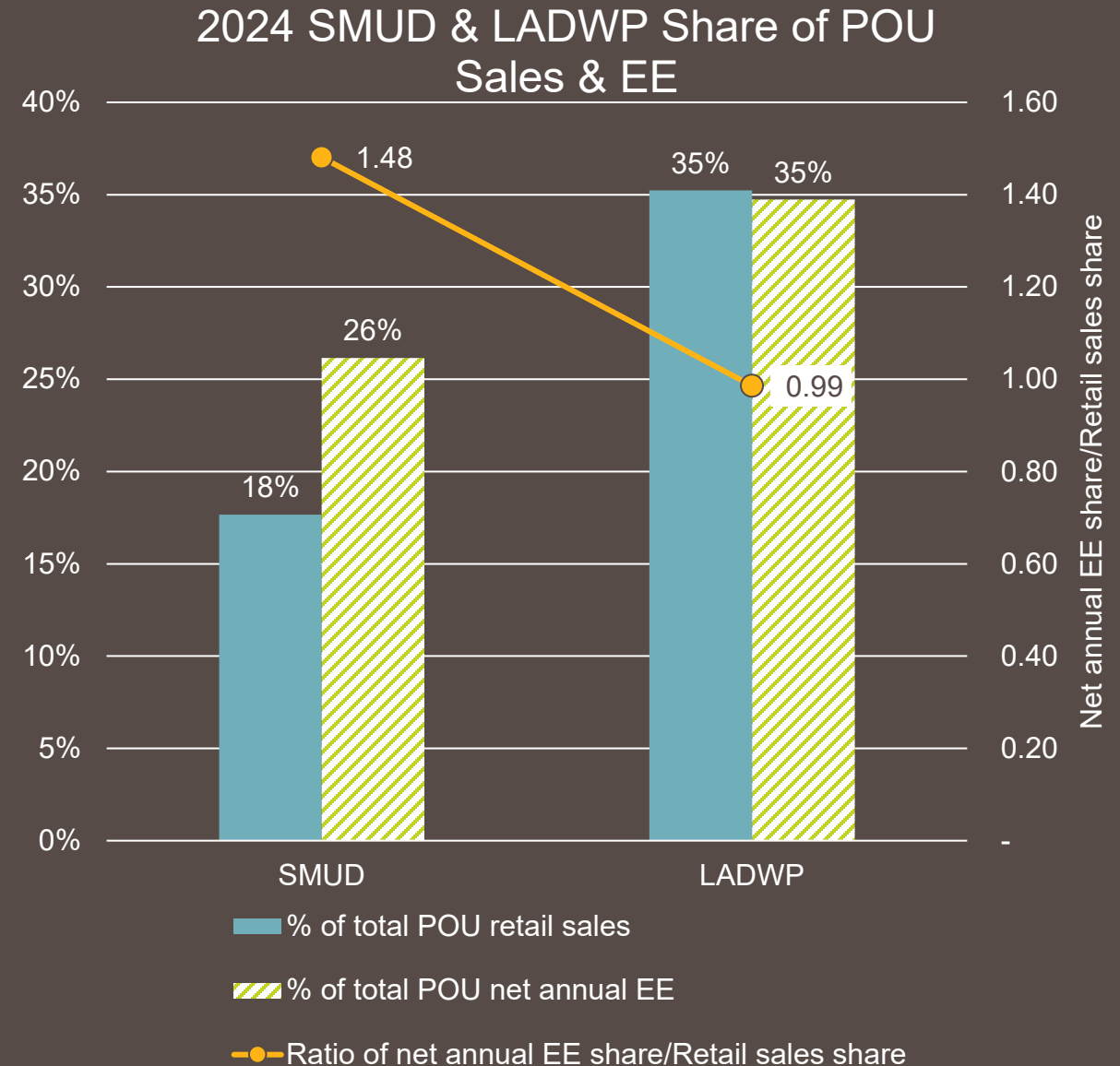
Evolution of SMUD investment from EE to BE



SMUD has a history of delivering significant EE savings

In 2024, SMUD was one of 13 California POU's that achieved at least 90% of its annual EE target for purposes of Public Utilities Code Section 9505.

- SMUD Net EE represented 0.7% of SMUD sales in 2024 (79.7 GWh)
- SMUD EE contributed 26% of total POU EE in 2024, despite representing only 18% of POU sales



PREPARED BY GDS ASSOCIATES, INC.

CMUA

California Municipal Utilities
Association

2025 Energy Efficiency Potential Forecast

FINAL REPORT

MAY 2025

2024 California Municipal Utilities Association (CMUA) EE Potential Forecast

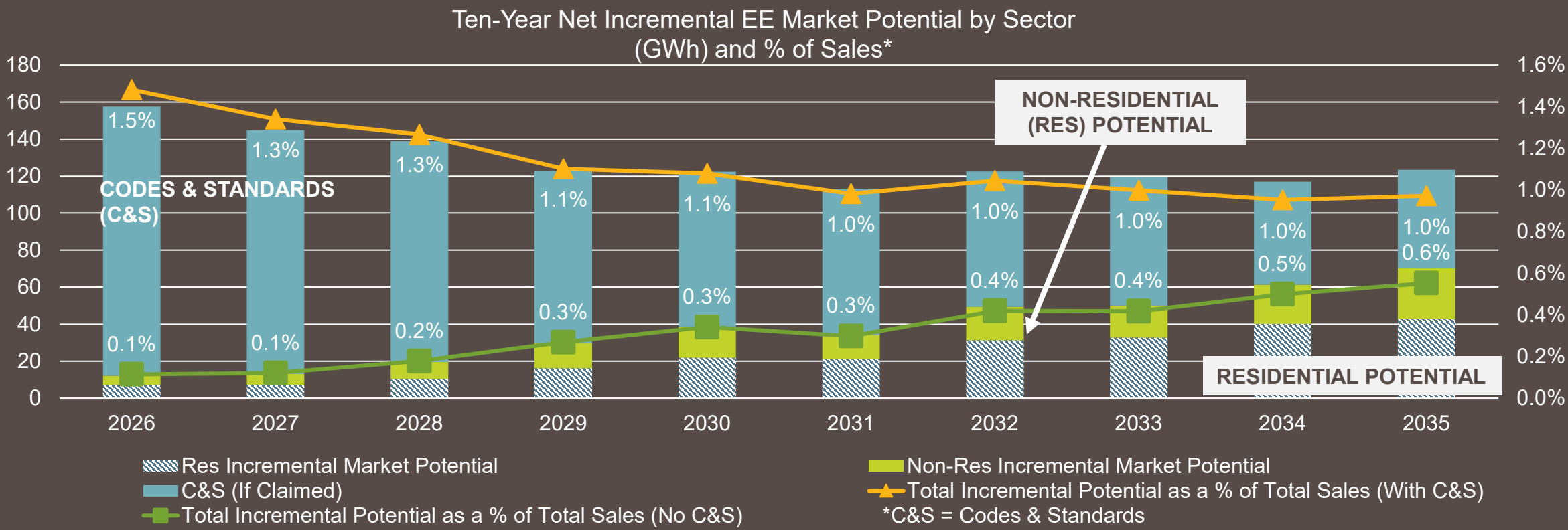
SMUD ten-year traditional EE targets,
2026 - 2035:

- 379 total GWh (net incremental)
- 23% of POU total
- 50% decline in SMUD ten-year potential from 2020 study; 60% decline in total POU potential

 GDS Associates, Inc.
ENGINEERS & CONSULTANTS

Looking ahead: Traditional EE faces constraints

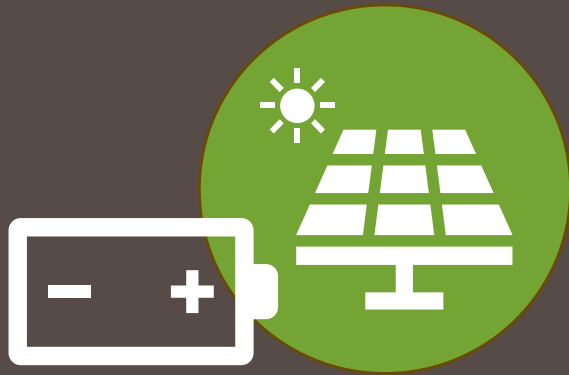
2024 CMUA EE Potential Forecast



10 Year Energy Goals (Incremental Net GWh) – Constrained Market Potential, excluding codes & standards										
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Market Potential	12	13	20	30	39	34	49	50	61	70
Residential	7	7	10	16	22	21	31	33	40	43
Non-residential	5	6	9	14	17	13	18	17	21	27

Balancing portfolios for SMUD's changing resource mix

- **Net present value** of programmatic spend over measure lifetime, accounting for supply-side costs
- **Total carbon savings**
- **Rate impacts** and **energy bill impacts**
- **Time of day** of energy savings



Resource mix



Reduces
energy
production
& capacity
costs

Stabilizes
rate base,
increases
clean load



Challenges



Tariffs

+/-25% price increase currently reported by local distributors for heat pumps



Federal funding

Potential elimination of Residential EE Improvement Credit and impacts to other Inflation Act Reduction Fund programs



Federal roll-backs

Potential impacts to EnergyStar and proposed cuts to the DOE Office of Energy Efficiency and Renewable Energy

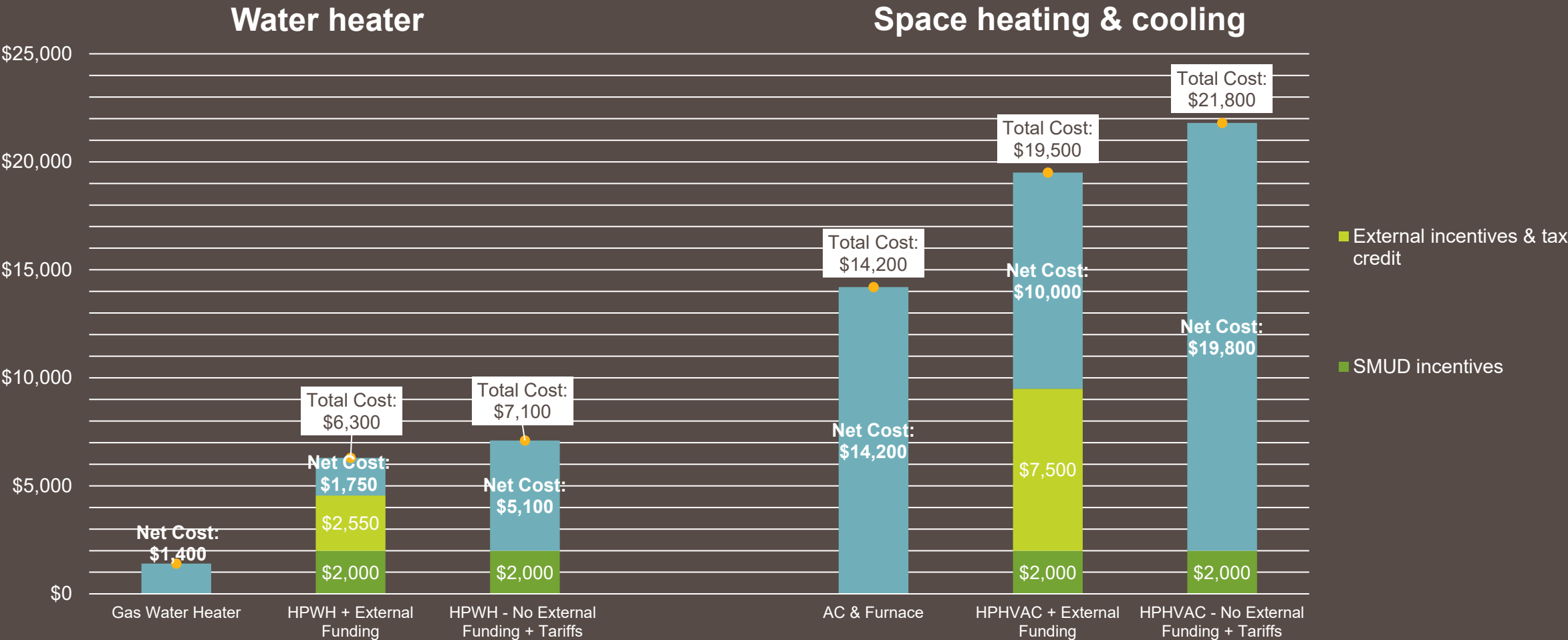


Potential regulatory and policy delays in electrification

Federal, state, and local delay

Snapshot: Estimates of potential installation cost increases

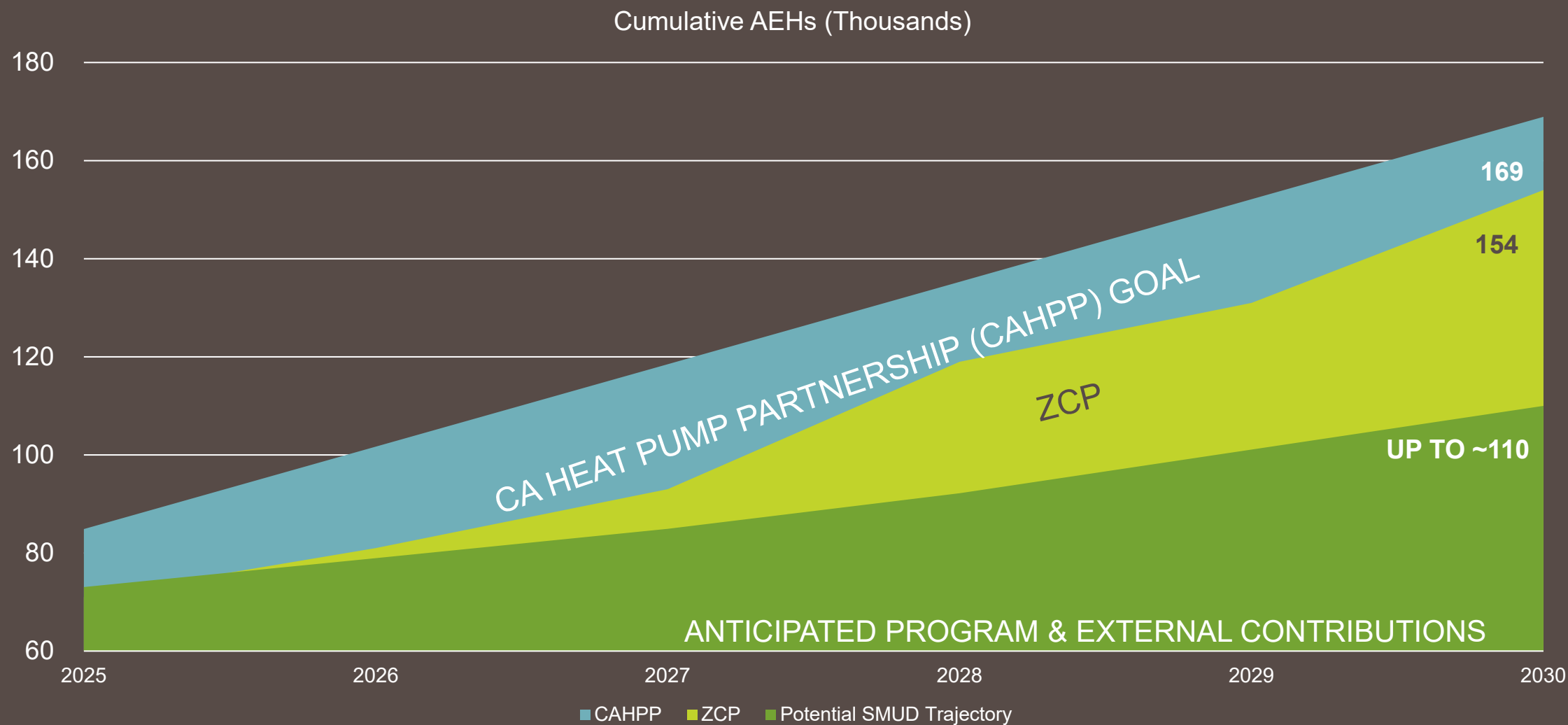
Residential heat pump water heater (HPWH) & heat pump HVAC (HPHVAC)



Notes:
Assumes median project costs from Advanced Home Solutions, April 2024 – March 2025. Gas equipment costs represent average cost range from HomeAdvisor estimates.
External incentives include HEEHRA and TECH rebates, plus Residential Energy Efficiency Tax Credit:
-HEEHRA amount for households at 80-150% of area median income; currently closed to new applications (231 funded in SMUD to date).
-TECH currently paused but re-launch anticipated in Q2/Q3 2025
-Tax credit dependent on eligibility; 30% of project costs capped at \$2,000.
Cost impact of tariffs and new refrigerant requirements estimated at 12% increase in total costs.



Projected all-electric equivalent homes (AEH) trajectory



Timeline for BE & EE goal revisions



Appendix

From January 15, 2020, Energy Resources & Customer Service Committee Meeting

Building Energy Efficiency Outcomes and Investments

