

# DISADVANTAGED COMMUNITIES – SINGLE-FAMILY SOLAR HOMES (DAC-SASH) INDEPENDENT EVALUATION

Public Webinar

# AGENDA

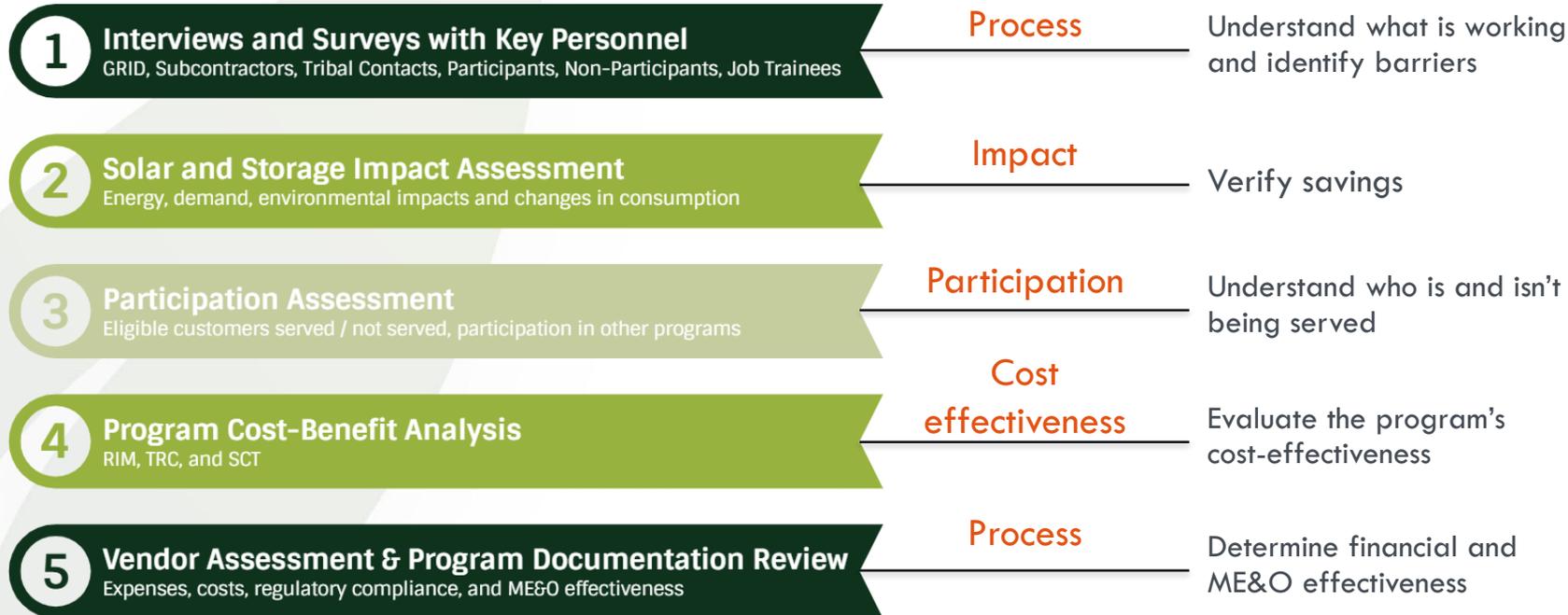
- » DAC-SASH Background
- » Evaluation Overview
- » Review of Key Evaluation Findings
- » Top Recommendations
- » Next Steps
- » Q&A



# DAC-SASH BACKGROUND

- » California State Assembly Bill (AB) 327 and Decision (D.) 18-06-027 created the Disadvantaged Communities Single-family Solar Homes (DAC-SASH) program.
- » The program was modeled after the Single-family Affordable Solar Homes (SASH) program and provides assistance in the form of financial incentives towards the installation of solar generating systems on the homes of low-income homeowners in disadvantaged communities (DACs).
- » There is currently an annual budget of \$10 million/year from 2019-2030
  - 10% Program Administration
  - 4% Marketing & Outreach
  - 85% Incentives
- » GRID Alternatives serves as the program administrator (PA)

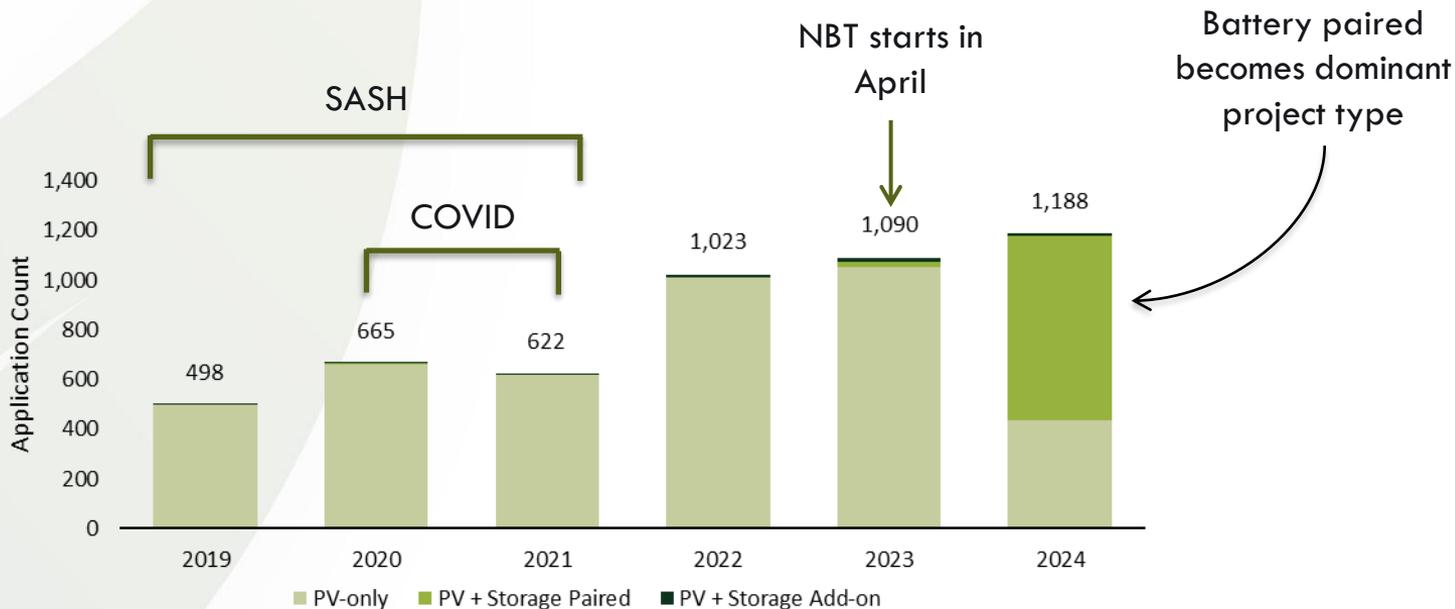
# EVALUATION OVERVIEW



# PARTICIPATION ASSESSMENT

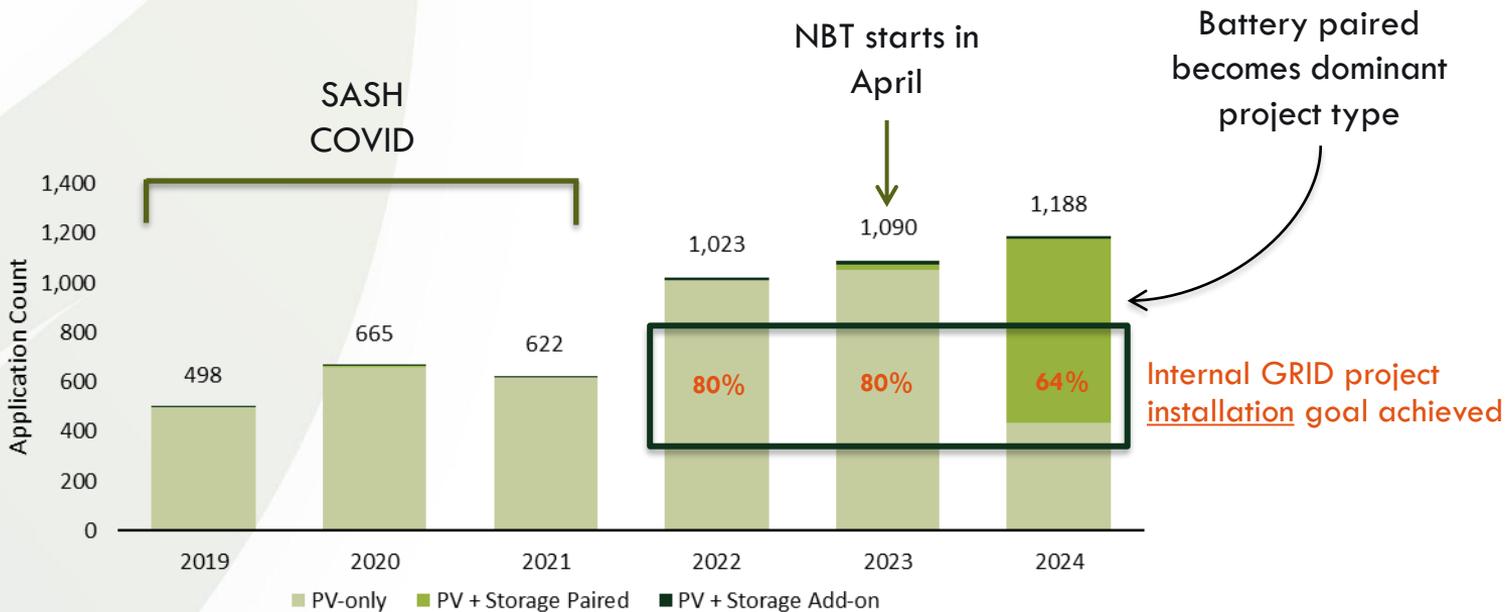
# APPLICATION HISTORY

Annual applications since program inception



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Annual applications since program inception



# CANCELLATIONS

29% of all projects during the evaluation period were 'inactive' (i.e., cancelled)



Cancellations increased over time (5% in 2021 to 34% in 2024)



It took a long time to cancel ineligible (115 days) or disinterested (135 days) projects



Construction issues (mostly roof issues) drove increases



PV-only and Paired battery storage systems have a similar cancellation rate



Cancellation %, reason, and days to cancel varied by GRID office



Tribal projects have a significantly lower cancellation rate than non-Tribal (7% vs. 30%)

# PARTICIPANT & PROJECT CHARACTERISTICS

## Key Takeaways

### » Participants

- Median household size is **four people** with a median annual income of **\$37,990**
- **32%** of households with a completed project during 2022-2024 were **in arrears** before participation → **decreased to 23%** one-year post-installation\*

### » Projects

- **93%** of projects are third party owned (**TPO**) vs. host customer owned (HCO)
  - Main TPO provider is no longer with the program
- **9%** of projects were **subcontracted** → expanded installation area
- **6%** of projects were **Tribal**

\* Note: the results are exploratory and were not calculated using a control group or modeling

# PROCESS ASSESSMENT

# DATA LIMITATIONS

The evaluation was hampered by tracking and IOU data limitations

- » Job trainee data
  - Data not collected in a way that allowed for the planned work force development analysis
- » Project cost data
  - Data not disaggregated by component within key project categories
  - GRID “fixes” project invoices → Likely under-reporting true cost of system
- » Battery storage data
  - Not tracked consistently
  - Important for future evaluations even if not officially part of program
- » Eligible customer data (SCE)
  - Incorrect filtering – data unusable for outreach and evaluation

# PROGRAM EXPENDITURES

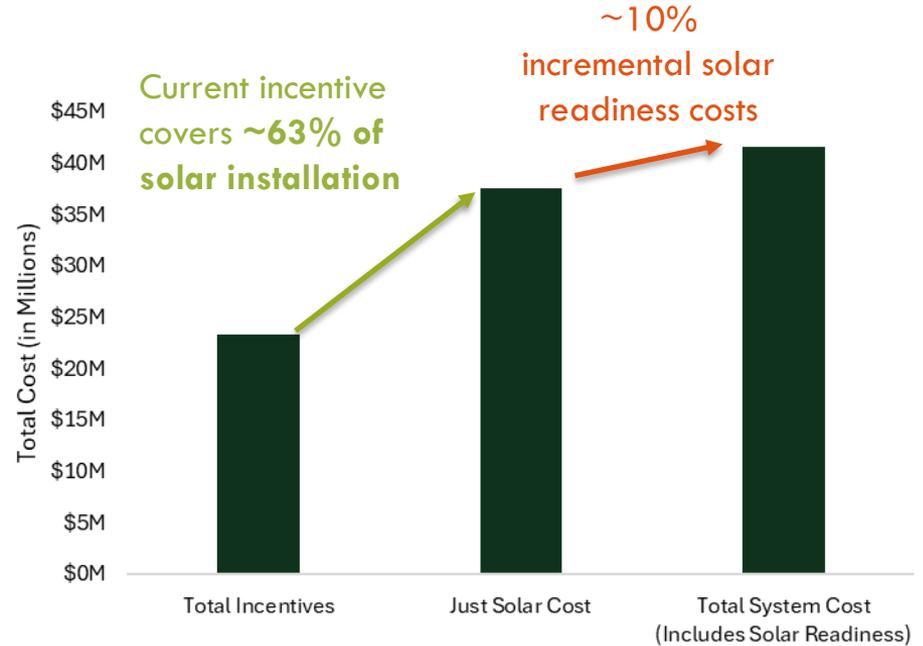
The total cost of solar installations is not covered by the current DAC-SASH incentive

## GRID covers additional expenses:

- ~37% of solar installation costs
- ~10% of incremental solar readiness upgrades

Project Type	N	Median Size (CEC AC kW)	Median \$/W
PV-only	1,881	4.5 kW	\$4.99
PV + Storage Paired	4	2.8 kW	\$16.61
PV + Storage Add-on	37	4.6 kW	\$5.07
Total	1,922	4.5 kW	\$4.99

**\*Note:** numbers on this slide are potentially under-reporting the true cost of the systems because of how cost data is recorded



# PROGRAM IMPLEMENTATION

Only 4/761 PV paired battery storage systems were completed as of 12/31/2024



Used the Self-Generation Incentive Program

62% of projects in 2024

0.3% completion vs 40% for PV-only

Only two projects completed in 2024

- » Navigating the SGIP was a challenge during the evaluation period
  - Median days to complete (incentive paid) 4 **battery paired projects was 364** vs. **239 days for PV-only** (which is still far longer than typical installations)
- » Slowdown in applications starting in Q4 2024 (**176 in Q4** vs. **431 in Q3**)
  - Only 324 applications submitted in Q1-Q4 2025 (27% of 2024 applications)

# MARKETING ACTIVITIES

## Key Takeaways



Word of mouth was the most common source of awareness for participants; email for non-participants



Lower electric bills and free installation were biggest drivers of program participation & interest



Talking with GRID staff and the DAC-SASH website were key to validate program legitimacy (i.e., not a scam)



Marketing partners and participants note the marketing improvements can be made; only 19% of cold leads knew about the program

### Reasons for non-participation:

- Fear of scams
- Confusion around the program

### Note:

- **Website** was noted to be **difficult to use** and find information; needs updated
- Participants and marketing partners provided multiple ideas on **how to improve outreach**

# PARTICIPANT EXPERIENCE

## Takeaways

### » Satisfaction

- **90%** satisfaction with **solar panels** and **87%** with **overall experience**
- **64%** satisfaction with **education around bills** and **solar true up**

### » Non-energy benefits

- **71%** report they are **less stressed** about energy costs
- **67%** report they are **less stressed** about energy use

### » Barriers & challenges

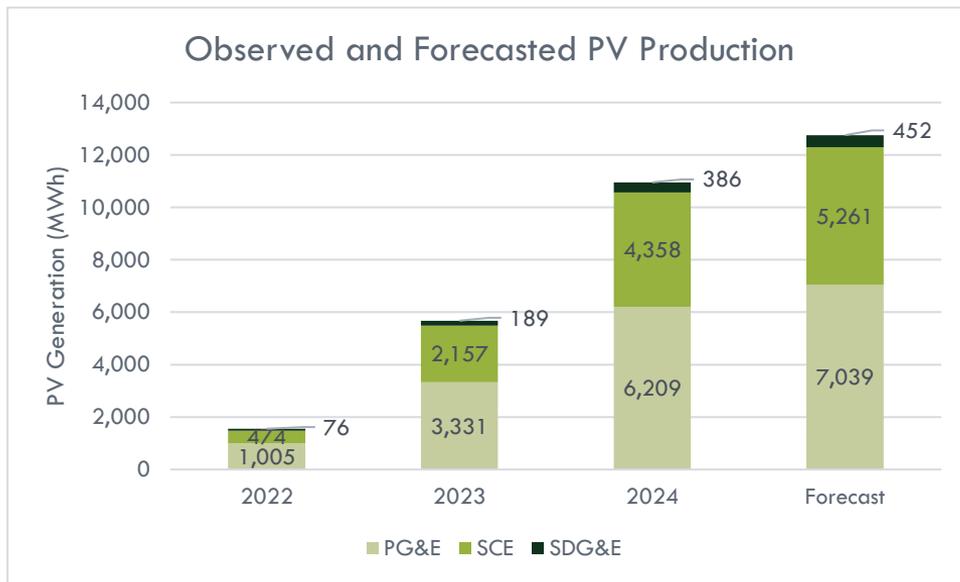
- Long wait times
- Confusing utility bills

# IMPACT ASSESSMENT

# PV REALIZATION RATES

Forecasted energy production from completed projects is 12,752 MWh/year

- » Forecast generation realization rate is 103%
- » Average Observed PV Generation Coincident with the Top 200 CAISO Gross Demand Hours:
  - 2022: 448 kW
  - 2023: 995 kW
  - 2024: 1,828 kW

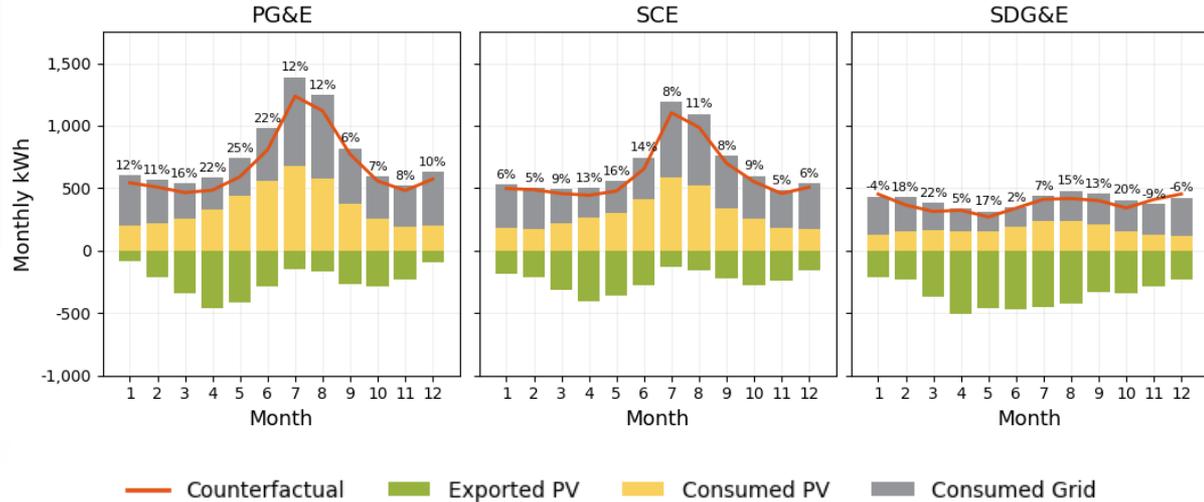


# CUSTOMER ELECTRICITY CONSUMPTION IMPACTS

Customers tend to increase electricity consumption after solar installations

» Overall consumption increases:

- PG&E: 91 kWh/month
- SCE: 57 kWh/month
- SDG&E: 28 kWh/month\*

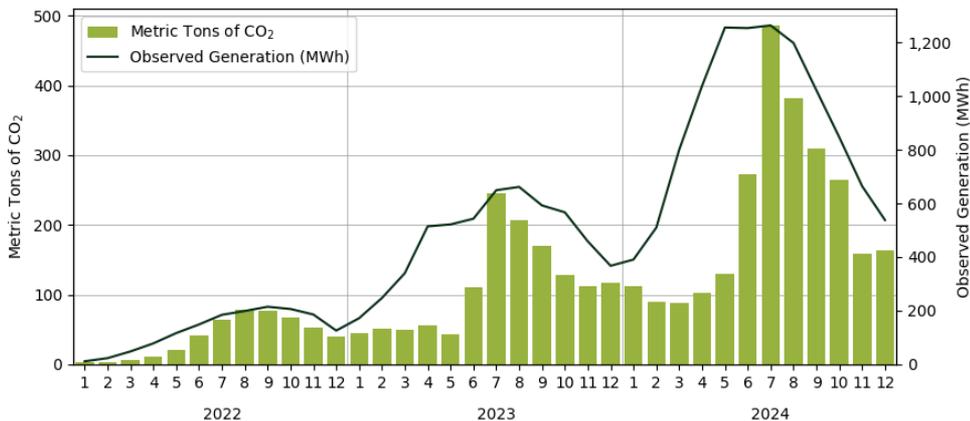


\*At a 90% confidence level, this result is not significant

# ENVIRONMENTAL IMPACTS

Emissions reductions increase as more projects are completed

- » Observed emissions reduction
  - 463 metric tons of CO<sub>2</sub> in 2022
  - 1,333 metric tons of CO<sub>2</sub> in 2023
  - 2,558 metric tons of CO<sub>2</sub> in 2024
- » Forecasted emissions reduction
  - 3,014 metric tons of CO<sub>2</sub> /yr
- » Forecasted avoided GHG costs
  - \$85,174/yr



# BILL IMPACTS

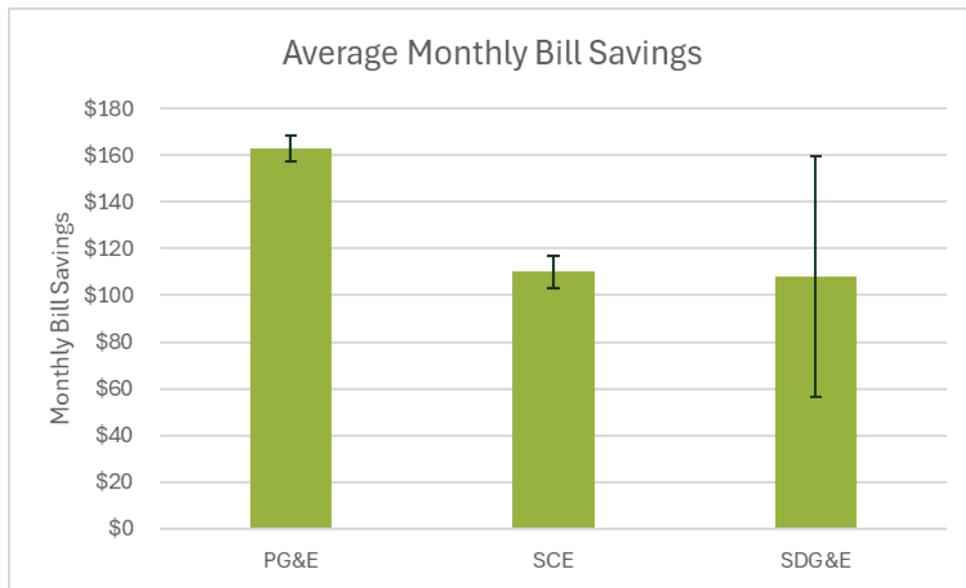
Solar generation estimated to have reduced customer's bills by at least 50%

» Average Percent of Monthly Bill Saved

- PG&E: 68%
- SCE: 57%
- SDG&E: 81%

» Average Monthly Bill Savings per kW Capacity

- PG&E: \$35/kW
- SCE: \$25/kW
- SDG&E: \$26/kW



Error bars show 90% confidence interval

# **COST EFFECTIVENESS ASSESSMENT**

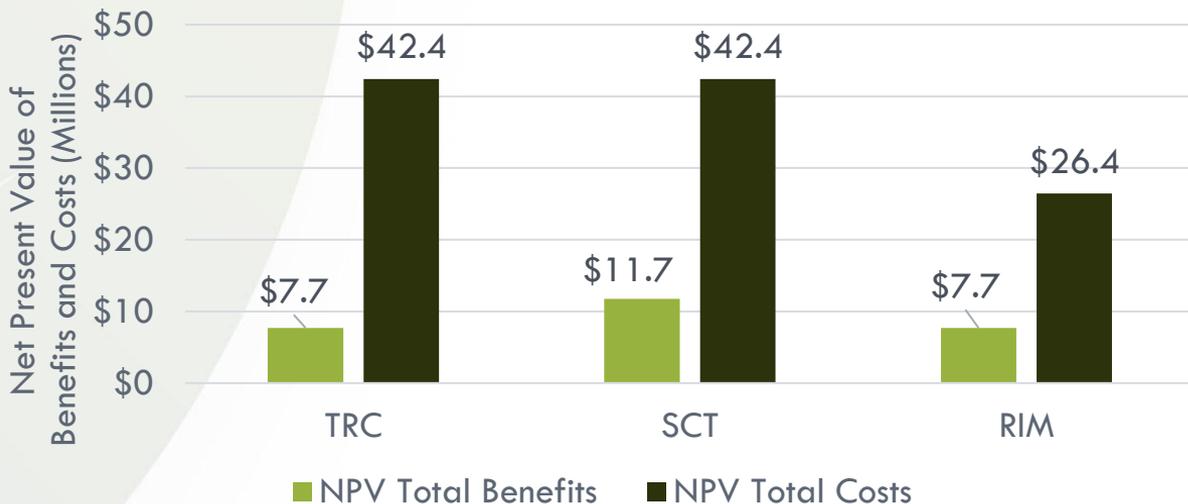
# COST-EFFECTIVENESS ASSESSMENT

Using 2001 CPUC California standard practice manual (SPM) for economic analysis of demand side programs and projects

SPM Test	Cost	Benefit
<b>Total Resource Cost (TRC)</b>	<ul style="list-style-type: none"><li>• Program Admin Costs (Budget Capped)</li><li>• Measure Costs (Solar Only)</li></ul>	<ul style="list-style-type: none"><li>• Avoided Costs</li><li>• [Federal Tax Credits = \$0]</li></ul>
<b>Societal Cost Test (SCT)</b>	<ul style="list-style-type: none"><li>• Program Admin Costs (Budget Capped)</li><li>• Measure Costs (Solar Only)</li></ul>	<ul style="list-style-type: none"><li>• Avoided Costs, including Social Cost of Carbon, and Statewide Air Quality Adder</li><li>• [Federal Tax Credits = \$0]</li></ul>
<b>Ratepayer Impact Measure (RIM)</b>	<ul style="list-style-type: none"><li>• Reduced Revenue = (bill savings – reduced CARE subsidy)</li><li>• [Incentive Costs &amp; Program Admin Costs = \$0]</li></ul>	<ul style="list-style-type: none"><li>• Avoided Costs</li></ul>

# COST EFFECTIVENESS

Many of DAC-SASH's equity benefits are not captured by SPM cost-effectiveness tests and may not be easily quantifiable



# KEY RECOMMENDATIONS

# KEY RECOMMENDATIONS – PARTICIPANT ASSESSMENT

- » GRID should **update pre-screening process** to quickly identify projects that are 1) ineligible, 2) not interested, 3) have common construction-related issues that will cause a cancellation
  - Additional eligibility questions as needed
  - Roof age and type
  - If customers already have solar
  - Type of home they own (single family, mobile, etc.)
- » GRID should **identify best practices from GRID offices** with fastest cancellation times to reduce cancellation times at all offices
- » GRID should **identify best practices from Tribal projects** and employ them for non-Tribal projects to reduce program cancellations

# KEY RECOMMENDATIONS – PROCESS ASSESSMENT

- » The CPUC should provide GRID direction to **update their tracking data practices** to improve evaluability for:
  - Job training
  - Cost data
  - Battery storage
- » The CPUC should provide direction to **SCE to improve their eligible customer data** lists for GRID
- » The CPUC should consider **increasing the incentive to \$4.75/W**
- » GRID to attend **quarterly SGIP workshops to share problems** and work with SGIP program administrator to identify solutions to complete battery paired projects
- » GRID should review marketing and outreach recommendations provided by participants and partners, including **updating the DAC-SASH website**
- » GRID and IOUs should **update how participants are educated on billing and solar true-ups**

# KEY RECOMMENDATIONS – IMPACT ASSESSMENT

- » The CPUC should direct GRID to strategize how to **collect battery telemetry data** for future evaluations
- » GRID should consider additional **system maintenance and education assistance** as systems age
- » The CPUC should direct GRID to research **changing incentive calculations away from the Expected performance-based buydown (EPBB) calculator**

# TIMELINE

- » **Comments due: March 31<sup>st</sup>**
  - Use comment template
  - By email to: [elizabeth@verdantassoc.com](mailto:elizabeth@verdantassoc.com)
  
- » Verdant to respond to comments and update draft
  - Final Version Available: **April 14<sup>th</sup>**

**OPEN DISCUSSION**

**FEEDBACK  
AND  
QUESTIONS**

# THANK YOU

Please submit comments using the comment  
template by **March 31<sup>st</sup>**

By email to:  
[elizabeth@verdantassoc.com](mailto:elizabeth@verdantassoc.com)

# BACKUP SLIDES