

Virtual Power Plants and SMUD's Zero Carbon Plan

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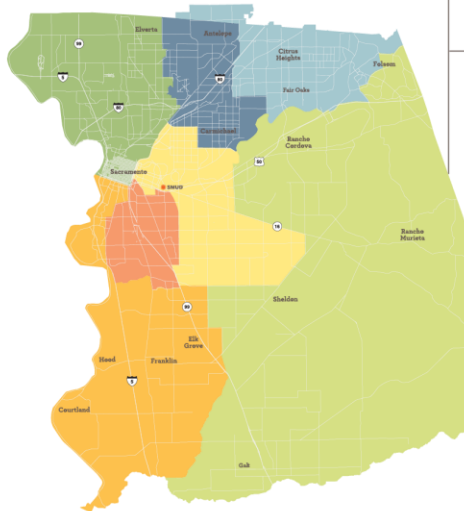
Powering forward.
Together.



About SMUD

SMUD is your community-owned, not-for-profit electric service.

6th largest
community-owned
in the U.S.



75+
Years
Est. 1946

Power mix
that's on average
about
50%
carbon-free



The most
ambitious goal
of any large
utility in the
United States

~**645,000** Customers

~**2,300** Employees



7 member
Elected
Board of Directors

SMUD's rates are among the lowest in California,
and on average more than **54% lower** than those of neighboring PG&E.

SMUD's 2030 Zero Carbon Plan

100%



Repurpose natural gas generation

Replace 2 power plants with renewable and storage resources and retool remaining 3 to minimize emissions.



Expand proven clean technology

Grow SMUD's renewable and battery storage by 3.5x. Support customer's resources via solar and battery storage.

~\$2 billion investment



Pilot & scale new technology and business models

Increase education and demand flexibility, spread adoption of customer-owned virtual power plants & invest in grid-scale technology.



Pursue grants, partnerships and limit rate impacts



Maximize community benefits

Stay affordable and reliable, improve air quality and overall community health while supporting under-resourced communities.

Goal:



Eliminate CO₂ from SMUD's power supply

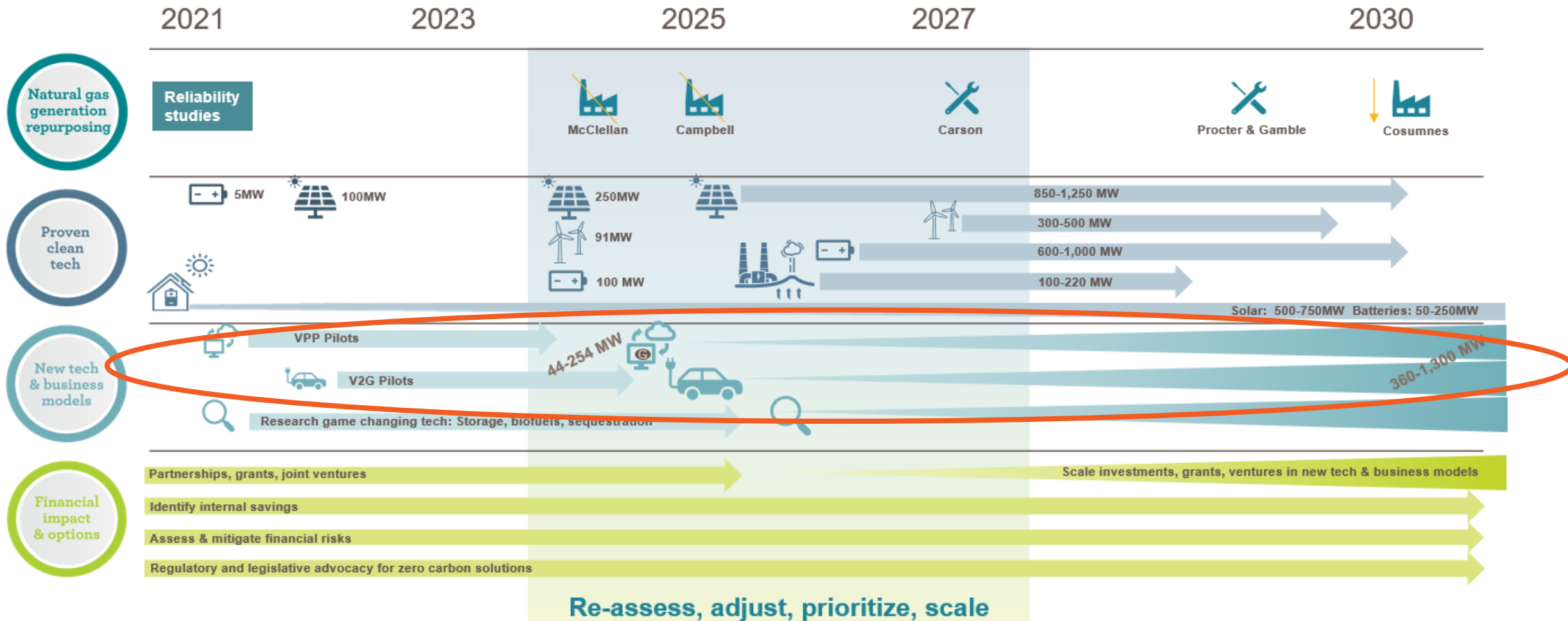


Create thousands of new regional clean tech jobs



~\$2.5 billion investment

Virtual Power Plants in the 2030 Plan



VPP Summary



MEO Partner – Residential Thermostat Program

[SMUD | My Energy Optimizer](#)



MEO Partner + - Residential Battery Program

[Battery storage for homeowners](#)



EV Managed Charging

& Bulk Renewable Integration
20-50K customers over next 5 years
[Managed EV Charging](#)



Commercial Storage VPP

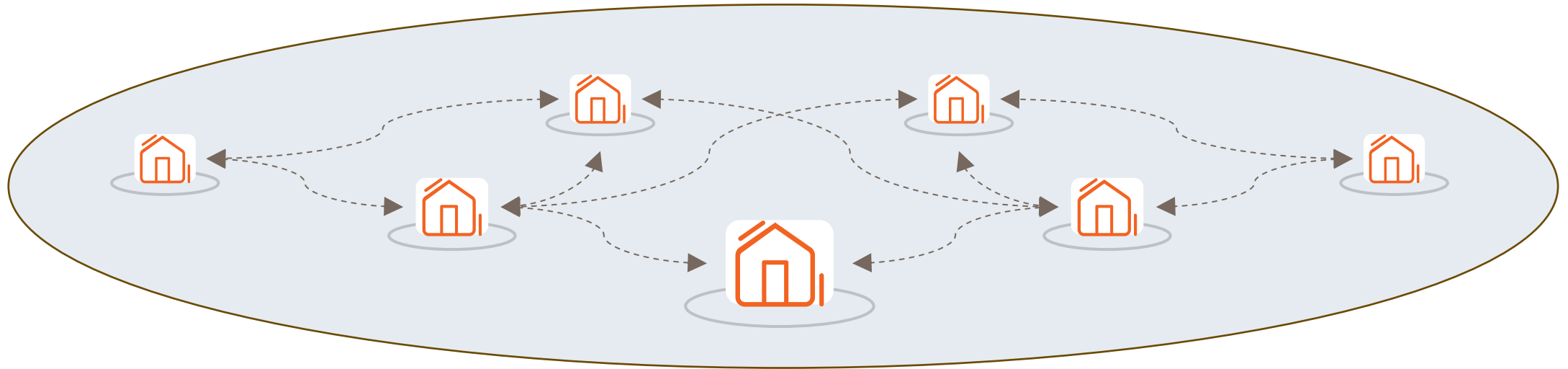
At R&D stage with pilot hopefully within next few years



Automated Demand Response – Commercial Power Direct

[PowerDirect® Automated Demand Response Program](#)

What is the My Energy Optimizer Partner+ VPP Program



- SMUD's **first** large-scale virtual power plant program for residential customers.
- Partnership between SMUD and 3rd party provider
- Get paid to connect your battery systems to SMUD's Virtual Power Plant.
- Increase the energy resiliency of your neighborhood.

My Energy Optimizer Partner+ Battery



Objective: Implement first large-scale, behind-the-meter battery storage virtual power plant utility resource.

Program description

- Residential VPP
- Currently 959 batteries, EOY goal 1600, under 8MW enrolled capacity
- Battery OEMs: Tesla, Eguana, Enphase, Franklin, Solar Edge & Sonnen
- 50 fully covered installations in under-resourced communities

Program potential by 2030*

- Potential for 2030: 66MW

My Energy Optimizer Partner+ Battery (cont.)



Customer experience & dispatch

- Mostly through Installer Network during solar+battery purchasing process
- SMUD will optimize batteries to SMUD's TOD rate on non-event days
- Typical dispatch between 5 – 8pm
- Dedicated charging hours daily between 10am – 3pm
- 20% battery reserved for backup power; SMUD never uses it during outages
- Vendor tracks individual system performance and administers incentive payments

Customer incentives

- One-time enrollment incentive of \$500/kWh up to \$10,000
- Quarterly performance payments \$110-\$330 depending on the system

Residential Managed Charging Pilot



Objective: Test managed charging strategies for light duty EVs via telematics

Program Description

- Partner with BMW, Ford, *General Motors* to enroll eligible EV owners
- Avoid Service Transformer, Substation Overloads
- Use Open Vehicle Grid Integration Platform (OVGIP) for charging data
- Pilot expanded to include Optiwatt to enroll eligible Tesla customers in the Optiwatt App in Summer 2023.
- M&V will continue through Winter of 2025, still collecting data

Current Pilot Customer incentives

- One-time enrollment \$150 incentive
- Ongoing quarterly \$20 incentive

Program potential by 2030*

- TBD
- Pilot goal was 2K customers by end of 2024

Thank you!

For more information about SMUD's VPP programs, contact:
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Bulk Substation "Station G"