


Exhibit to Agenda Item #1d

2025 Proposed Zero Carbon Energy Solutions Budget.

Board Finance & Audit Committee and Special SMUD Board of Directors Meeting
Wednesday, November 6, 2024, scheduled to begin at 6:00 p.m.

SMUD Headquarters Building, Auditorium



Zero Carbon Energy Solutions 2025 Proposed Budget & Initiatives

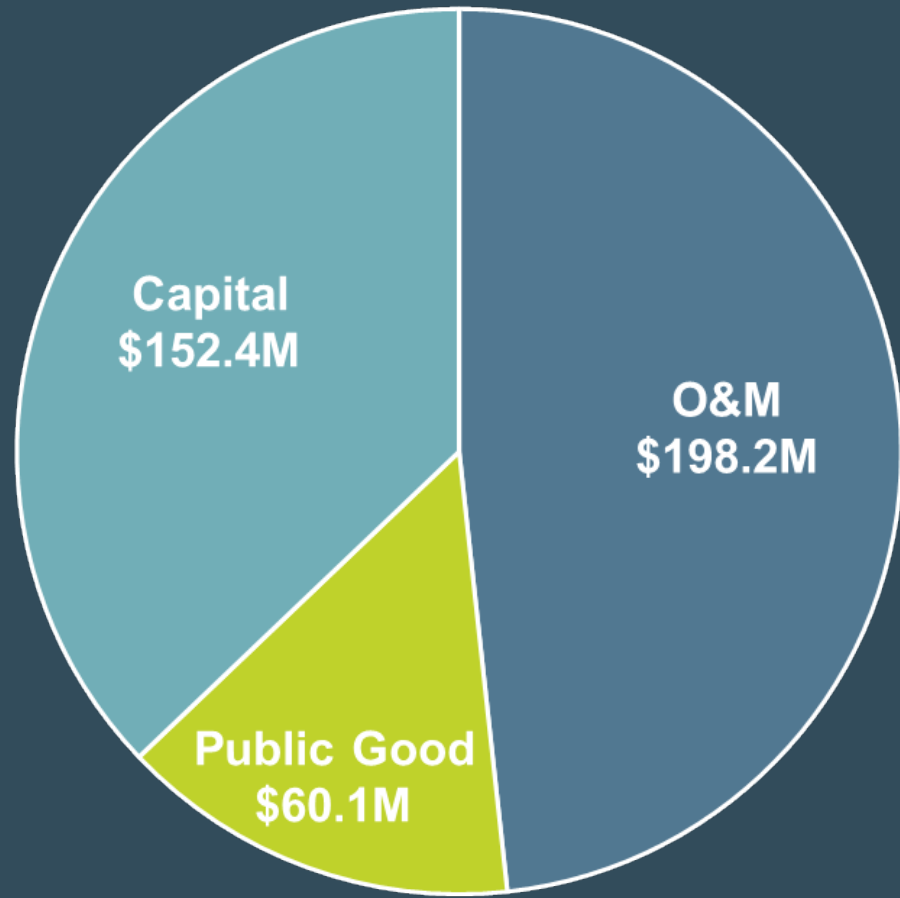
Lora Anguay
Chief Zero Carbon Officer

Zero Carbon Energy Solutions (ZCES)

Corporate	Zero Carbon Energy Solutions	Customer & Community Services	Energy Delivery & Operations	Information Technology	Workforce, Diversity & Enterprise Partnerships
Governance	Resource & Market Planning and Settlements	Customer Success	Transmission Planning & Operations	Customer & Grid Operations Technology Center	People Services & Strategies
Finance & Strategy	Power Generation	Customer Operations & Assistance	Distribution Planning & Operations	Enterprise Systems, Strategy & Governance	Facilities, Security & Emergency Operations
Legal, Government Affairs & Contracts	Customer & Grid Strategy	Community Energy Services	Line Assets	AI, Automation & Customer Self-Service Technologies	DEIB, Learning & Sustainable Communities
Communications, Marketing & Community Relations	Advanced Energy Solutions	Customer Experience Planning & Integration	Substation, Telecom, Network & Metering	Cybersecurity	Enterprise Change & Organizational Effectiveness
Enterprise Affairs	Research & Development, Grants and Partnerships	Business Intelligence & Operations Support	Strategic Services & Operations PMO	IT Infrastructure Platform Services	
			Environmental, Safety & Real Estate Services		
			Operational Excellence		
			Specialized Enterprise Initiatives		

Zero Carbon Energy Solutions

2025 Proposed budget details



O&M & Public Good (PG)

Hydro, Renewable, Thermal O&M	\$157.0 million
Transportation Electrification	\$16.2 million
Load Flex Programs	\$14.7 million
Green Pricing & Community Solar	\$10.3 million
Building Electrification (PG)	\$34.1 million
Research and Grants (PG)	\$11.4 million
Community Impact Plan* (PG)	\$7.6 million
Energy Efficiency (PG)	\$7.0 million

Capital

Renewable Project Development	\$57.9 million
Hydro Assets	\$53.6 million
Thermal Assets (incl CPP Turndown)	\$33.3 million
FAST and Other ZCES Initiatives	\$10.6 million

CPP = Cosumnes Power Plant

FAST = California Energy Commission's Fast & Available Charging for All Californians grant program



Infrastructure Investment

Alignment to Strategic Direction: SD-4 SD-6 SD-8 SD-11 SD-14 SD-16 SD-17

Maintaining Existing Assets

Maintaining reliability and compliance of SMUD's existing Power Generation Facilities

Improvements and Upgrades

- Replacement and spare transformers
- Camino Unit 1 Generator Rehabilitation and Transformer Replacement
- Rebuild Loon Lake Campground
- Thermal Plant Overhauls

Union Valley-Ice House Mountain Bike Trail



Transformer Replacements



Cosumnes Power Plant



Infrastructure Investment

Alignment to Strategic Direction: SD-4 SD-6 SD-8 SD-11 SD-14 SD-16 SD-17

Grid Integration of Distributed Energy Resources (DER)

Update DER integration roadmap

- Ensuring visibility and control of behind the meter assets

Update Integrated Distribution Resource Plan (IDRP)

Reduce grid impacts from Electrification

- Operationalize Residential Managed Electric Vehicle (EV) Charging
- Research effort on Smart Panels



Distributed Energy Resources



Zero Carbon Plan

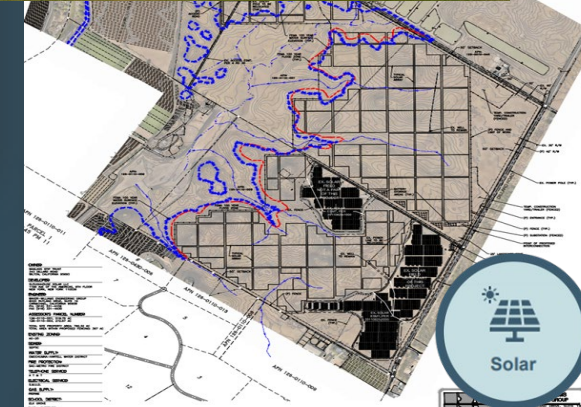
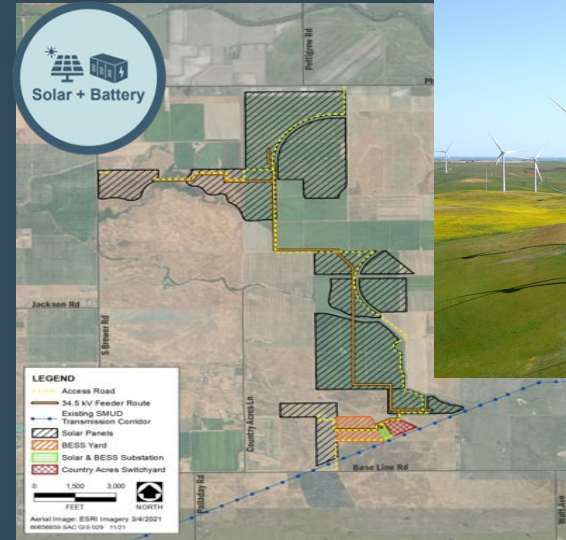
Alignment to Strategic Direction: SD-2 SD-3 SD-7 SD-9 SD-10 SD-19

Thermal Transition

- CPP Turndown Project
- Remaining Life Assessments & Site Option Studies
- Enhanced Reliability Studies
 - Extreme weather events
 - State Resource Adequacy issues
 - Inverter based resources

Proven Clean Technologies

- Country Acres Project (344 MW Solar + 172 MW Storage)
- Sloughouse Solar (50 MW)
- Planning, evaluation, permitting and deployment of additional proven clean technology resources
 - Solano 2 Wind Repower - Solano 5 (108 MW), other renewables



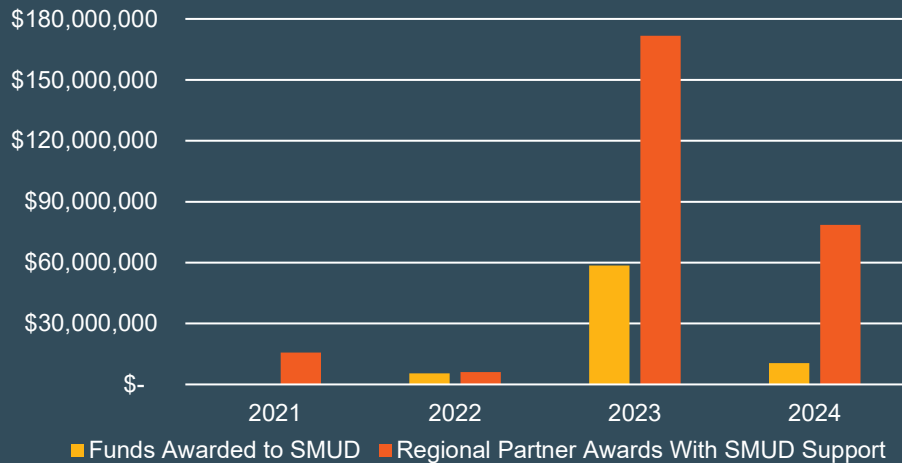
Future clean technology projects



Zero Carbon Plan

Alignment to Strategic Direction: SD-2 SD-3 SD-7 SD-9 SD-10 SD-19

Grant and External Funding Opportunities



2025 Future Funding Trends

- Extreme Weather Readiness
- Battery Manufacturing
- Reliability
- Workforce Development
- Grid Edge Technology
- Large Infrastructure
- Electric Vehicle Charging



ESS Long-Duration Energy Storage

New Technologies and Business Models

- ESS Long-Duration Energy Storage Demonstration Project – engineer, procure, and construct the 3.6 MW/29 MWh (8-hr duration) Energy Centers at Hedge
- Define Commercial Virtual Power Plant (VPP) Offering



Zero Carbon Plan

Alignment to Strategic Direction: SD-2 SD-3 SD-7 SD-9 SD-10 SD-19

Zero Carbon Customer Programs

Building Electrification and Energy Efficiency

- 6,000 Equivalent All Electric Homes added
- 113 GWh saved, equivalent to 20,600 metric tons carbon reduced

Distributed Energy Resources/Load Flexibility

- 17.2 MW added to our Virtual Power Plant
- 9,000 Smart Thermostats added
- 4,000 AC Load controllers installed
- 1,020 Battery systems enrolled

Transportation Electrification

- 70,000 Cumulative Equivalent Light Duty Vehicles
- 2,800 residential and commercial chargers/handles installed

Green Pricing and Community Solar Offerings

- 73,276 total participants (Residential & Commercial) across the portfolio



Customer programs



Community Impact

Alignment to Strategic Direction: SD-5 SD-13 SD-15

Equitable Access to Technology

- Multi-Family Dwelling (MFD) Solutions

Community Partnerships

- Kitchen Electrification
- Solar for Schools & Non-Profits

Local Job Creation and Workforce Development

- Establishing Sacramento as a regional battery manufacturing and green careers hub
- Virtual Power Plant programs delivered through local installer networks
- Renewable Project Development

