

The Future of Virtual Power Plants Empowering Underserved Communities

Panelists

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Powering forward.
Together.



SMUD - Who is 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



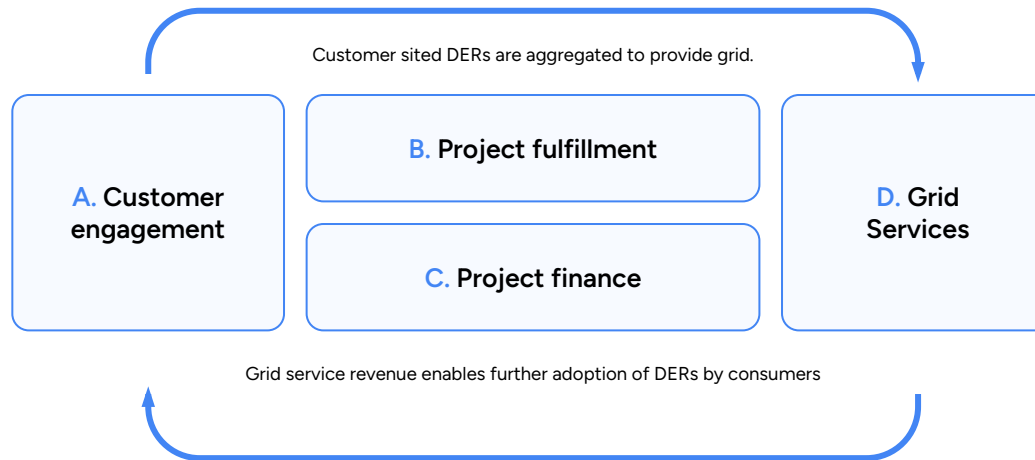
7 member
Elected
Board of Directors

Rates among the lowest in CA. On average **45%** lower than PG&E

SMUD - What is SMUD Trying to Achieve?



Swell Energy - Overview



- Founded in 2014, **Swell Energy** is a premier distributed energy resource deployment and management company
- Swell is built on **three core competencies** with **innovative technology at the foundation**
 - Project development (**DevCo**) includes customer engagement and distributed energy resource systems (DERs) sales and project fulfillment
 - Project Finance (**FinCo**) develops loan and leases products that incorporate VPP asset value
 - Grid Services (**GridCo**) builds virtual power plants (VPPs) with to enable the clean, resilient next generation electric grid.



VISION

A rapid, equitable transition to a world powered by renewable energy that benefits everyone.

MISSION

Build community-powered solutions to advance economic and environmental justice through renewable energy.



Key GRID Programs



Single-family Solar



Multifamily & Community Solar



Tribal Solar

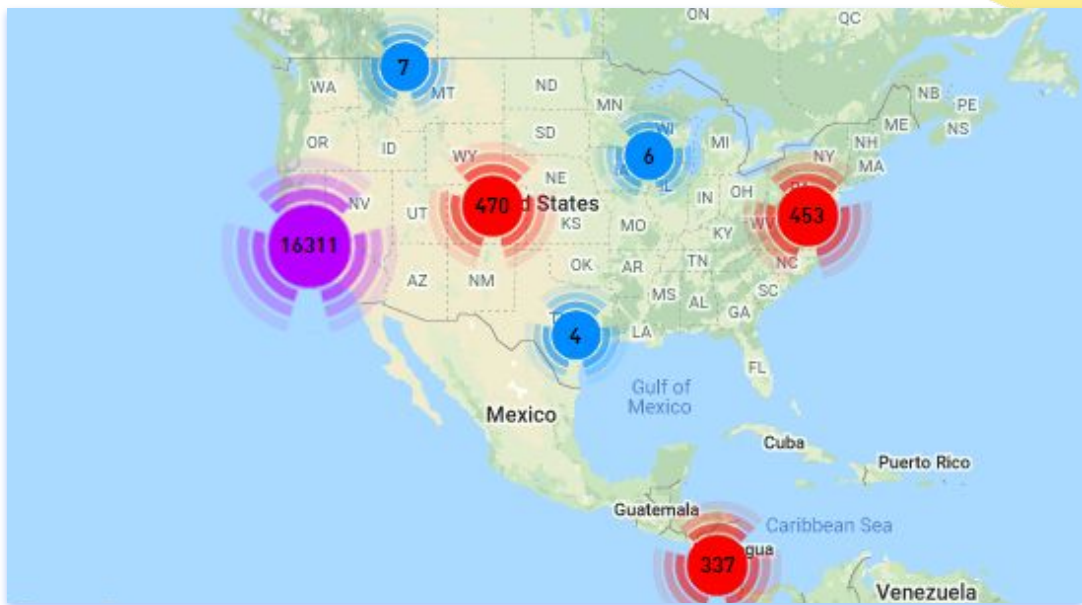


Installation Basics Training





Where We Work & Our Impact



21,812

HOUSEHOLDS SERVED
Homeowners and renters who qualify as low-income



172

COMMUNITY FACILITIES SERVED
Multifamily affordable housing buildings, nonprofits and other service providers



\$576,039,237

LIFETIME SAVINGS
Fewer expenses = more money in families' pockets



2,358,050,927

KILOWATT HOURS
Clean power for families and communities



1,576,149

TONS OF GREENHOUSE GAS EMISSIONS PREVENTED
Over an expected 25-year lifetime



301,668

CARS TAKEN OFF THE ROAD
Lifetime CO2 reduction equivalent



32,574

PEOPLE RECEIVED HANDS-ON EXPERIENCE
Participants include volunteers, students, and job trainees



286,327

TOTAL JOB TRAINING HOURS
Time spent on our job training focused installs



310

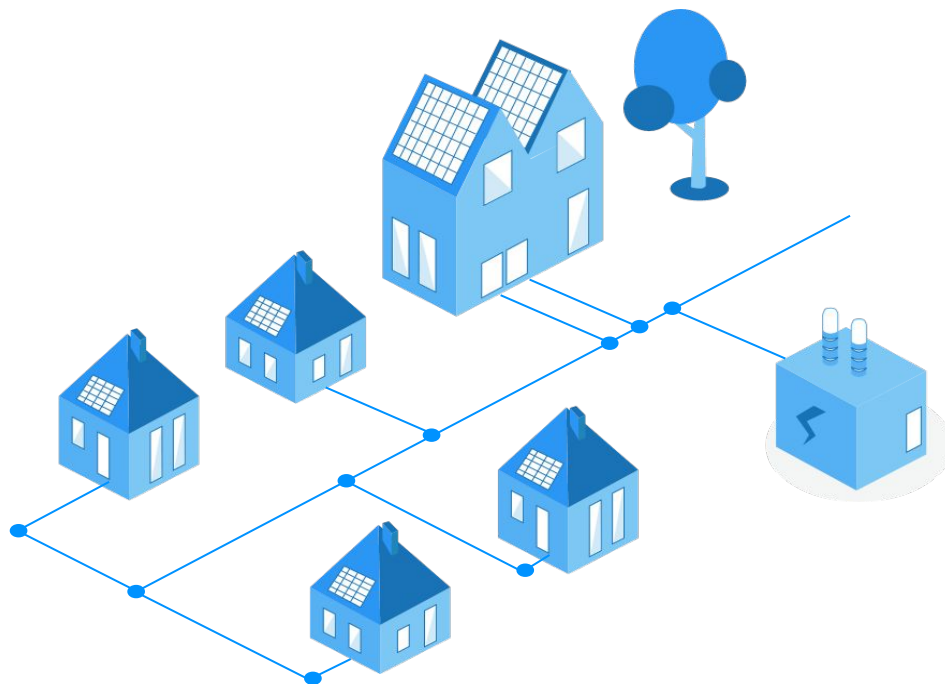
JOB TRAINING PARTNERS
Schools, colleges, vocational programs, and community based organizations

Virtual Power Plants - What is a Virtual Power Plant?

A Virtual Power Plant is an aggregation of distributed energy resources—such as batteries, PV, EVs, smart plugs and thermostats—that can be controlled by the grid operator in place of a central power plant.

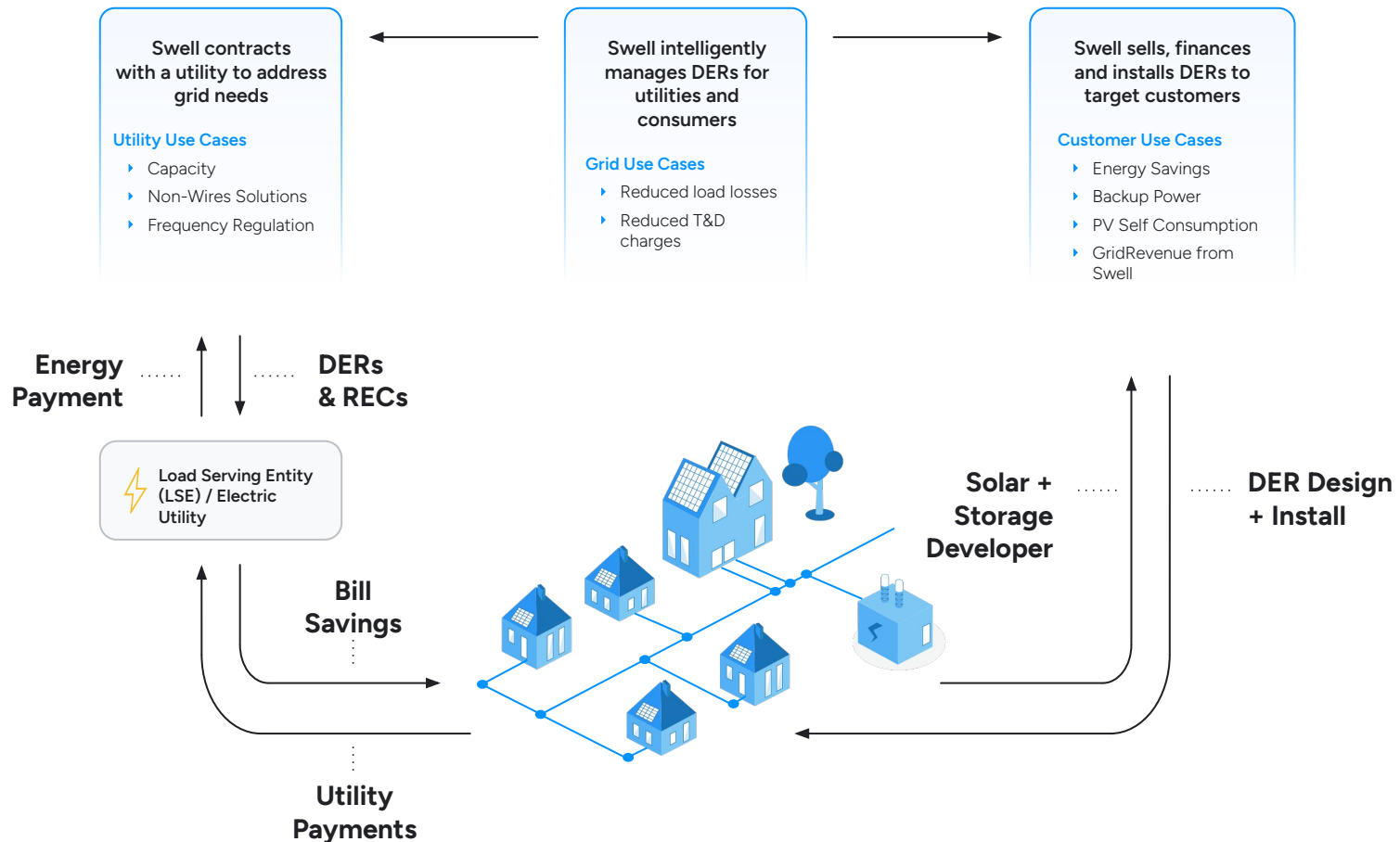
Virtual Power Plants that aggregate hundreds or thousands of batteries in partnership with customers to optimize and provide supply, manage demand, and regulate grid frequency.

These grid services enable utilities to provide service without building new physical infrastructure. Physical connectivity is still required.



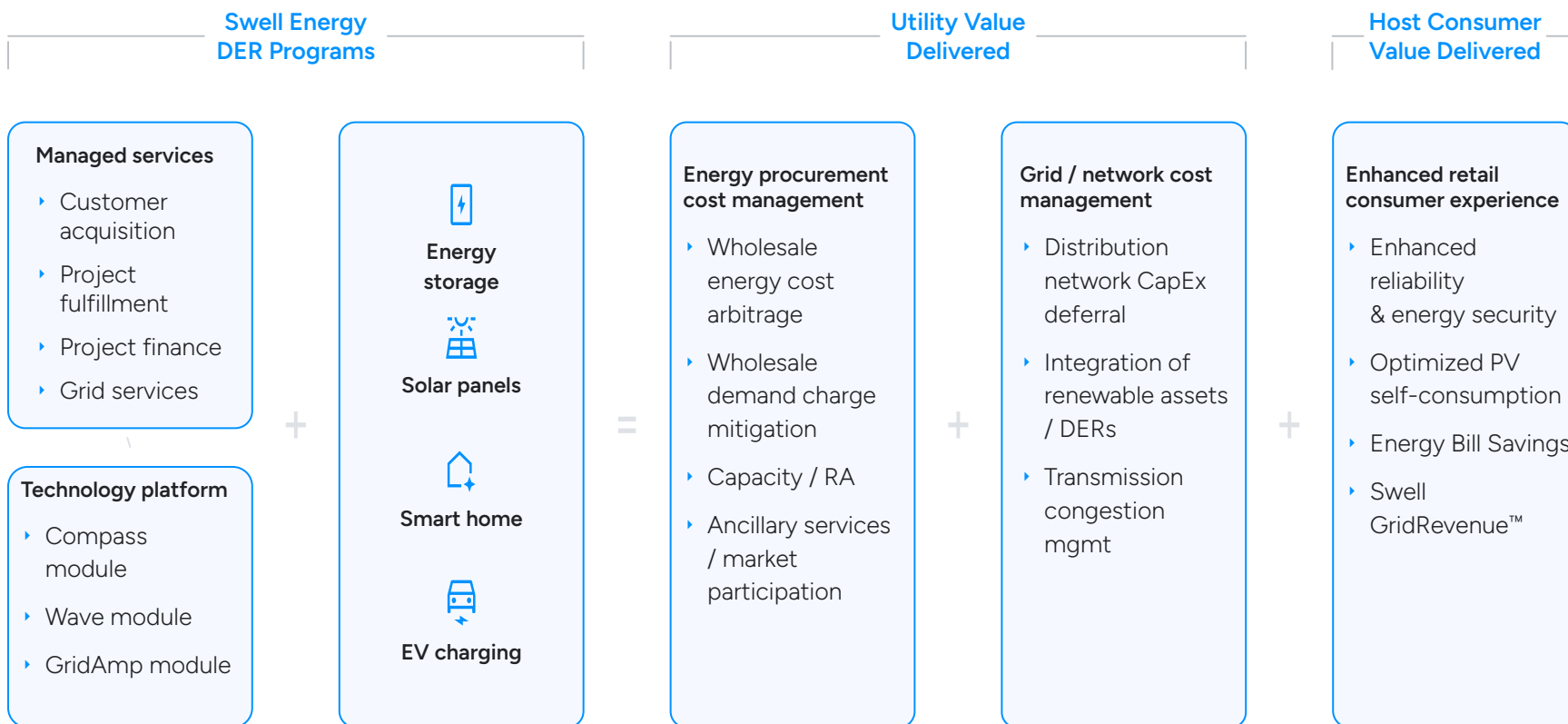
Virtual Power Plants Made Simple

- ▶ A Virtual Power Plant (VPP) is a power system that improves grid reliability and reduces dependence on fossil fuels
- ▶ By orchestrating many distributed energy resources, Swell Energy reduces grid stress and replaces aging grid infrastructure
- ▶ Customers use solar powered energy storage systems to achieve financial and back-up power objectives
- ▶ Customers also realize additional monetary value from their battery

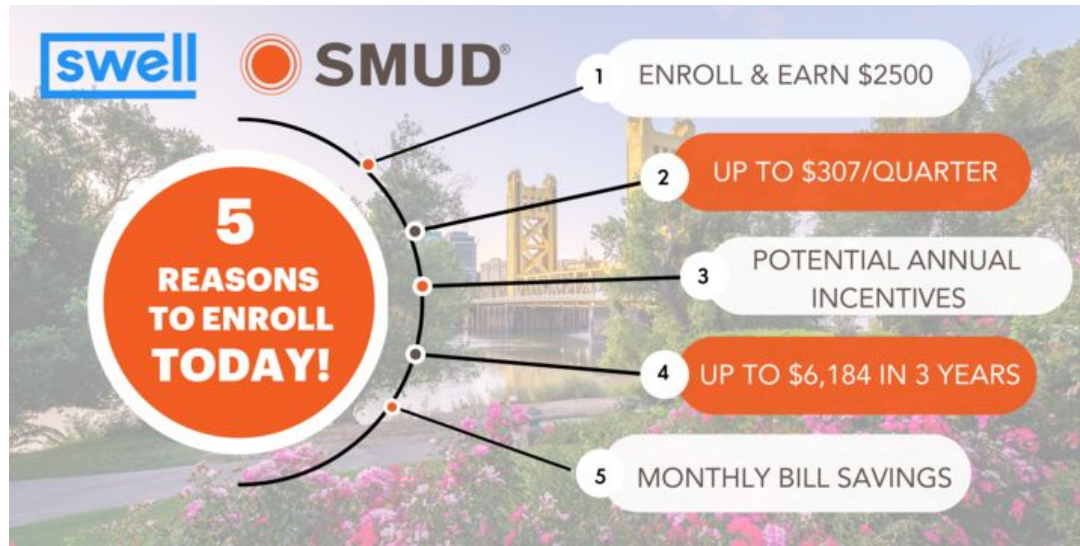


Platform & Managed Services

Swell provides a turnkey VPP deployment & management platform that **optimizes utility value** while **enhancing Consumer experience**



SMUD's My Energy OptimizerSM Partner+ Program



| Battery(ies) Size | Quarterly Recurring Incentive | 3-Year Program Value* |
|-------------------|-------------------------------------|--------------------------|
| 1 Battery | \$76-102 | \$912-1,224 |
| 2 Batteries | \$152-205 | \$1,824-2,460 |
| 3 Batteries | \$228-307 | \$2,736-3,684 |

Sustainable Communities Strategy

Enhancing the quality of life for all of our customers and enhancing the vitality of all of our communities.



Social Wellbeing

- Community education
- Community safety
- Infrastructure improvements
- Community events & sponsorships
- Collective impact partnerships
- Under-served community development



Healthy Environment

- Air quality improvements
- Carbon emission reduction
- Climate readiness
- Environmental justice
- Health equity
- Tree canopy



Prosperous Economy

- Digital accessibility
- Economic development
- Small business development
- Low-income programs
- Workforce development
- Technology skills training



Mobility

- Electric vehicle
- Autonomous transportation
- Public transit access
- Charging station
- Walkability
- Shared mobility access

Who are SMUD's Under-Resourced Customers?

Residential (~69,000)

- Income-Qualified (Federal Poverty Level)
 - Low: 0-200%
 - Medium: 201 - 400%
- Additional considerations
 - Renters
 - Under-served

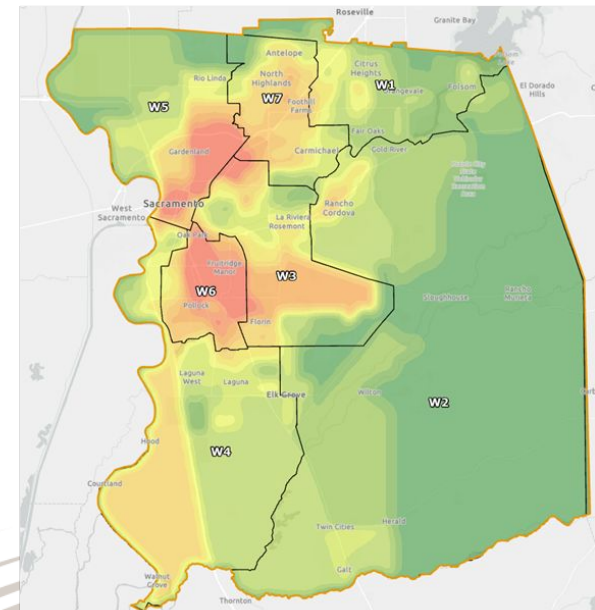
Commercial (~11,000)

- Small businesses
- Nonprofit agencies
- Community-based organizations

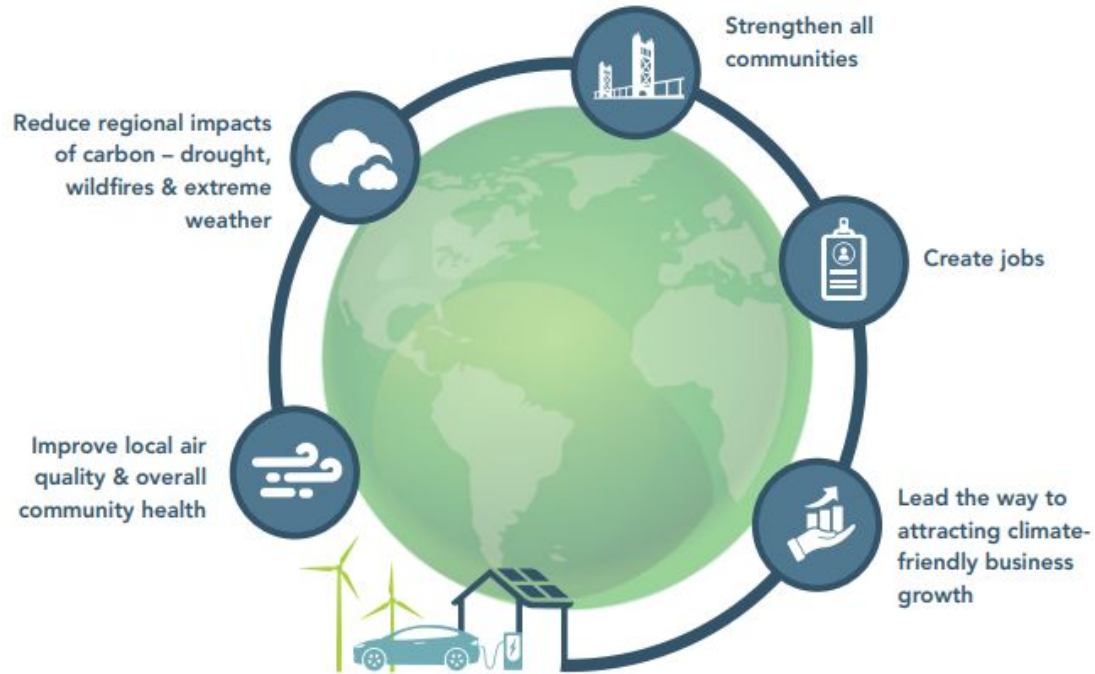
Barriers and Challenges

- Lack of income to afford basic necessities
 - Higher energy burdens
 - Poor housing conditions that is likely leading to health impacts
 - Cultural / language barriers
-
- Do not own building and/or fleet
 - Unable to afford upgrades
 - Poor building conditions

SMUD's Sustainable Communities Map

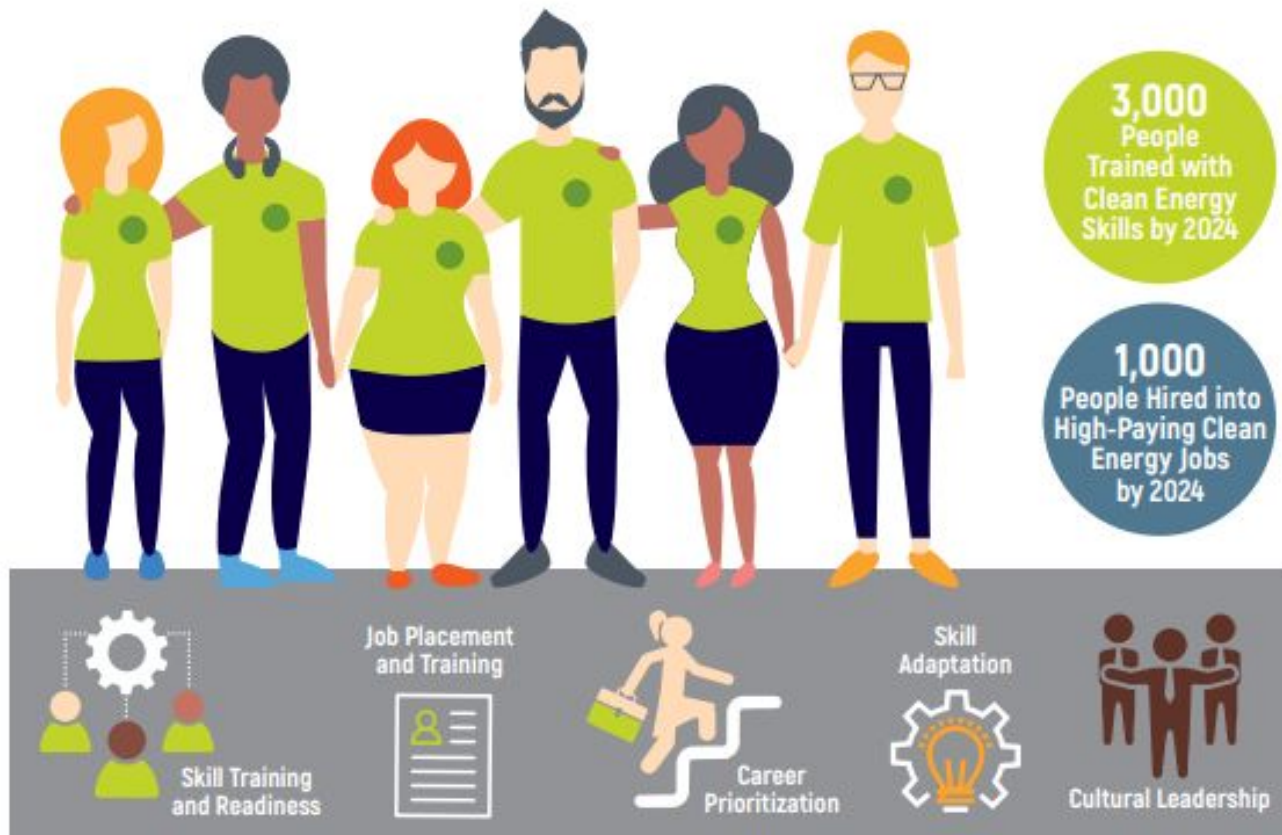


Underserved Communities - Combined goals



| MEOP+ Under-resourced Communities Goal | | | |
|--|--------------|--------------|--------------|
| | Dec 31, 2023 | Dec 31, 2024 | Dec 31, 2025 |
| # of LMI Customers (cumulative) | 50 | 100 | 150 |

SMUD's Sustainable Communities Workforce Development



Solved Skilled Labor Deficit

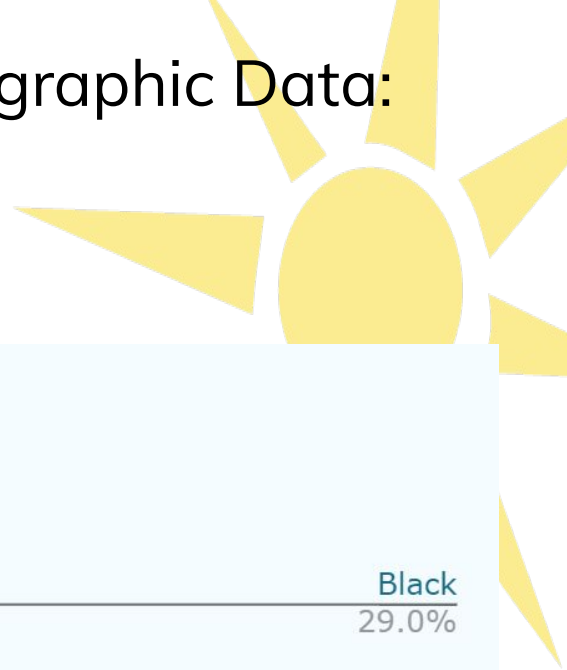
Ensure Diversity of Future Green Workforce

Foster a Responsive Regional Green Jobs Ecosystem

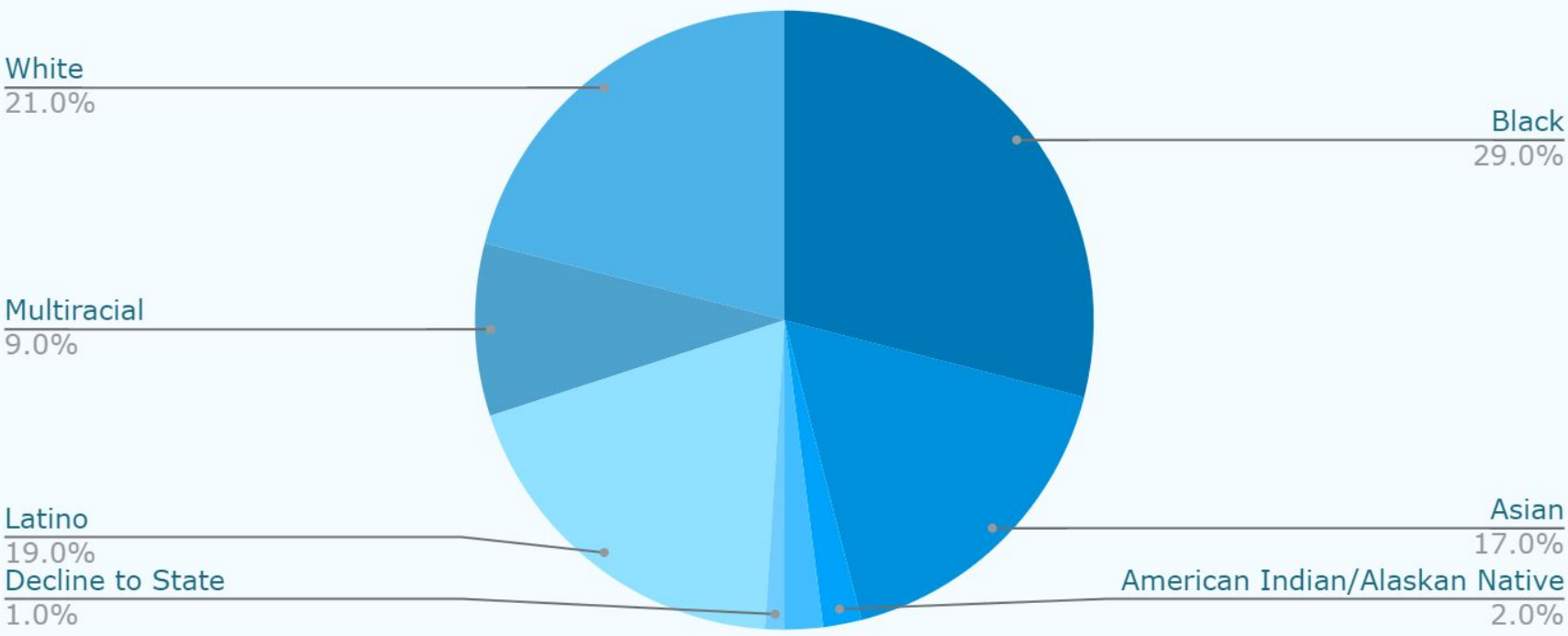
Bring Economic Opportunities to Under-Resourced Communities



Workforce Development Demographic Data: 2019-2023



Workforce Development Demographics



Program Overview



Comprehensive,
industry-vetted
curriculum



Commercial-pace solar
installation training



Competency-based, timed
capstone assessments



Employment readiness
workshops



OSHA-10 and CPR/First
Aid certification



IN-CLASS LEARNING



HANDS-ON LABS



REAL-WORLD INSTALLATIONS

Q&A Session

For more information on the My Energy OptimizerSM Partner+ launching this summer, Stop by the Swell Energy table and speak with us

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Thank You!