

Exhibit to Agenda Item #2

Provide an informational presentation on the 2030 Zero Carbon Plan: 2022 Mid-Year Progress Update.

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

Wednesday, September 14, 2022, scheduled to begin at 5:30 p.m.

Virtual Meeting Online

2030 Zero Carbon Plan

Mid-Year Update

September 14, 2022

Agenda

Overall progress and updates

- Zero Carbon Plan summary & progress
- Proven Clean Technology
- Natural Gas Generation Repurposing
- New Tech & Business Models
- Financial, Grants & Partnerships
- Communications, Marketing & Outreach

Excludes

- Community Impact Plan update (covered Aug. 9)
- Customer Programs update (Sept 15, as Sept 6 mtg cancelled)



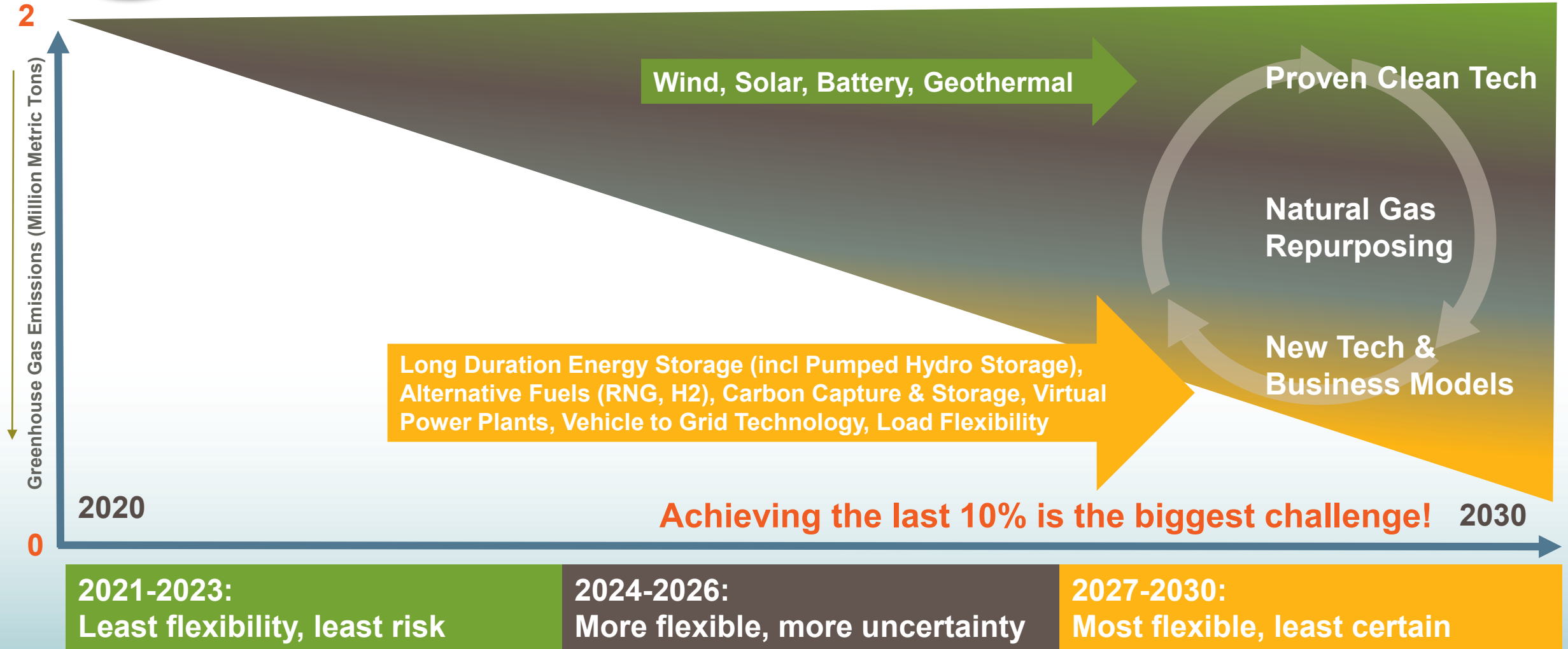


Zero Carbon Plan summary & progress



Progress curves

Flexible pathway, with dependencies





Key Milestones

2021

2023

2025

2027

2030

Natural gas generation repurposing

Reliability studies


McClellan


Campbell


Carson


Procter & Gamble


Cosumnes

Proven clean tech

 5MW

 100MW

 250MW

 91MW

 100 MW







850-1,250 MW

300-500 MW

600-1,000 MW

100-220 MW

Solar: 500-750MW Batteries: 50-250MW

New tech & business models



VPP Pilots



V2G Pilots

44-254 MW



V2G Pilots



360-1,300 MW



Research game changing tech: Storage, biofuels, sequestration



Financial impact & options

Partnerships, grants, joint ventures

Identify internal savings

Assess & mitigate financial risks

Regulatory and legislative advocacy for zero carbon solutions

Scale investments, grants, ventures in new tech & business models

September 14, 2022

7

Re-assess, adjust, prioritize, scale

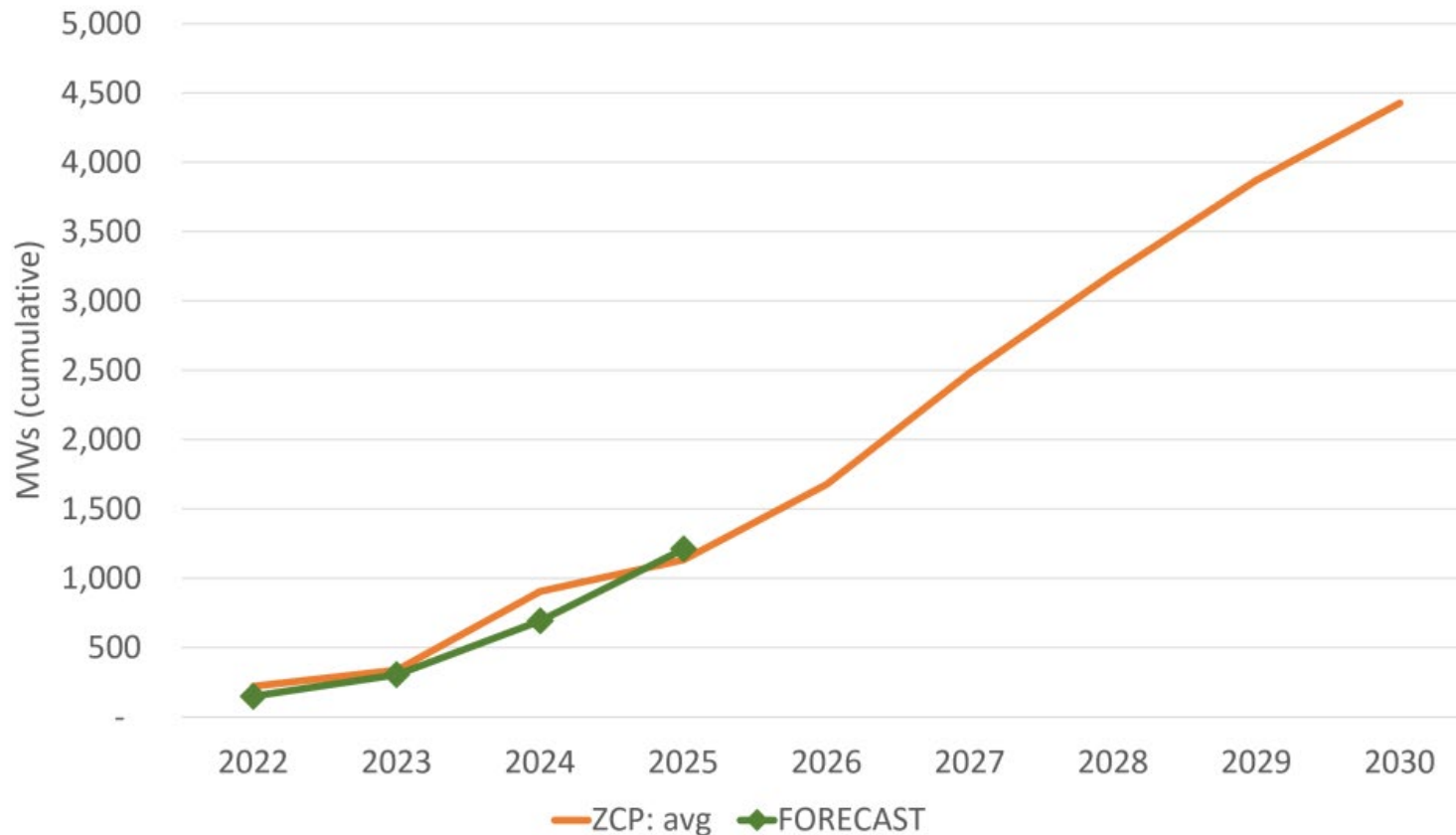




Total new renewable resources (MWs), including storage & distributed energy resources

Work in progress vs 2030 Zero Carbon Plan

ZCP Total New Resources (avg)



KEY TAKEAWAYS:

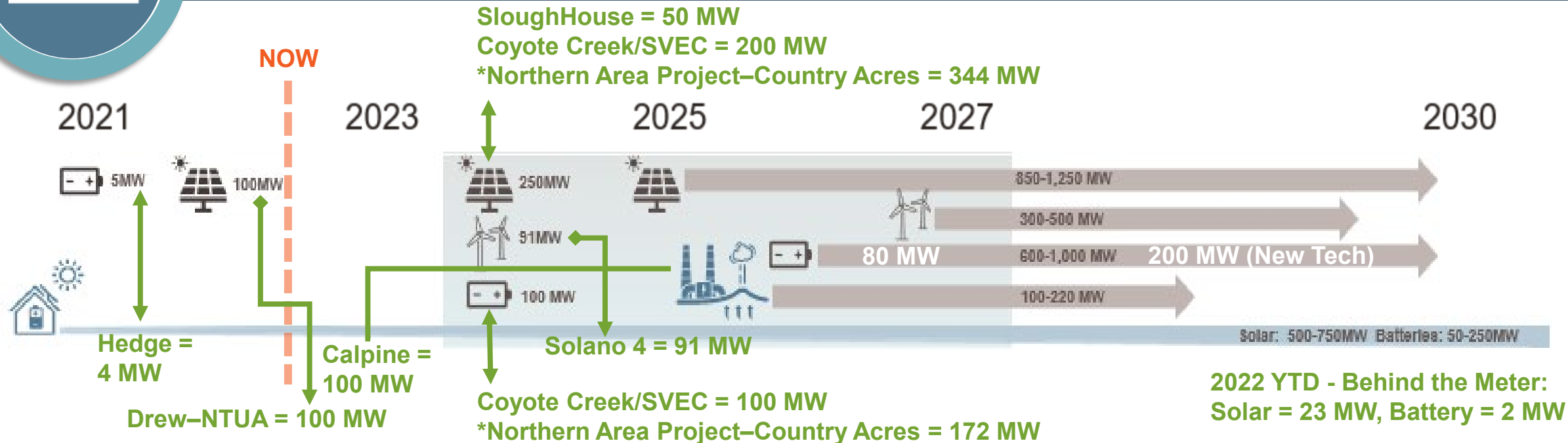
- Strong project start.
- Steep climb to achieve goals.
- Uncertain economy may signal delays.
- Developing pipeline of projects for future years.



Proven Clean Tech



Proven Clean Tech



KEY TAKEAWAYS:

- Strong start & significant progress to 2024.
- Uncertain economy and renewable industry is signaling potential delays and uncertainty, e.g. *Country Acres will be pushed back to 2025.
- Resources needed 2025 and beyond: Solicitation 2022 for utility scale bidders and other technology.



Solar: Behind the Meter

	2021 YTD Aug Actuals	2022 YTD Aug Actuals	2021 Year- End Actuals	2022 Year- End Forecast
Residential Solar Installs (#)	3,439	4,767	5,552	7,152
Residential Installs (MW)	16.6	23.0	26.6	34.6
Commercial Installs (#)	95	196	172	290
Commercial Installs (MW)	2.1	3.2	3.3	5.3

KEY TAKEAWAYS:

- Significant increase in 1 year.
- Exceeding 2021 performance.

Total Installations by Year (2018-2022)

Year	Commercial New Construction	Commercial Retrofit	Residential New Construction	Residential Retrofit	Total Installs	%Change in Total Installs
2018	4	56	1,749	2,815	4624	-
2019	3	35	2,094	2,373	4505	-3%
2020	91	61	2,510	2,470	5132	14%
2021	141	31	2,999	2,553	5724	12%
2022 (*Forecast)	221	69	3,897	3,255	7,442	30%
2022 (YTD)	147	49	2,598	2,170	4961	-

*Notes: 1. End-of-year 2022 was forecasted using monthly averages
2. 2022 YTD = January - August 30th



Natural Gas Generation Repurposing



Natural Gas Generation Repurposing



KEY TAKEAWAYS:

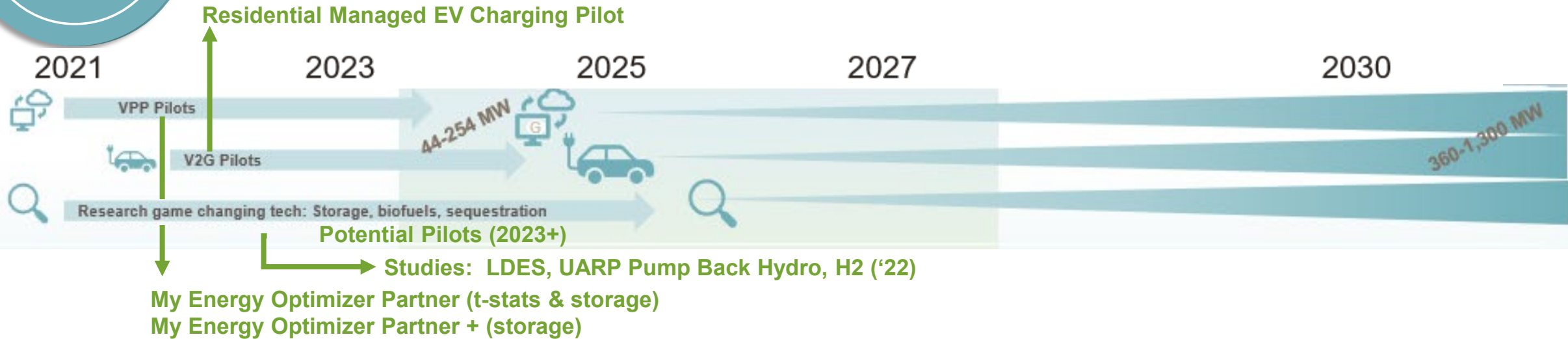
- Conditional Availability Studies (McClellan & Campbell) and Carson Conversion Plan on schedule.
- Retirements dependent on completion and reliability of replacement renewable resources.
 - McClellan Retirement: Shift from 2024 to late 2025 – Dependent on 70-100 MW of new dispatchable generation from Country Acres.
 - Campbell Retirement: Forecast late 2025 – Dependent on Country Acres and Coyote Creek/SVEC.



New Tech & Business Models



New Tech and Business Models



KEY TAKEAWAYS:

- Customer pilot programs have launched in 2022, which have potential to help achieve our goal.
- **Study** results in March 2023 update.
 - Long Duration Energy Storage (LDES): Further examine 6 technologies and consider pilot project.
 - Deep dive analysis of UARP Pump Back Hydro report from MESA.
 - **Hydrogen:** Watching ARCHES (statewide H2 hub), participating in studies for effects of introducing H2 into gas pipelines.



Financial, Grants and Partnerships



Prioritization & Operational Excellence



Selling the giant reels that held power cables back to vendors who sold them to us will reduce waste going to landfills and provide extra revenue.

Material Specialist De Vaughn Cross worked with OpEx Strategic Business Planner Stacey Rae Arao

- Enterprise-wide prioritization process being used for 2023 budget planning activities.
- Operational Excellence across SMUD focused on cost reduction, cost avoidance, increased revenue and/or increased efficiency & productivity.
- 130 director and manager Operational Excellence goals in progress.
- 45 additional Operational Excellence team initiatives in progress.

KEY TAKEAWAYS:

- Dedicated Prioritization & Operational Excellence teams are implementing meaningful change.
- Recycled parts & materials effort = \$1.1 million revenue increase & \$895,000 cost savings over 5 years.
- Hydroelectric system spill avoidance in March saved ~1,607 MWhs of generation = ~ \$1.2 million in savings.



Grant Strategy

Grant wins: 83% success rate

Funding Buckets	Grants Received	Project concepts aligned to Zero Carbon Plan
Clean Fuels	CEC/UCLA: H2 blending	Clean Fuels
Carbon Capture		Carbon Capture & Storage
Long Duration Energy Storage		Demo Project of Long-Duration Energy Storage
Building Electrification	City of Sac: Energy Equity	Neighborhood Building Electrification Integrated Technologies / Grid Integrated Efficient Buildings Optimized EV Charging for Customer & Grid Value (V1G & V2G)
Transportation Electrification	CEC: Equity EV Charging	School & Transit Bus Electrification & Charging Regional Transportation Charging Networks Zero Emissions Goods Movement & Charging Support Public/Private Partnership Charging Stations
Load Flexibility / Integrated Approaches	FEMA: Microgrid	Accelerate Virtual Power Plants
Disadvantaged Communities (DAC) / Under-resourced Communities / Equity	DGS: Regional Education Collaborative City of Sac: Energy Equity CEC: Equity EV Charging	Community-Engaged Workforce Development with Local Job Pipeline
Grid Resilience / Climate / Emergency Prevention	CalOES: Wildfire Mitigation	Grid Upgrades to Support Resilience Wildfire Mitigation Cybersecurity



Partnerships

- Building the framework for a regional collaboration structure.
- Working with regulators, policy makers, community organizations, educational institutions and private industry.



California Mobility Center – various mobility electrification & workforce training efforts



Electric school bus pilot testing vehicle to grid



First-of-its-kind collaboration to accelerate vehicle-to-everything technologies

KEY TAKEAWAYS:

- Regional collaboration and partnerships are critical to pursuing, winning and executing grants in-line with our Grant Strategy and Clean Energy Vision goals.
- Shared cost arrangements will help us pilot new technologies.



Communications, Marketing & Outreach



Communications, Marketing & Outreach

Actions SMUD's taking to get to zero. Actions customers can take to join the Clean PowerCity movement

Creating a Clean PowerCity movement

- All-new integrated, multi-channel Clean PowerCity campaign in 7 languages
- Marketing campaigns for **new clean energy programs**
- Launched all-new **cleanpowercity.org** microsite
- **TikTok strategy** to engage younger demographics
- Return to larger in-person **community events**
- All-new integrated **summer 5-8 p.m. energy conservation campaign**
- **New partnerships** aligned to Clean PowerCity
- **85+ Board and CEO** industry and community **speaking engagements** with Clean PowerCity messaging
- **9 zero carbon or sustainability-related awards** received



23k+ joined the charge

Clean PowerCity champions



1st utility

J.D. Power Certified
Sustainability Leader



TikTok growth

5X increase in followers

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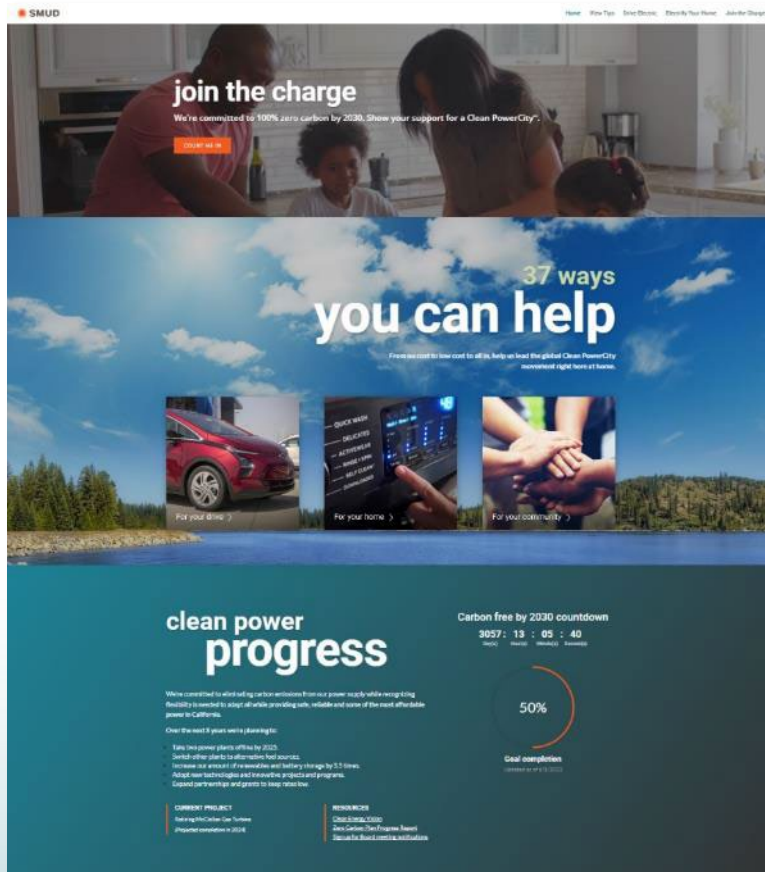
21

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Public comment may be submitted via e-mail to PublicComment@smud.org.



Digital outreach – web



All-new microsite launched in June

- **37 interactive tips:** ways customers can help – from free/low-cost to all in
- Tips are part of integrated campaign that also includes tip card with t-shirts, email, social media and in-person outreach
- **91%** of customers surveyed found the microsite useful



September 14, 2022

22

Public comment may be submitted via e-mail to PublicComment@smud.org.





Community Relations, Outreach & Events

Showcasing the Clean Energy Vision

- **250** confirmed events, and growing
 - **13,000+** Join the Charge sign-ups from in-person events
- **42** SMUD employees trained to become Clean PowerCity Champions for our Speakers Bureau
- **Focus on youth:** Cal-Hi partnership, Young Professional Emerge Summit, intern-led virtual forum for high school and college students



Leveraging key strategic partnerships



Sacramento Kings

2022 gameday booth activations begin in October



Sacramento River Cats

• 12 game activations



Sacramento Republic FC

• 10 game activations



California State Fair

• 6 days on-site

September 14, 2022 23

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Community Relations, Outreach & Events



Meeting customers where they're at

- **30+ forums and presentations** to community organizations, service groups, local non-profits and advocacy groups
 - Reaching new groups, including Iranian American Cultural & Education Center, The Elders Climate Action
- Launched the HOA and Neighborhood Associations partnerships **20+** events to date
 - Reaching new neighborhoods
- **162** SMUD employees serving in the community as Board members (**12** environmental groups)





Email, newsletters and video

Clean Energy Vision emails

- 1 m+ total sent
- 93 total campaigns (Connections, Clean Energy Vision Forums, programs etc.)
- 50% average open rate

Summer peak hours energy efficiency emails

- 1.8 m+ sent
- 52% average open rate

Connections print newsletters (with monthly bills)

- 1.8 m sent to residential customers
- 110,000 sent to business customers

Videos

- 4 Road to Zero videos showcasing our employees' work to support zero carbon
- 10 tips videos to help customers join the charge

a forum to clear the air

Our choices today can shape a healthier, cleaner tomorrow.

Our region ranks 6th worst in the nation for air pollution so we're working to help you breathe cleaner air. By 2030, SMUD will be carbon free and keep our promise to deliver safe, reliable and affordable energy. We can't reach this goal without you.

Because of your prior interest in our zero carbon forum, we hope you'll join us for updates on our progress toward a zero carbon future.

- Hear what we've done since last year to meet our bold vision.
- Learn about revamped and new programs for customers to join in our carbon-free journey.
- Get quick tips about how you can get involved.
- See what's coming in 2022.
- Have your questions answered by our zero carbon experts.

Register for our virtual forum today!
Wednesday, March 30
5:30 to 6:30 p.m. via Zoom

Get meeting details & RSVP

We know your time is valuable. As a thank you for joining us, all attendees will be entered into a drawing for a chance to win 1 of 25 Amazon gift cards valued at \$50 each. [View official rules](#)

We're leading the way to a clean energy future. To learn more about our 2030 Zero Carbon Plan and how you can join the charge, visit [CleanPowerCity.org](#).

Road to Zero

with Amanda Beck, Solar Projects Development Manager

Connections

Our email newsletter for residents of Meadowview, Clark Park, Parkway, Airport and Valley Hills.

37 ways you can help reduce carbon

You can join the charge to help us achieve zero carbon emissions over the next 8 years. Bike or walk, eat local, unplug the smart stuff... we've got 37 ways you can help clean the air in our community. Many are low-cost or even cost-free ways that can make a big difference! Learn 37 tips to reduce carbon.

Connections

Our monthly newsletter for residential customers

September 2022
Promising Forward, Together

Summer rates end Sept. 30

Summer rates end September 30, but summer temperatures are still hanging around. By continuing to reduce your electricity use from 5 p.m. to 8 p.m. or till late without sacrificing comfort, off-peak hours are before 5 p.m. and after 8 p.m. weekdays and all hours on weekends and holidays. Lowering energy use is good for your wallet, the power grid and the environment, too!

We have tips and tools to help you save energy and lower your electric bills all year long. Visit [smud.org/TimeOfUse](#).

Battery storage incentives up to \$2,500

Are you considering battery storage? Now's a great time. By partnering with SMUD through our new My Energy Optimizer program, you can earn financial incentives for making your battery storage unit an even smarter device.

Your battery will be optimized to reduce energy usage during the hours when demand is highest and clean energy resources are less plentiful. This would include shifting the time when your battery is used to power your home. The incentives would be awarded to you and no extra effort is needed on your part.

To be eligible for the program, you must have a battery storage unit installed at your home and participate in SMUD's new Solar and Storage Plan.

Visit [smud.org/StorageIncentives](#) for more information and to learn how you can receive up to \$2,500 in rebates.

To view SMUD's 2021 Power Content Label, visit [smud.org/SMUDPCL](#). The label compares SMUD's power mix to the State of California power mix. You can also view SMUD's 2030 Zero Carbon Plan and see how you can join the charge at [CleanPowerCity.org](#).



Social media

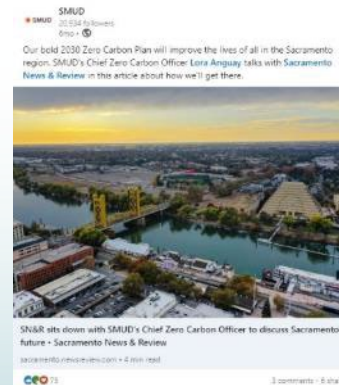
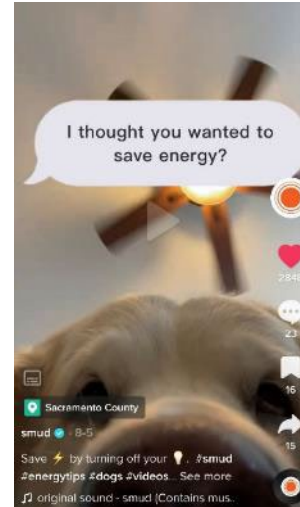
Active on all channels with Clean Energy messaging and opportunities for customers to join the charge.

LinkedIn

- Demonstrating SMUD's clean energy leadership
- Building connections across the globe
- Highlighting successes in our journey
- Showcasing our leaders

TikTok

- Connecting with our customers of the future
- Creative and engaging opportunities to share Clean Energy Vision messaging
- Exponential growth in followers since March
- Seeing 100,000+ views on videos



@mysmud



@mysmud



@SMUDUpdates



@SMUD



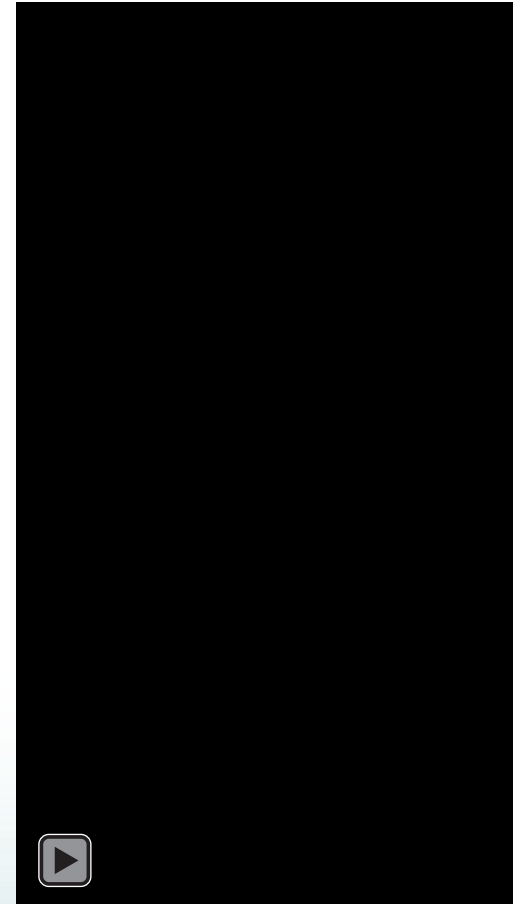
@smud



Let's take a look



136,000 views
1,285 likes



303,000 views
4,404 likes

Q&A