

Exhibit to Agenda Item #2

Provide an informational presentation and executive summary report on the 2030 Zero Carbon Plan.

Board Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting

Wednesday, March 16, 2022, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

2030 Zero Carbon Plan

2021 accomplishments
2022 priorities

Powering forward.
Together.



Flexible pathway to zero carbon

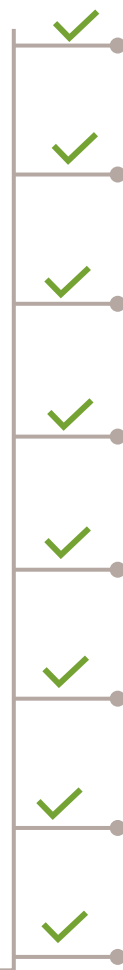


2022 - Plan

Present 2030 Zero Carbon Plan in an Integrated Resource Plan packet for the Board's approval to submit & file with the California Energy Commission to:

- Memorialize the 2030 Zero Carbon Plan
- File earlier than SB350's 5-year requirement - SMUD's last filing was in 2019

12-Month Action Plan



Promote

Marketing, communication & outreach



Solicit

New proven clean technology projects



Launch

Pilot programs



Research

Grid-scale technologies



Execute

Additional detailed reliability studies



Identify

Opportunities for external funding, collaboration & internal savings



Collaborate

With policy makers on the 2030 Zero Carbon Plan



Find

Opportunities for workforce skills development & community involvement in 2030 Zero Carbon Plan



Natural gas generation repurposing



Reliability Studies

2021 Accomplishments

2021 - Plan



Detailed Reliability
Studies

Completed Reliability Studies:

1. Thermal Generator Retirement Studies

- McClellan Retirement
- Campbell Retirement

2. Transmission Planning System Adequacy Studies

- Zero Carbon Plan
- Load Serving Capability
- NERC Reliability Standards



Reliability Studies

2021 Accomplishments

Retire McClellan by Year-end 2024

Needs in 2024:

- **70-110 MW of new dispatchable generation** (i.e., battery storage) in the **Northern Area** due to potential transmission overload.
 - **Solution: A planned Northern Area Project of 300 MW solar + 150 MW storage** meets this need but **must be prioritized quickly prior to the McClellan retirement** planned in the end of 2024

Retire Campbells by Year-end 2025

Needs in 2025:

- No additional resources needed in 2025 provided the **2 additions**:
 - Sacramento Valley Energy Center (2024 commercial operation date)
 - A planned Northern Area Project of **300 MW solar + 150 MW storage** (2024 commercial operation date)

Reliability Studies

2021 Accomplishments



Transmission System Adequacy Study Findings:

- **SMUD's transmission system is adequate** to implement the 2030 Zero Carbon Plan with the following:
 - Two new special protection systems are necessary to interconnect SVEC and a Northern Area Project as an interim mitigation plan.
 - Transmission upgrades are under evaluation to reduce and or eliminate special protection systems as a long-term mitigation plan.
- **Transmission Load Serving Capability is adequate** through 2030.
- SMUD's transmission system **complies** with the NERC **Reliability Standards** under the 2030 Zero Carbon Plan resources with above mentioned mitigation plans.

Reliability Studies

2021 Accomplishments & 2022 Next Steps

2022 - Next Steps



Annual Reliability
Assessments

Summary

- **McClellan retirement** requires **70-110 MW of dispatchable generation** near the current site by end of **2024**.
- **Campbell retirement** can be supported by **current developments** (Sacramento Valley Energy Center and an additional northern area project with solar + storage) by the end of **2025**.
- Late decade **reliability** needs supporting thermal plant transition will be **reassessed annually** as we move forward; **many uncertainties** exist such as new technology and business model development, market participation, load and distributed energy resource growth, hydro and droughts, etc.
- Reaching 2030 Zero Carbon and beyond reliably **could require additional resources and transmission buildout** in addition to the original plan to support 100% replacement of our natural gas resources and unspecified market purchases as well as new grid scale technologies and business models.

Research Grid Scale Technologies

2021 Accomplishments

Completed Assessment Focused On:

- **Carbon Capture**
 - Post-Combustion
 - Pre-Combustion
- **Long Duration Energy Storage**
- **UARP Pumped Storage Feasibility**
- **Alternative Fuels**

2021 - Plan

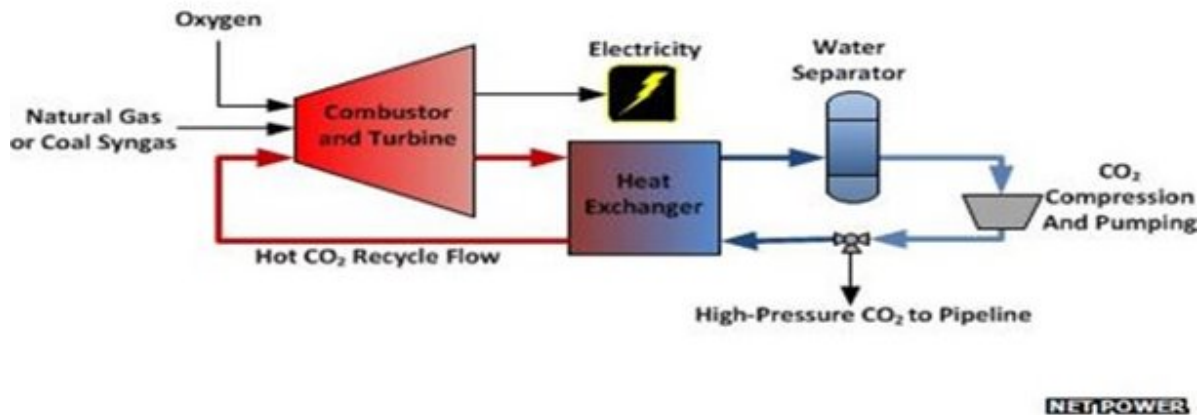


Research new utility
scale technologies,
fuels & options

Research Grid Scale Technologies

2021 Accomplishments

NET Power – Allam Fetvedt Cycle (AFC):



Up-front carbon capture process using oxy-combustion technology in a supercritical CO₂ environment to produce energy without an exhaust stack.

Carbon Capture – Pre-Combustion Conclusions:

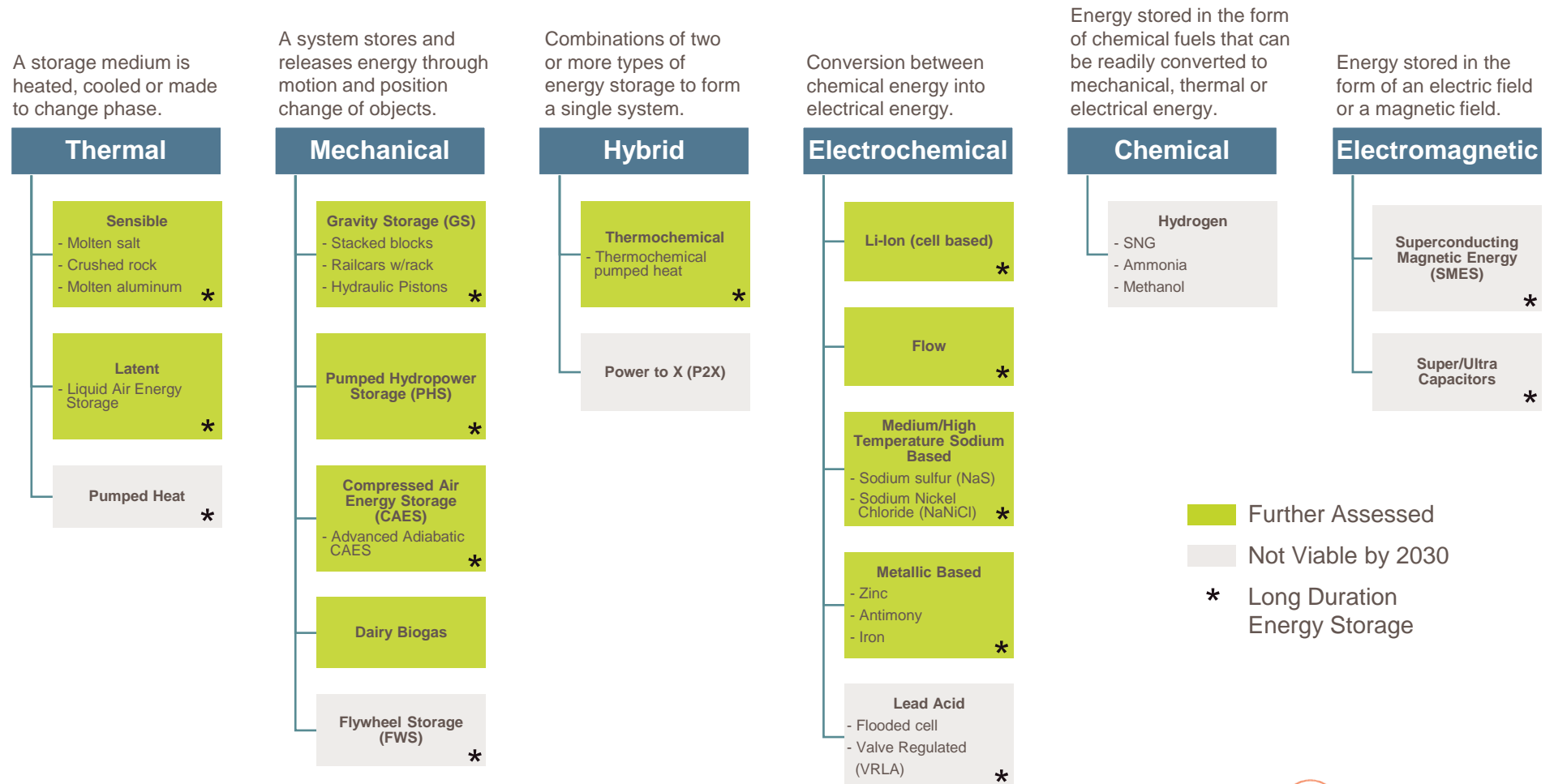
- When tied with sequestration, the Allam Fetvedt technology **promises to be one of the least expensive and most efficient dispatchable zero carbon energy solutions.**
- **Combined with a low or zero carbon fuel**, the process can provide a **negative carbon result.**
- While promising, NET Power is at a **Proof-of-Concept stage** and does not currently have a commercially proven technology.
- The La Porte test facility has not operated for any extended time **to prove availability, O&M or economic claims.**
- NET Power's **need to identify a new turbine manufacturer** significantly impacts the timeline for the project to become commercially viable.
- NET Power is at least **several years away from readiness** to validate their plant for commercialization.

Research Grid Scale Technologies

2021 Accomplishments

Long Duration Energy Storage Assessment:

Black & Veatch Technology Overview



Research Grid Scale Technologies

2022 Next Steps

Long Duration Energy Storage Assessment:

Recommended
shortlist

Technology	Developers/Vendors
Pumped Hydropower Storage (PHS)	<ul style="list-style-type: none"> American Hydro Corporation (Currently owned by Wärtsilä) Andritz AG GE Renewable Energy Quidnet Energy
Latent Air Energy Storage (LAES)	<ul style="list-style-type: none"> Highview Power Storage MAN Energy Solutions SE
Antimony-Based	<ul style="list-style-type: none"> Ambri
Advanced Compressed Air Energy Storage (CAES)	<ul style="list-style-type: none"> Hydrostor
Flow Battery	<ul style="list-style-type: none"> Sumitomo Electric Industries Ltd. UniEnergy Technologies Redflow Limited ESS Invinity Primus Power
Zinc-Based	<ul style="list-style-type: none"> Eos ZAF Energy ZincFive Zinc8 NantEnergy

Next Steps

1. Non-disclosure agreements
2. Request for information
3. Request for proposal for Potential Pilot



Research Grid Scale Technologies

2021 Accomplishments & 2022 Next Steps

UARP Pumped Storage Feasibility Assessment



Union Valley Powerhouse	Jones Fork Powerhouse
45MW capacity	11.5MW capacity
New Penstock required (1,450 ft.)	New Penstock required (1,220 ft. or 5,000 ft.)
272 MWh/day potential energy storage	139MWh/day potential energy storage

Next Steps

- **Zero Carbon Energy Solutions internal analysis:**
 - Engage Resource Strategy, Treasury and ET&C to conduct an economic analysis of proposed projects (Levelized Cost of Storage).
 - Hydro License team to evaluate permitting pathway.
 - Develop project scope, schedule and budget.
- **Enterprise Strategy:**
 - Determine fit within 2030 portfolio
 - Enterprise Prioritization process
 - RFQ/RFI for Long Duration Energy Storage?

Research Grid Scale Technologies

2021 Accomplishments

AECOM, Energeia & SMUD working group study:

- Defined the need for alternate fuels as capacity to run all 5 of our LM6000 based gas turbines at 500 hours/year.
- Assessed various zero/low carbon fuels.
- Short listed preferred fuel types and pathways.
- Analyzed project ownership v. market/virtual options.
- Developed levelized costs for project and market options.
- Identified key technology and market risks.
- Developed mitigation strategies
- Recommendations and next steps.

Alternative Fuels Study Conclusions

A virtual approach to delivering zero carbon fuel is preferred

- Provides the lowest cost, lowest risk approach
- Leverages existing infrastructure
- Highest degree of flexibility as market prices evolve

RNG and hydrogen markets are robust

- Forecasted prices are higher than forecast project costs
- Forecasted RNG demand depends on electrification rate

Hydrogen markets

- Assume substantial cost reductions over the next 10 years
- May deliver lowest zero carbon fuel prices over the 2030-2040 period

Primary risks

- All forecasted prices are highly uncertain
- Competitiveness of hydrogen could lead to significantly lower RNG market prices
- Mitigate Risk using grant money to fund R&D projects

Natural Gas Generation Repurposing

2022 Next Steps

2022 - Next Steps



- Finalize retirement & conditional availability plan for McClellan & Campbell.
- Perform Battery Hybrid exploration and application to Carson Simple Cycle Conversion.
- Determine Carson Simple Cycle Conversion Plan.
- Perform targeted and in-depth research on Long Duration Energy Storage (including pump back hydro) from studies short list and determine a potential pilot.
- Monitor alternative fuel developments



Natural Gas Generation Repurposing

Schedule

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Comprehensive detailed analysis	Detailed Analysis									
Industry outreach (utilities, manufacturers, research institutions)										
	Industry outreach									
McClellan				Retire						
	Add Solar and Battery Storage									
Campbell					Retire					
	Pending refinement of reliability & replacement studies									
Carson				Conversion to Standby Operation*						
							Conversion to Standby Operation*			
Procter							Conversion to Standby Operation*			
Cosumnes										
	Investigate RNG-biomethane, hydrogen, long duration energy storage for post 2030 retool solution									

Retirements, retooling, expansion of renewables and storage will reduce natural gas generation utilization and will result in dramatically less emissions



90% reduction in operating hours



Proven clean technologies



Renewable Project Update

2021 - Plan



- Conduct locational analysis, system impact study, economic valuation & solicit counterparty offers
- Explore-out-of-area renewable delivery options
- Competitive solicitation for proven clean tech projects

Drew Solar Power Purchase Agreement – 100 MW

- Scheduled commercial operation date of Dec. 31, 2021 - delayed to June 2022.
 - Due to force majeure claims surrounding the COVID pandemic and supply chain constraints caused by changes in Federal regulatory requirements.

Sacramento Valley Energy Center solar & storage Power Purchase Agreement – 200 MW / 100 MW

- Scheduled commercial operation date of Dec. 31, 2023 - delayed to April 2024
 - Due to permitting delays caused by recent changes in Federal regulatory requirements.
- Staff proactively working with developer on local environmental mitigation.

Sloughhouse Solar Power Purchase Agreement – 50 MW

- Scheduled commercial operation date of Dec. 31, 2023.

Request for Qualifications/Offer for Northern Area Projects

- Request for Qualifications issued Oct. 2021.
- Request for Offer issued to shortlisted bidders Dec. 2021.
- Offers due Feb. 2022.
- Final awards expected May 2022.

Renewable Project Update

2022 - Next Steps



- **Negotiate & execute PPAs from competitive solicitation**
 - RFQ/O for Northern Area Project
 - Offers collected in Feb. 2022.
 - Final awards expected by May 2022.
 - Complete Power Purchase Agreement negotiations by November 2022.
 - Request Board approval for CEQA and Power Purchase Agreement /Large Generator Interconnection Agreement in December 2022.
- **Launch 2nd competitive solicitation for additional proven clean tech projects**



Renewable Project Update

Renewable Portfolio Standard (RPS) Energy Growth & Carbon Reduction

New renewables by 2025 – Significant Progress in 3-4 years

- Brings us to 55% Renewable Portfolio Standard (RPS)
 - Double RPS resources (based on energy)
 - Meet 25% of total energy sales
 - 11% above the 2024 44% RPS requirement
 - Ahead of State of CA's 2030 60% RPS requirement
 - Significant progress towards Zero Carbon goal of 90% renewable (proven clean tech) by 2030
- Reduce Carbon by nearly 1 million MT (almost 50% of current carbon footprint)
- Potentially allow lay-up of both McClellan & Campbell

New resources by 2025

Renewables	885 MW
Battery storage	270 MW
Total Clean Resources	1155 MW

- Enough energy to power 300,000 homes
- Carbon reduction of ~ 1 million MT/yr
- Equivalent to removing ~230,000 cars from the road
- Geothermal – 100 MW geothermal
- Drew – 100 MW solar
- Solano 4 – 91 MW wind
- SVEC – 200 MW solar + 100 MW storage
- Sloughhouse – 50 MW solar
- Northern Area Project – 344 MW solar + 170 MW storage



New Technology & Business Models



Technology Business Models by Portfolio



Building Electrification & Energy Efficiency

Encourages customers to decarbonize their homes and workplaces, including reducing electricity usage and/or converting from gas to efficient electric appliances and equipment.



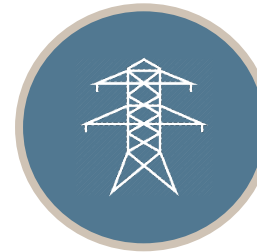
Transportation Electrification

Special rates and incentives that make it more affordable to buy and power electric vehicles for homes or businesses and support infrastructure development and managed charging.



Load Flexibility

Creates opportunities for customers to reduce load during times when the grid is under stress or increase load when there is excess renewable power.



Thermal Transition

Research into alternative fuels and storage technologies as clean, reliable generation solutions to enable the retirement or retooling of our thermal plants and support our transition to a carbon free generation resource mix.

Building Electrification and Energy Efficiency

Existing, New or Expanded Programs or Projects

Residential Programs

- **Advanced Home Solutions** ➡
 - Contractor driven program for sealing, insulation, heating & cooling, and water heating incentives.
- **Home Electricity Reports** ★
 - Personalized electricity use reports with a focus on carbon.
- **Home Appliance Rebates**
 - Retailer incentives for efficient products and appliances
 - Customer incentives for induction cooktops.
- **Zero Carbon Weatherization** ➡
 - Direct install retrofits for EAPR customers.

Commercial Programs

- **Integrated Design Solutions** ➡
 - Builder incentives for commercial new construction.
- **Smart Homes** ➡
 - Builder incentives for residential new construction.
- **Complete Energy Solutions** ➡
 - Turnkey program for comm. retrofits.
- **Custom Retrofit** ➡
 - Incentives for large and/or specialized projects.
- **Express Energy Solutions** ➡
 - Menu based incentives for individual measures and retrofits.
- **Multifamily Retrofit** ➡
 - Apartment owner incentives for energy efficiency and electrification.

Research & Development

- **Technology Assessments** ★
 - 120V Heat Pump Water Heater Trial
 - St. Francis Manor Central HPWH
 - Commercial Kitchen Electrification
- **Grid Infrastructure needs in support of electrification**
- **Industry Association Support**
 - Advanced Water Heating Initiative
 - Electric Power Research Institute
 - Emerging Technologies Coordinating Council (EETC)
 - Consortium for Energy Efficiency-Emerging Technologies Collaborative
- **Codes and Standards**
 - Policy development for state building and appliance regulations.

★ = new program ➡ = expand program

Strategic Alignment: SD-9 & SD-10



Transportation Electrification

Existing, New or Expanded Programs or Projects

Residential Programs

- **Charge @ Home** ★
 - Home charger install rebates.
- **Drive Electric Outreach Events** 🔌
- **EV Support Program**
 - Online and telephone support for residential customers for all EV and EVSE related questions.
- **Dealer Engagement**
 - Sales staff education + incentives.
- **Clean Fuel Reward**
 - Statewide install rebate at point of sale.
- **Clean Cars for All** 🔌
 - EVSE installs for low-income customers.
- **Renewable Energy for EVs**
- **EV Off-Peak Discount Rate**

Commercial Programs

- **SMUD eFuelSM** ★
 - Advisory and installation services for commercial charging systems
- **Commercial EV Program** ➡
 - Vehicle and charger incentives for fleet, workplace, multifamily, schools.
- **LCFS Credit Sharing** ➡
 - Share proceeds from credit sales with eligible Commercial customers.
- **Commercial EV Pilot Rate** ★
 - Rate that address demand charge barriers for EV charging
- **CALeVIP**
 - State incentive program for charger installations in commercial buildings

Research & Development

- **Electric school bus Vehicle-to-Grid** ★
 - Utility initiated discharge from battery to grid.
- **Residential/Light duty Managed Charging pilot** ★
- **eMobility Hubs in DACs** ➡
- **CEC Reach grant applications for EVSE installations in underserved or DAC multifamily dwellings** ★
- **Charging technology assessments**
- **Equity and accessibility research**
- **Modeling & Certifications of Low Carbon Intensity (LCFS) Electricity Pathways and Electric Renewable Identification Number (eRIN)**

★ = new program ➡ = expand program 🔌 = reboot program

Load Flexibility

Existing, New & Expanded Programs or Projects

Residential Programs

- **My Energy Optimizer (formerly Virtual Power Plant) ★**
 - Partner: Aggregates loads from participating smart thermostats and battery storage units (and potentially EV's) for load shed events. Includes integration with CPP rate.
 - Partner+: Aggregates loads from direct control of participating customer-sited battery energy storage systems.
- **Behavioral Demand Response (BDR)**
 - Pilot program to test customer response to load shed events
- **Next Gen ACLM – Planning**
 - Two-way cycling devices for AC load management/control

Commercial Programs

- **PowerDirect®** ➡
 - Load reduction through pre-programmed and automated control of selected equipment.
- **StorageShares**
 - A virtual alternative to on-site battery storage for customers that provides bill savings while also providing grid benefits to SMUD

Research & Development

- **Smart inverter testing**
 - Test feasibility of smart inverters to provide grid services.
 - PRECISE software development deployment to allow customized PV smart inverter settings for interconnection
- **Smart Energy Optimizer (SEO)**
 - Pilot project with a small number of customers that allows SMUD to dispatch 51% of battery capacity
- **PowerMinder**
 - Pilot project with residential customers to test load shifting with Wi-Fi connected heat pump water heaters

★ = new program ➡ = expand program

Thermal Transition & Grid Services

Ongoing and New Projects

Research & Development

- **Hedge Utility-Scale Storage Project**
 - 4MW / 8MWh battery providing 4,000 shares for StorageShares program and learning/testing opportunity for Power Gen and Distribution Planning and Operations
- **SMUD solar port microgrid**
 - Integration of existing PV system and second-life batteries to interconnect high-speed DCFC equipment without additional grid infrastructure upgrades
- **Carbon Sequestration Research**
 - Carbon farming field experiments at Rancho Seco
 - Participation in EPRI technical assessment of NET Power - Allam Fetvedt Cycle
- **Research Studies and Assessments**
 - Long Duration Energy Storage (LDES) options
 - Feasibility analysis of alternative clean fuels
 - Hydrogen blend collaborative research

DERs and New Business Models

High Level Zero Carbon Plan Targets

Electrification & Decarbonization	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Building Electrification	Implementation & Pilots		Scale up & Expand							
Transportation Electrification	Implementation & Pilots		Scale up & Expand							
Cumulative Equivalent All-Electric Homes (thousands)	54	57	60	65	71	81	93	119	131	154
Cumulative Electric Vehicle Potential (thousands)	23	29	39	51	70	94	127	170	224	288
DER Technology	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Energy Education & Behavioral DR	Implementation & Pilots		Consolidation of offerings		Behavioral DR Operation					
BYOD VPP	Implementation & Pilots		Scale up & Expand		BYOD VPP Operation					
Contracted Capacity VPP	Implementation & Pilots		Scale up & Expand		Contracted Capacity VPP operation					
Zero Carbon Base Case Capacity (MW)	7	15	27	44	64	95	141	201	275	364



Maximize Community Benefits



Communications, Marketing, Outreach

2021 Overview

Goal: Create awareness of our goal, why it's important and reassure safe, reliable and affordable power will remain for our customers.

2021 - Plan



- Develop & implement comprehensive regional communications, marketing, outreach and educational effort.

**One of the dirtiest
air basins in the
country
+
Unacceptably high
childhood asthma
rates**

4 expert panel discussions
at SMUD Board mtgs.

4 moderated stakeholder listening sessions
(Environmental + social justice organizations & young adults)

50+ zero carbon community outreach meetings
with customers, stakeholders, community organizations & elected officials

1,500+ Direct connections
with customers, stakeholders and leaders

We actively listened to our community and collected their feedback to inform our strategy.

Communications, Marketing, Outreach

2021 Accomplishments

Comprehensive, multi-lingual, multi-channel Clean PowerCitySM campaigns and outreach

- **2 campaigns**, 7 languages, multi-channel
- **1st ever** TikTok challenge – **Awarded Best Sustainability Campaign** by ESource
- **1st ever** virtual demographic listening sessions
- **110+** community events with Clean PowerCity focus
- Overhauled all green program marketing to align with Clean PowerCity
- Proactive media outreach
- Launched Road to Zero video series featuring employees
- Newsletters/emails
- **100+** Board and CEO speaking events related to zero carbon



5k+

Clean PowerCity
champions
joined the charge



**TikTok
Challenge**

\$6,500+
awarded in
scholarships

**National
recognition**



52% Awareness

SMUD's Clean Energy Vision



90% Support

Clean Energy Vision



#1 J.D. Power

Syndicated Sustainability Study

Communications, Marketing, Outreach

2022 – What's next? SMUD's taking action and you can too

Plan: Regional marketing and outreach effort.

Focus on:

1. *Actions SMUD's taking to get to zero.*
2. *How customers can take action and join the charge.*

Clean PowerCity Campaign & Outreach

- **Here's what we're doing:** Closing and refueling our plants, greening our buildings and fleet, utility-scale solar and batteries. Projects, pilots, partnerships, renewable investments
- **Here's how you can join us:** With simple ways all customers can get involved for little or no cost
- 2 multi-language, multi-channel marketing campaigns
- Continuous feedback and targeted community outreach
- PR/Social media and general outreach
- Focus on simple tips accessible for all customers, leverage our employees to maximize reach

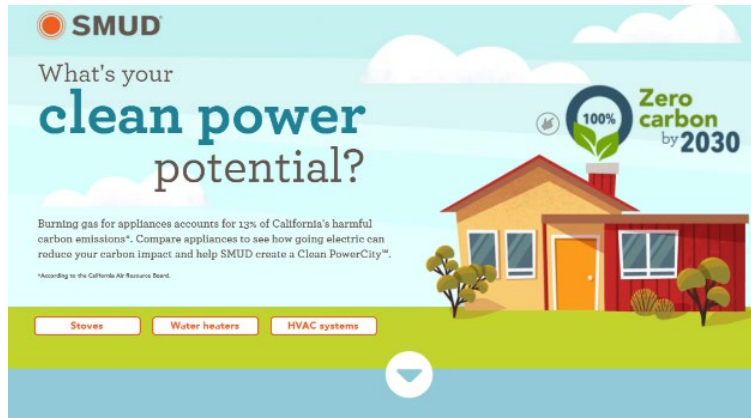


50,000+
Clean PowerCity
Champions



Communications, Marketing, Outreach

2022 Priorities

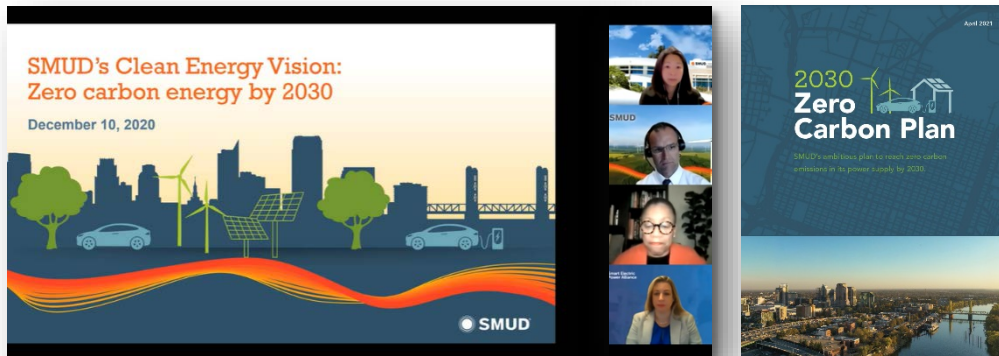


Creating new, engaging experiences

- Clean PowerCity microsite – customers can learn more and Join the Charge.
- Transformer wraps and fleet vehicles with a Clean PowerCity message.
- Interactive digital tools to help customers learn about clean energy solutions.
- Leverage our employees and our social media outreach to expand reach.
- Continue Road to Zero Carbon video series highlighting SMUD employees.
- Short-animated tips videos for all customers to implement for a cleaner environment.

Communications, Marketing, Outreach

2022 Priorities



Showcasing the Clean Energy Vision

- 100+ events planned for the remainder of the year, and growing
- Proactively identify and secure speaking opportunities and publications to showcase the Clean Energy Vision locally and for statewide and national audiences (including Board speaking opportunities)
- SMUD employees trained as Clean PowerCity Champions

Leveraging partnerships

- Leverage longstanding and new partnerships (MOSAC Kings, River Cats, Sac Republic FC and others)
- Arts partnerships to boost engagement in Clean PowerCity, with a focus on youth and families.
- Youth outreach including partnerships with schools, clubs and nonprofits like Future Farmers of America and Safetyville.
- New partnership with Sacramento Running Association/ California International Marathon



Communications, Marketing, Outreach

2022 Priorities



Meeting customers where they're at

- New neighborhood groups and Homeowner Associations effort with partnership agreements and community events.
- Focused outreach with young adult/youth including presentations in schools and clubs.
- Volunteer projects throughout service area inc. community drives like 2021 e-Waste drive.
- Social media thought leadership/influencers to encourage the youth voice in amplifying Clean PowerCity Champions.

Communications, Marketing, Outreach

Continuing to listen to our community



Join your community at the Road to Zero Carbon Virtual Forum

You're invited to join SMUD Board members, energy experts and members of the community for a virtual presentation on our path to a clean energy future.

You've heard about our goal to eliminate carbon emissions in our power supply by 2030. We'll update you on our progress and discuss the ways our community is getting involved.

Wednesday, March 30

5:30 to 6:30 p.m. via Zoom

[Get details and RSVP](#)

Help make
it more
affordable...

What does this
mean for
disadvantaged
neighborhoods?
For communities
that are
struggling?

We need
more options
for renters

What does "Zero
Carbon" mean?
Explain it in
simpler terms...

The path for
small businesses
to participate is
unclear

Come to different
neighborhoods with
materials in
languages they can
understand

Community Impact

SMUD's commitment to Under Resourced Populations

We're proud to celebrate over 75 years of giving back to the community we serve by supporting efforts to improve the quality of life in our region

Two of the most prominent ways we do that is through:

Customer Experience Delivery:

- Provide a subsidized rate to households with <200% federal poverty level
- Provide free energy efficiency and electrification education and solutions to qualifying households
- Partner with a safety net of organizations to get the word out and increase our offerings

Sustainable Communities:

- This community-focused program aligns with SMUD's core purpose and vision to enhance the quality of life for all our customers through innovative energy solutions. The program helps bring environmental equity and economic vitality to all communities in our service area, with special attention given to historically underserved neighborhoods.

Community Impact

2021 Accomplishments

2021 - Plan

- Identify new workforce skills needed to support ZC technologies
- Develop & implement comprehensive regional communications, marketing, **outreach and educational effort.**



In 2021, specific to the Zero Carbon Plan, we've collaborated on the following:

Customer Experience Delivery

- 178 Homes received an energy bundle (electrification measures)
- 4 Multi-family affordable housing complexes (~460 units) updated with electrification
- 17 Home rehabs with community partners
- 162 Cars through Clean Cars 4 All

Sustainable Communities

- 35 Shine Award projects funded in support of social well-being, healthy environments, prosperous economies, mobility and clean energy
- 16,000 Educate residential, commercial and K-12 customers about how the 2030 plan benefits our community and on technologies and SMUD programs that put them in control of their energy costs.
- 1,154 Residents trained through equitable & inclusive workforce training programs to meet the 2030 Clean Energy job needs and SMUD's regional the clean energy economy workforce goals.
- 135 Multi-year nonprofit and economic development partnerships committed to support the 2030 Plan.

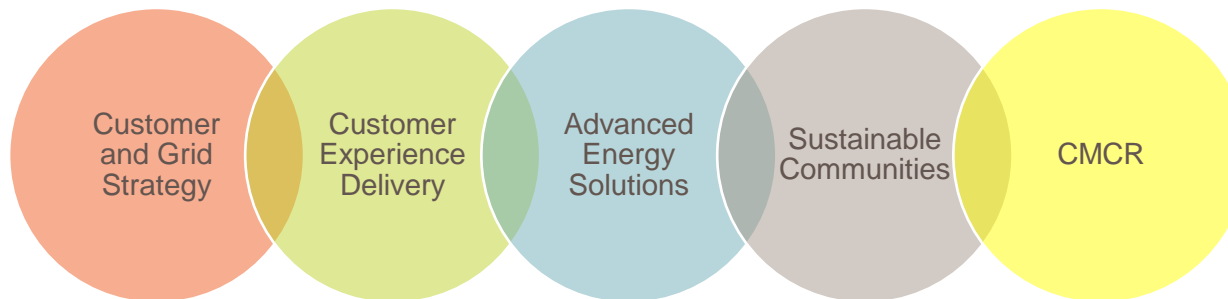


Community Impact

Ensuring everyone is a part of this clean energy future

Based on customer feedback, we see an opportunity to develop a more comprehensive Community Impact Strategy that guides SMUD's outreach and engagement. The strategy addresses SMUD's DEI commitment by making a meaningful and impactful **investment in under-resourced communities** to ensure their participation in a clean energy future. This strategy leverages the many trusted relationships fortified between SMUD outward facing departments and the community stakeholders we support.

This multi-disciplinary team has been working on this since late 2021 and has begun grassroots outreach with a coordinated effort from:



Community Impact

Who are our under-resourced customers?

Residential

- Low/Median income
 - 0-400% federal poverty level
 - May qualify for EAPR and most federal/state benefit programs, but some may have incomes that are too high
- Additional considerations
 - Age (senior citizens, students)
 - Renters
 - Underrepresented communities
- Barriers and challenges
 - Lack of income to afford necessities
 - Higher energy burdens
 - Inadequate housing that is likely leading to health impacts
 - Cultural/language barriers

Commercial

- Small business
- Nonprofits & Community based organizations
- Barriers and challenges
 - Don't own their building or a fleet
 - Unable to afford upgrades
 - Poor building conditions
 - Impact of City of Sacramento's 2024 all-electric building ordinance



Community Impact

Strategic Imperatives

Affordability

Improve the affordability of clean energy technology ties by offering solutions with **low to no cost to the customer**.

Equitable Access

Increase opportunities to engage with SMUD's Zero Carbon Plan for specific customer groups.

Community Engagement/ Education

Micro-target community engagement and education in a way that reflects the socioeconomic and cultural values of the community as they pertain to climate change and clean energy technology.

Community Impact

High level concepts under consideration



Affordability

- Expand the capacity of **existing** programs that have successfully delivered clean energy technology to under-resourced communities at minimal to no cost to the customer. (Ex.: Energy Saver Bundles, Shine Awards, MF program)
- Identify financing options that improve the affordability of electrification programs



Equitable Access

- Modify/develop programs and services that are specific to renters, small businesses, median income
- Invest in Sacramento's safety net through strategic partnerships
- Provide inclusive workforce development opportunities that are specific to electrification and zero carbon technologies



Community Engagement/Education

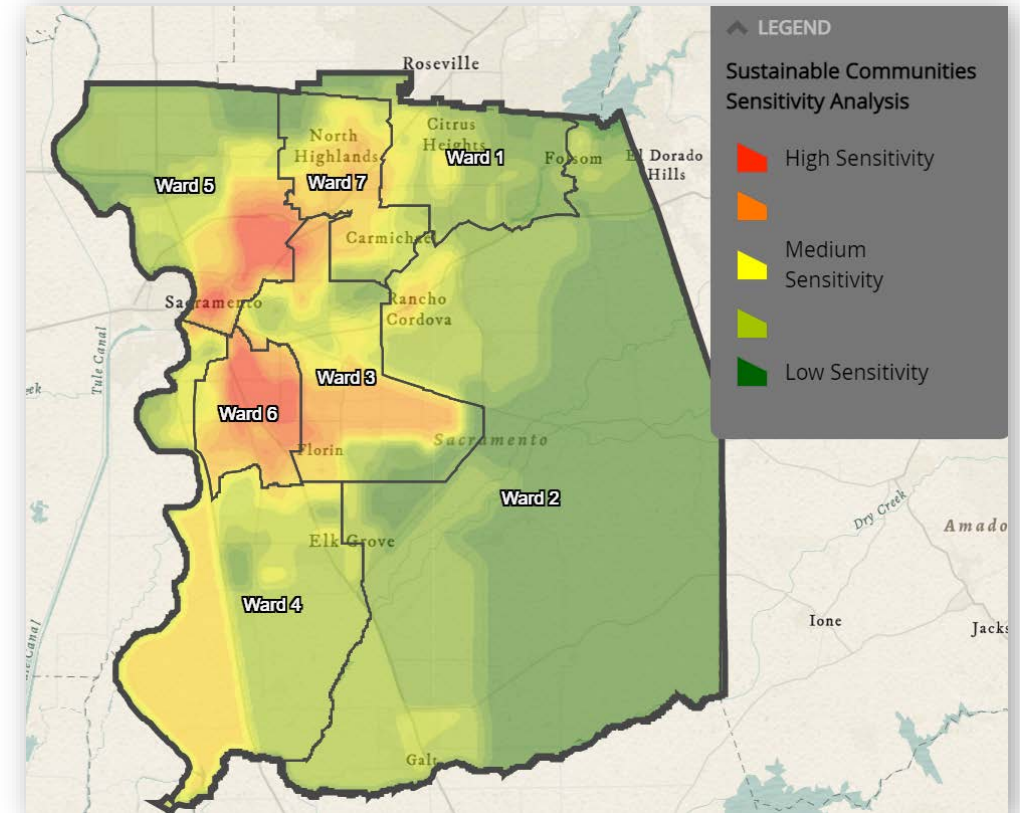
- Focuses heavily on grassroots marketing (We go small to go big—very small):
- Highly targeted and inclusive to race/ethnicity and culture and provides materials (collateral, presentation speakers, explainer videos) in language
 - Leverages the influence of prominent/trusted community members, early adopters, influencers
 - Take our message to the audience (in their communities and neighborhoods)

Community Impact

Making adjustments in real time

Electrify 200 to 300 homes in a concentrated area:

- Identify neighborhoods most in need based on geography, age of home, energy burden, % of EAPR customers, etc.
- Engage community to create support and recruit homeowners and property owners
- Plan retrofits in clusters based on age and layout of home (for economies of scale)
- Assign contractors to perform direct installation of equipment
- Educate community on the many benefits, operation and long-term maintenance needs, and monitor energy use



Community Impact

Making adjustments in real time

Neighborhood approach to engage small businesses with SMUD's Zero Carbon Vision.

Currently exploring:

- Conversion of restaurant kitchens to induction cooking
- EV charging
- Educating the small businesses on the SMUD 2030 plan and why it is important to California and their community
- Providing educational and program materials in their native languages



Community Impact

2022 Next Steps: Continuing Community Conversations

- Introduce SMUD's intent to focus on the under-resourced population to address the areas of affordability, equity and community education
- Capture feedback for consideration and incorporate as needed:
 - These organizations are incredibly knowledgeable about the constituents they serve
 - The unique needs of each community can help us inform a nuanced customization of programs
 - This is an **ongoing dialogue** to capture feedback throughout the process to guide program development

Cross section of audiences

CBOs serving income-eligible customers:

- Seniors
- Housing/unhoused
- Food banks

Small businesses:

- Various chambers and business organizations

Specialty groups:

- Environmental Justice
- Social Justice Advocates
- Workforce Development
- Underrepresented populations
- Students



Financial



2021 - Plan



- Set goals for operational efficiencies to manage risks to rate impacts.

Financial Highlights

- Rate increases for 2022-23 – at or below Consumer Price Index (CPI).
- Identifying and executing on savings opportunities in progress.
 - Deferred \$35 million of revenue that we will use as seed funding for ZCP programs and initiatives.
 - Future opportunities (refunding's, renewable prepaids, pension contributions, cost cutting, etc.) will decrease rate pressure.

Enterprise Prioritization

- Formalized group will drive enterprise-wide spending decisions.

OpEx Program Team and framework established

- Looking for sustainable operational savings & efficiencies while expanding organizational agility across SMUD
- Identification, execution, and tracking of OpEx initiatives underway.

Grant Capture Team & Strategy established

- Necessary funding we will seek to meet our goals

Partnerships & Grants

Infrastructure Investment & Jobs Act (5 YR Authorization)

State of California 2022 Budget Highlights



“Green Corridors” grant program for charging infrastructure along designated highways



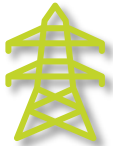
Demonstration programs for carbon capture and hydrogen



\$5B over 5 years to states for electric sector infrastructure projects supporting resilience



\$6B over 5 years for battery demonstration projects, manufacturing, and second life applications



New “Grid Authority” for transmission



\$65B for broadband



Cyber security grants



Wildfire mitigation funds

Federal

State

**Electric Vehicle
Funding - \$6.1B**

**Climate Workforce
Funding - \$500M**

Clean Energy Funding - \$2B
(incl. \$962.4M for Equitable Building Decarbonization)

Partnerships & Grants



Pre-Capture Focus

- Emphasis on relationship management.
- Looking for right opportunities for SMUD while influencing & shaping future opportunities.



Grant Capture Outlook

- Implement Grant Team Strategy
- Partnership with Momentum for screening.
- 63 screened, 4 awarded in 2021, 1 current pursuit.



Partnership Development

- Regional collaboration
- 4-Agency Model Framework.
- Advancing opportunities to prime and partner.
- Educated electeds and other key stakeholders about SMUD's priorities & learning theirs.

Wrap-up



Questions?

