
Self-Generation Incentive Program (SGIP)

Quarterly Workshop

Friday, November 9, 2018

SoCalGas' Energy Resource Center, Downey, CA

Hosted by SoCalGas, Center for Sustainable Energy (CSE) Pacific Gas & Electric Company (PG&E), and Southern California Edison (SCE)



Introductions

SoCalGas: Jason Legner, Adrian Martinez, Laura Crump

CSE: Rebecca Feuerlicht, Andi Woodall

SCE: Jim Stevenson, Vicky Velazquez

PG&E: Brian Bishop, Anthony Farmer

CPUC: Mary Claire Evans

AESC: Dara Salour

Energy Solutions: Jason Huffine, Andrea Vas

Itron: William Marin, Brian McAuley



AM Agenda (9:00 AM – 12:00 PM)

- **9:00 – 9:05** Welcome and Introduction
- **9:05 – 9:15** CPUC Update
- **9:15 – 9:30** SGIP Update
- Program Process Improvement
 - **9:30 – 9:45** Demo of *Check My App* & Questions (Energy Solutions)
 - **9:45 – 10:25** Program Improvements & Discussion
 - **10:25 – 11:00** Virtual Inspections & Discussion (AESC)
- **11:00 – 11:50** Industry Lessons Learned – Success Stories & Best Practices
 - Sanjna Malpani (Advanced Microgrid Solutions)
 - David Mintzer (Maxwell Developments)
- **11:50 – 12:00** Morning Wrap-up



PM Agenda (12:00 PM – 3:00 PM)

- **12:00 – 1:00** Lunch
- **1:00 – 2:30** Itron's Review of 2017 Impact Evaluation and Q&A
- **2:30 – 3:00** Afternoon Wrap-up



Housekeeping

- All callers and web attendees will be muted throughout the workshop. All questions must be submitted via the Chat feature in Skype.
- The information and recommendations discussed today do not replace or amend existing program rules. All applications continue to be subject to the program rules as defined in the SGIP Handbook until future notice.



CPUC Update

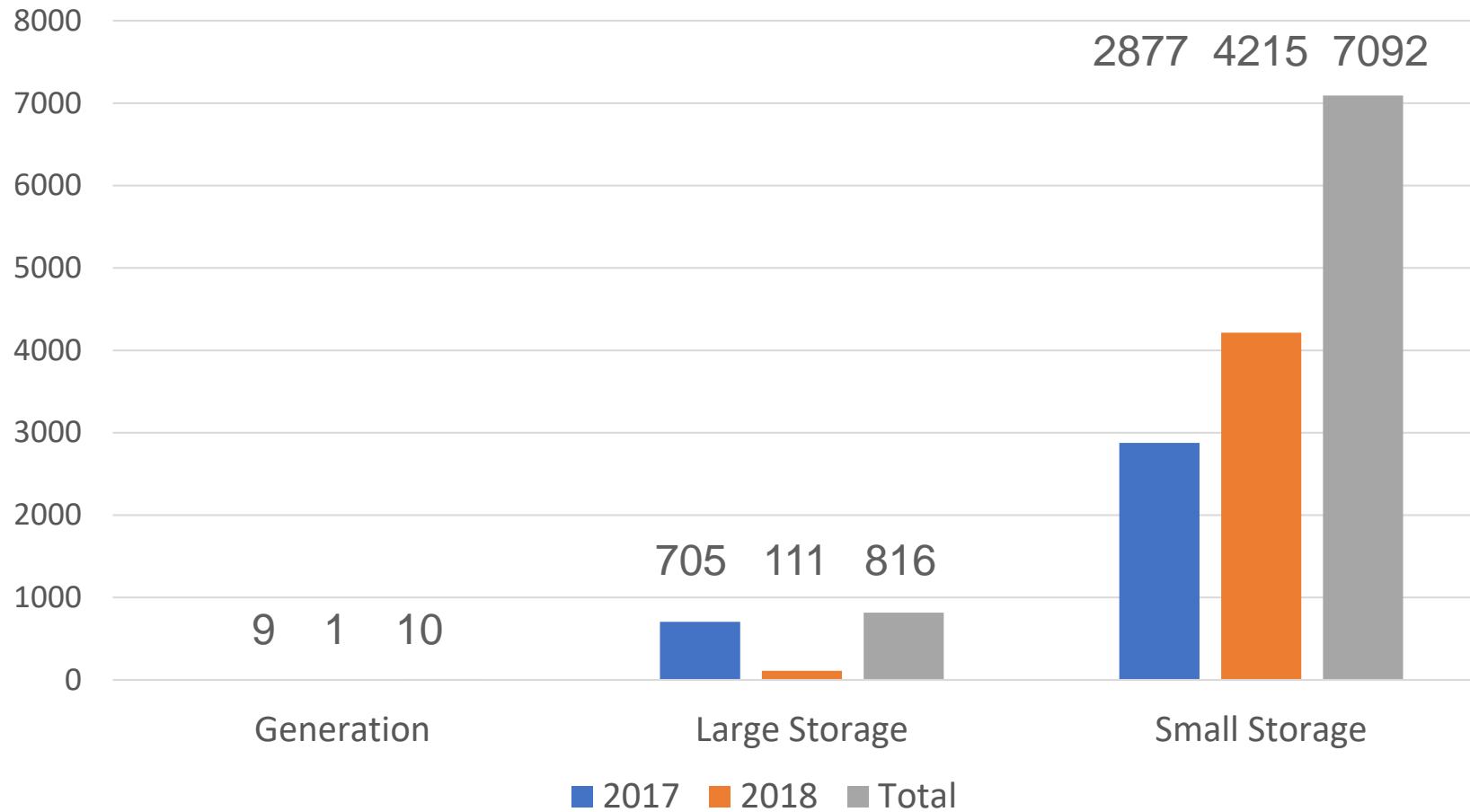


SGIP Program Update



Program Adoption Data: Application Volume as of 08/22/2018

Application Volume: 7918

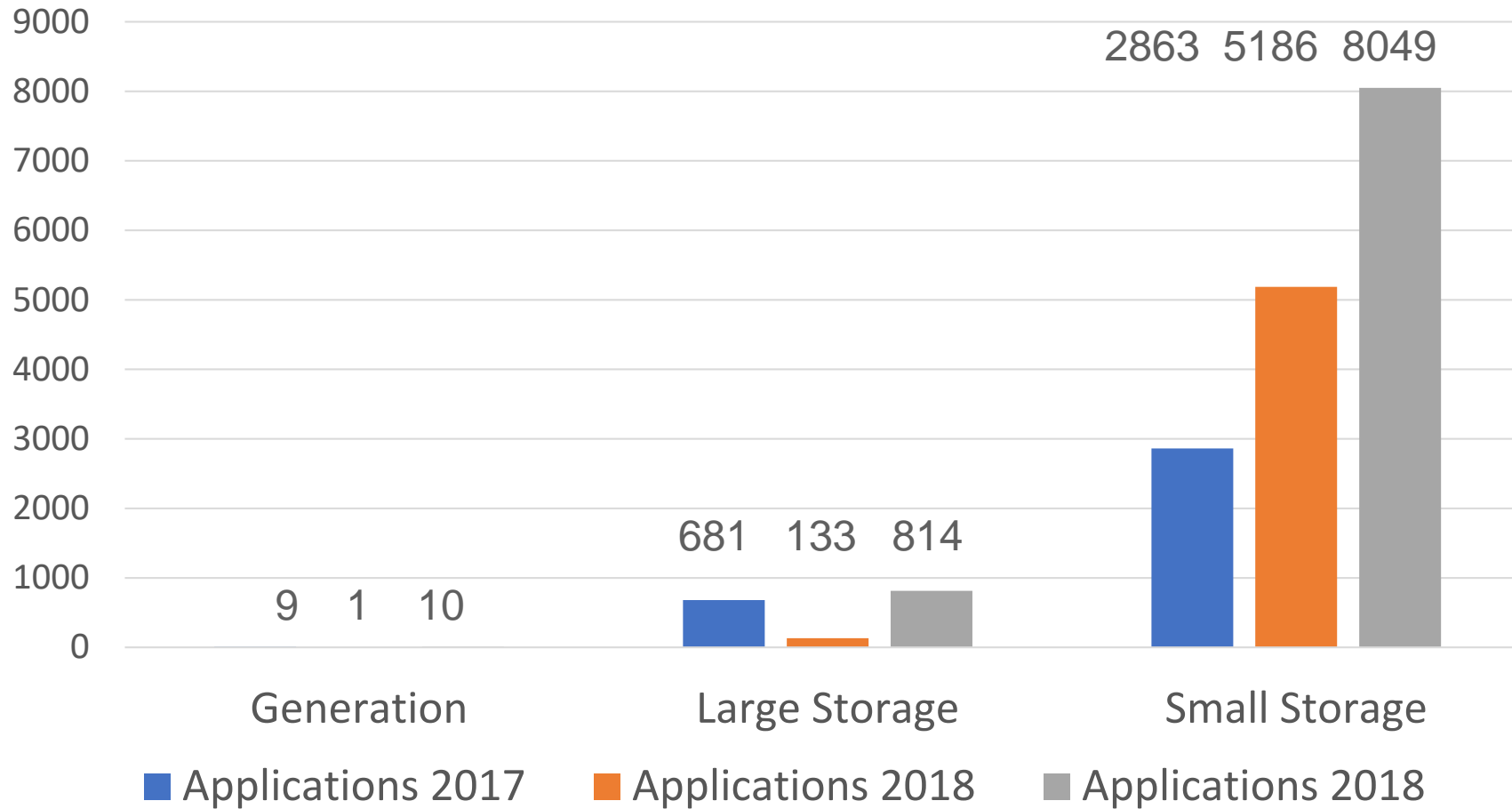


NOTE:
2017 program opened in May; was open 8 mos.
2018 program was open 8 months at this point.



Program Adoption Data: Application Volume as of 11/1/2018

Application Volume: 8873



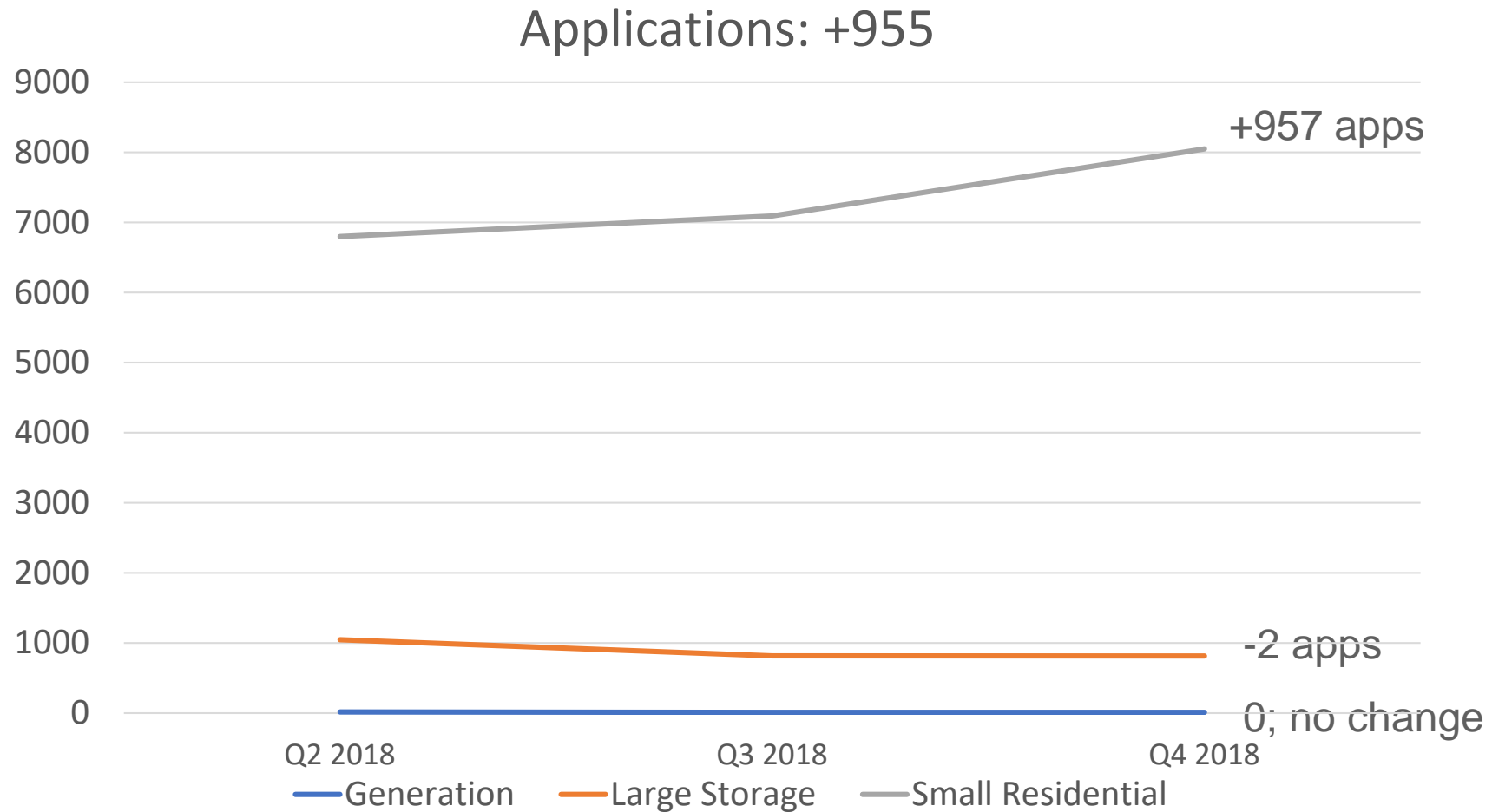
NOTE:

2017 program opened in May; was open 8 mos.

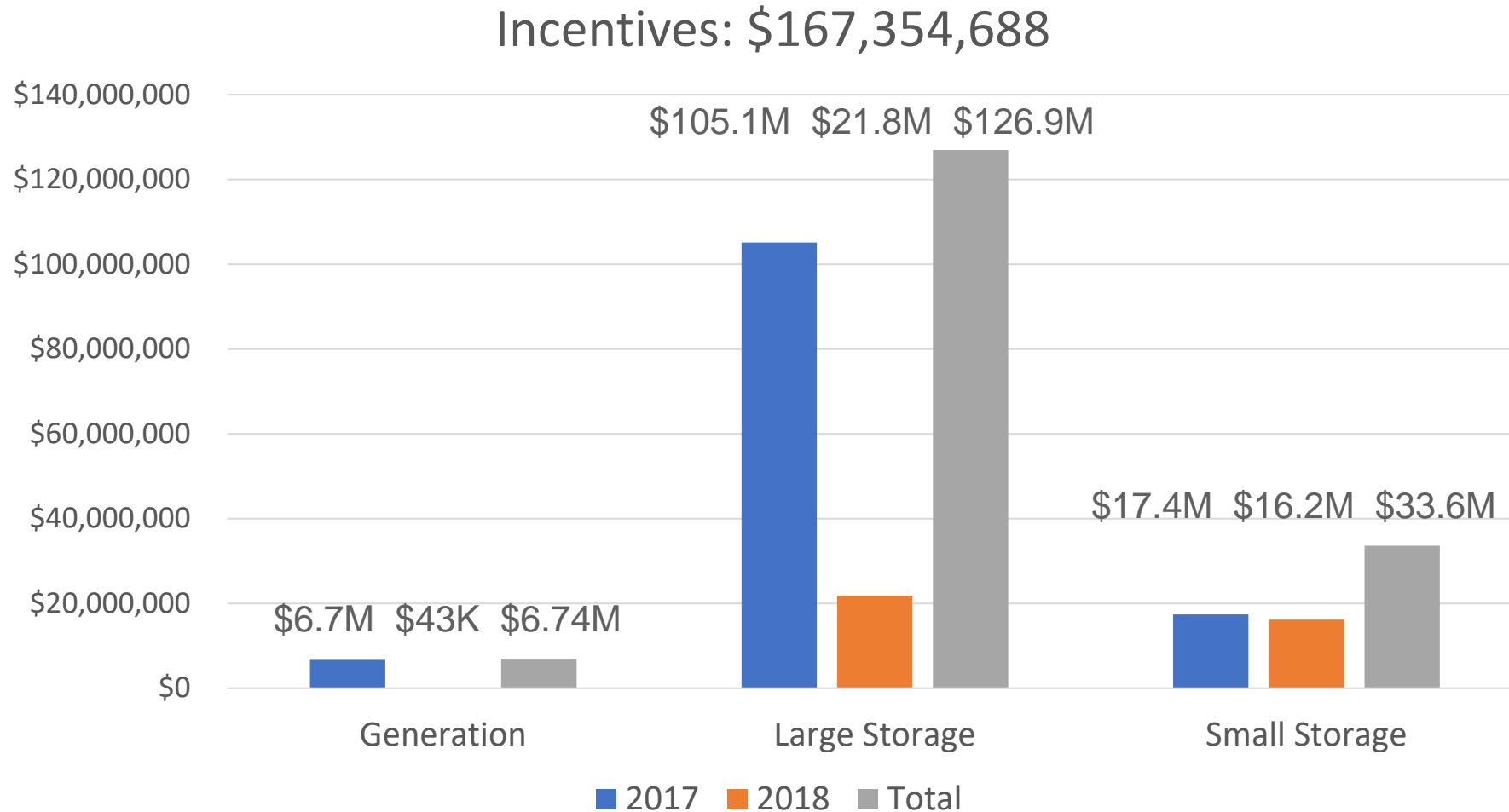
2018 program has been open 10 months so far.



Program Adoption Data: Application Trends



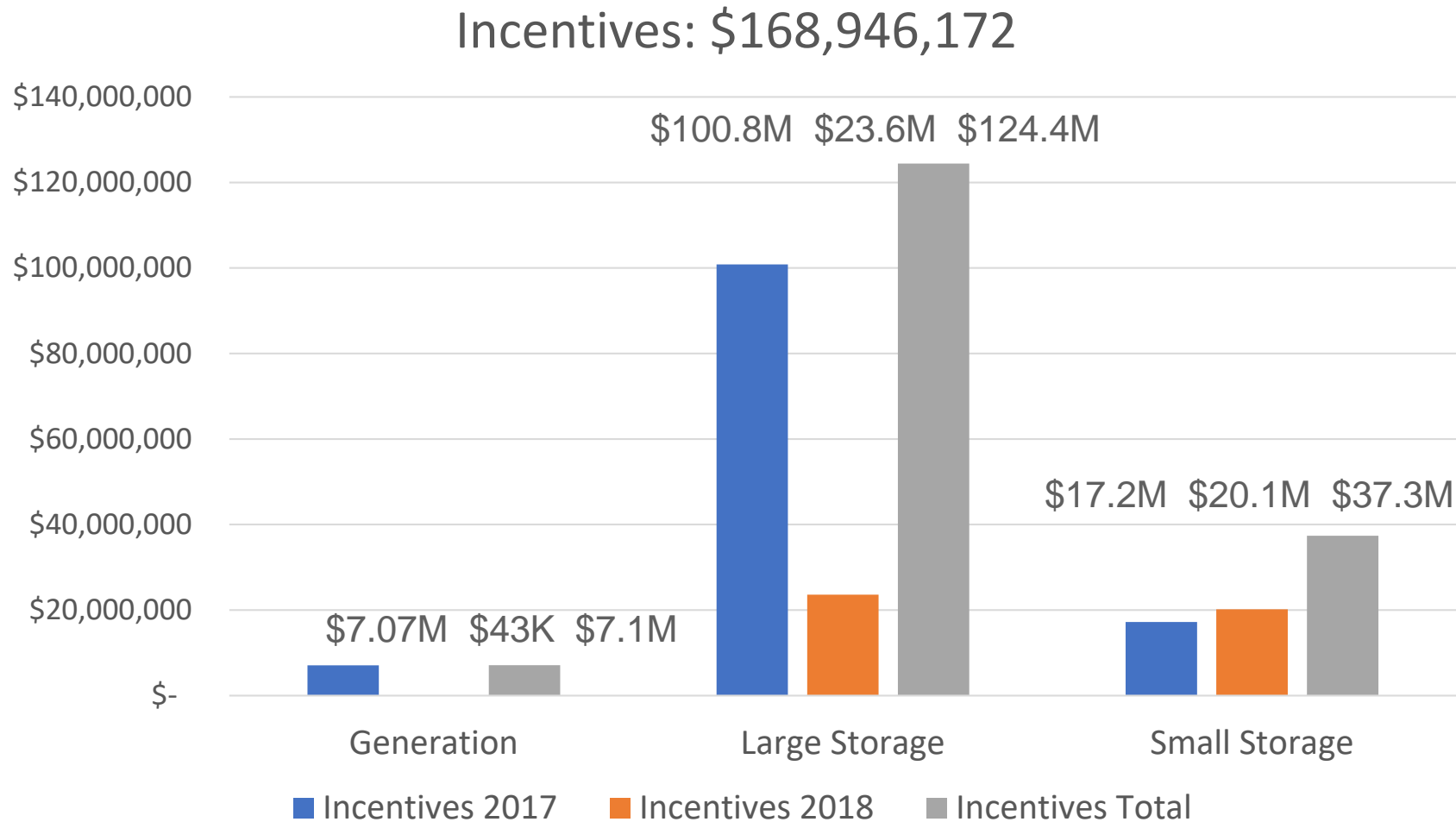
Program Adoption Data: Incentives as of 8/22/2018



NOTE:
 2017 program opened in May; was open 8 mos.
 2018 program was open 8 months at this point.



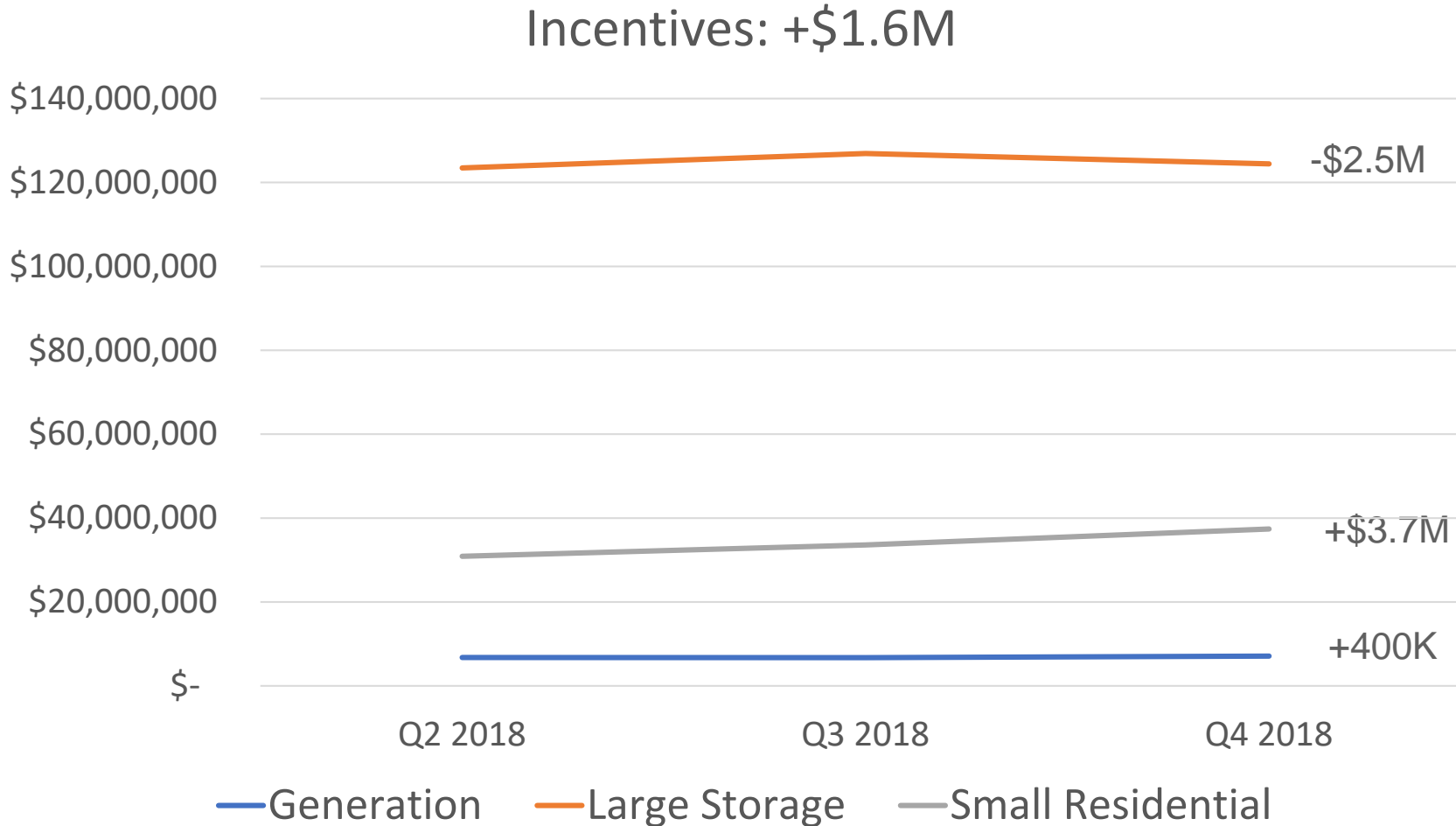
Program Adoption Data: Incentives as of 11/2/2018



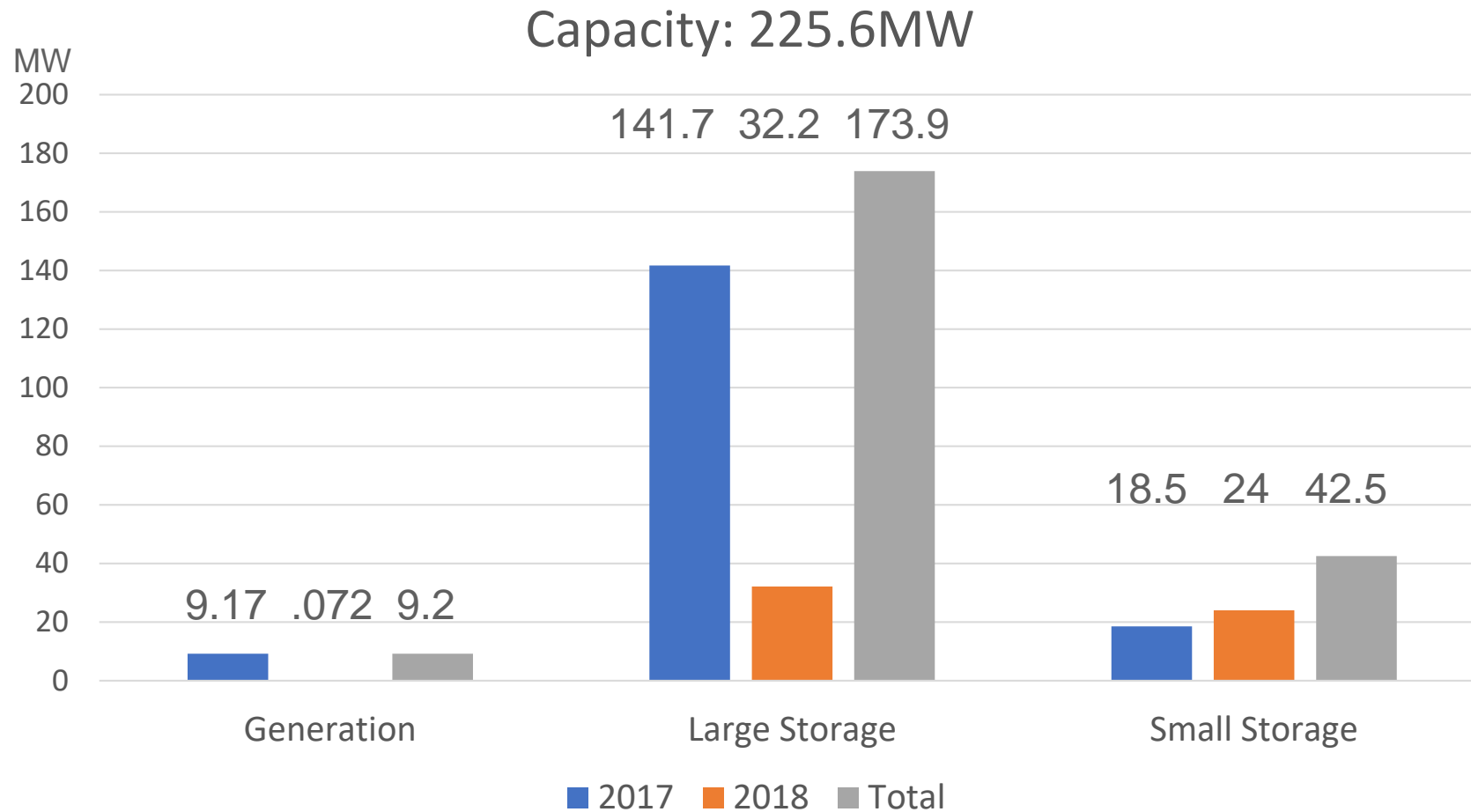
NOTE:
 2017 program opened in May; was open 8 mos.
 2018 program has been open 10 months so far.



Program Adoption Data: Incentive Trends, 6 months



Program Adoption Data: Capacity as of 8/22/2018



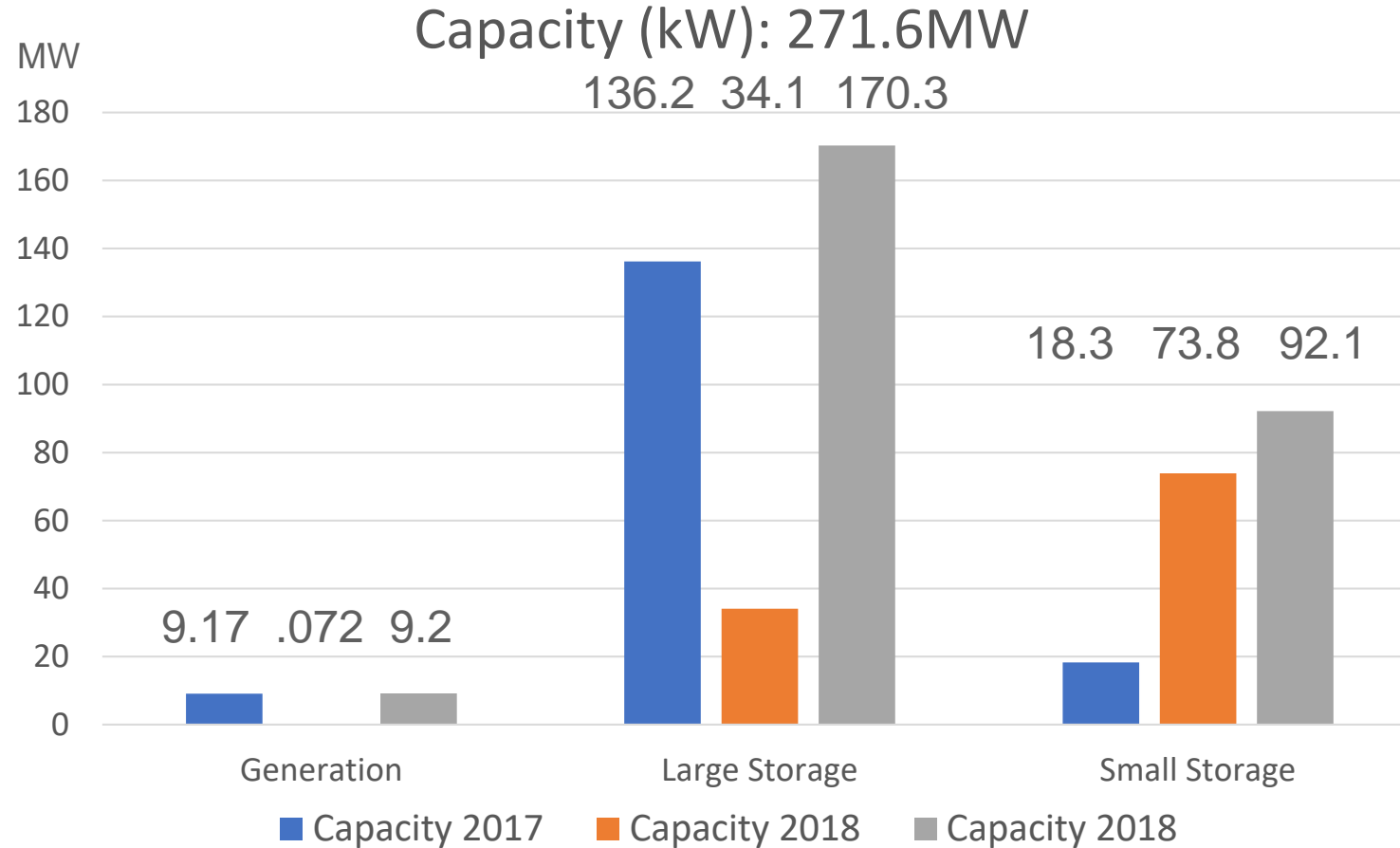
NOTE:

2017 program opened in May; was open 8 mos.

2018 program was open 8 months at this point.



Program Adoption Data: Capacity as of 11/2/2018



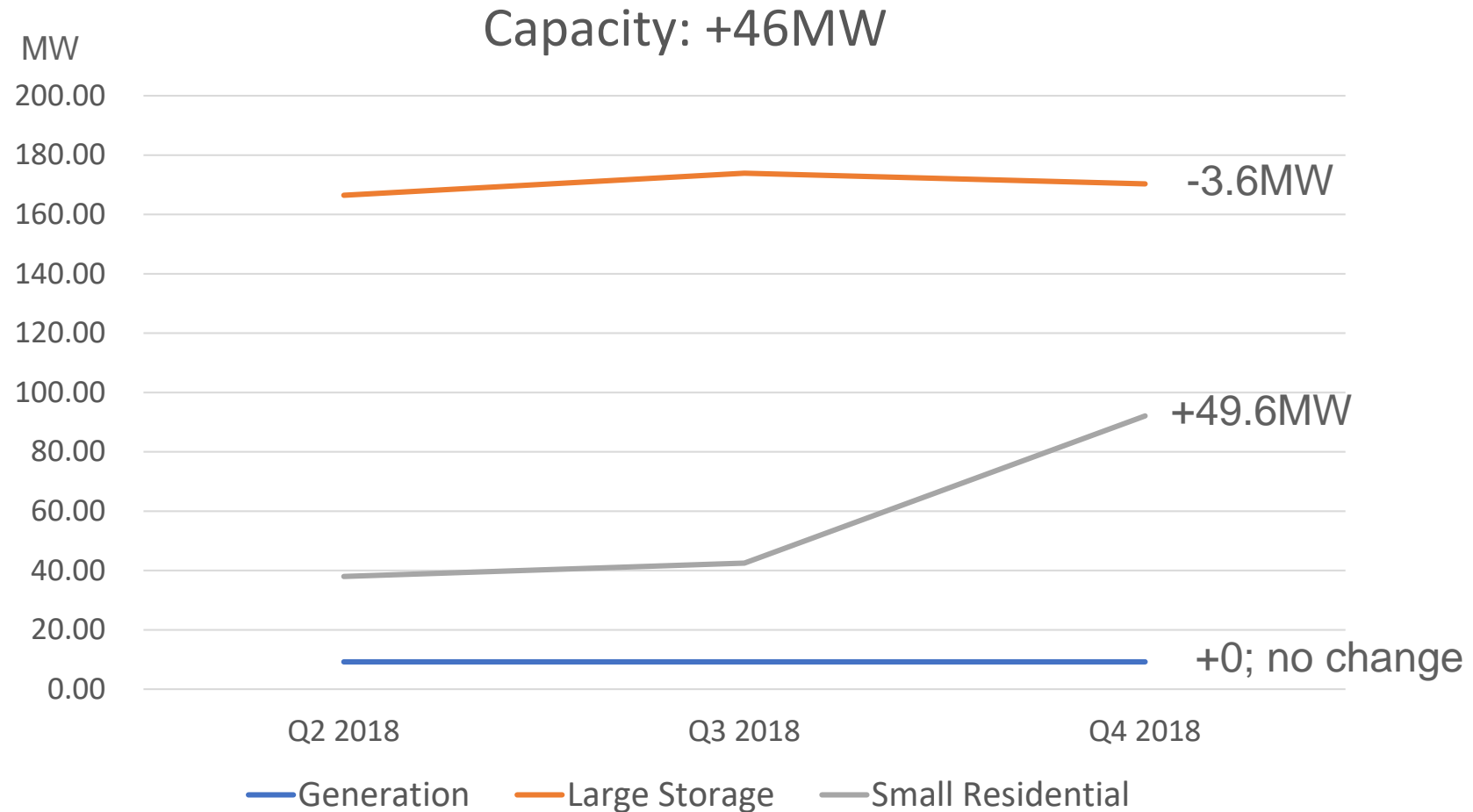
NOTE:

2017 program opened in May; was open 8 mos.

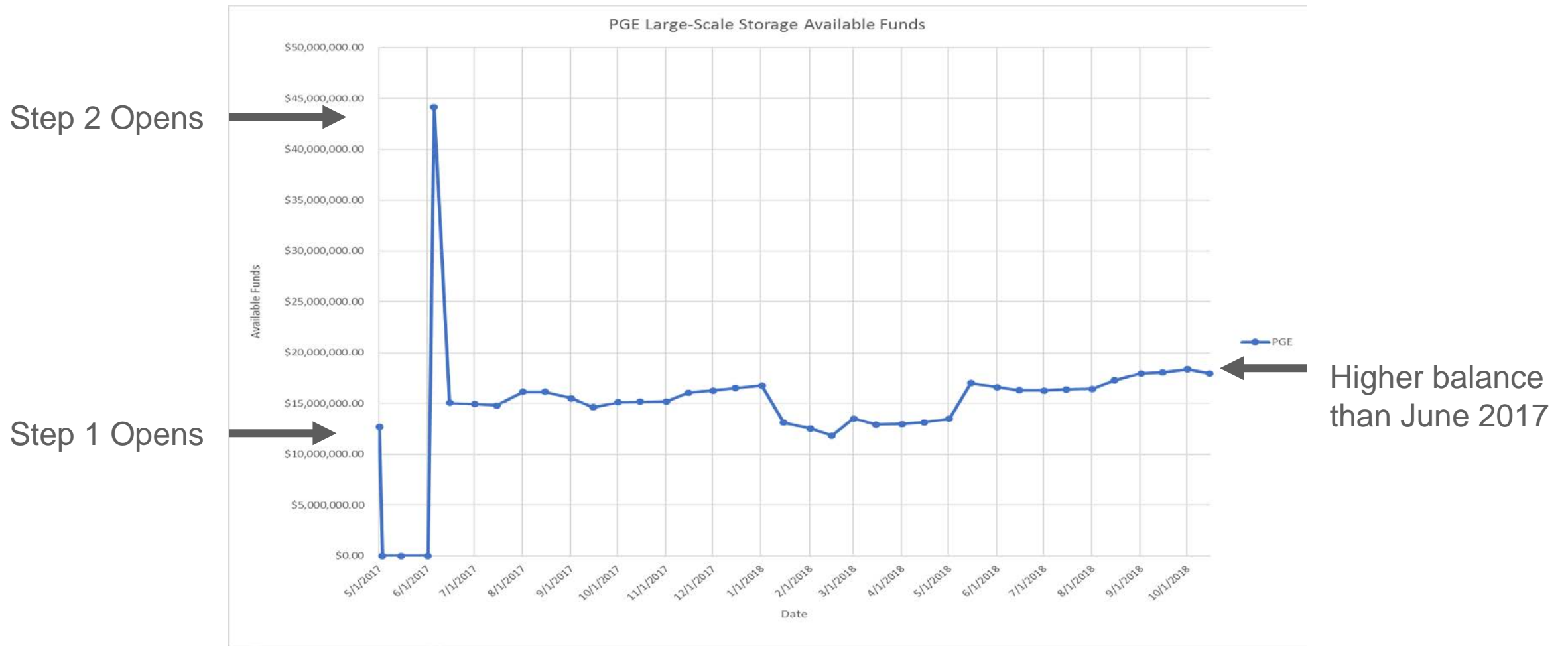
2018 program has been open 10 months so far.



Program Adoption Data: Application Capacity Trend



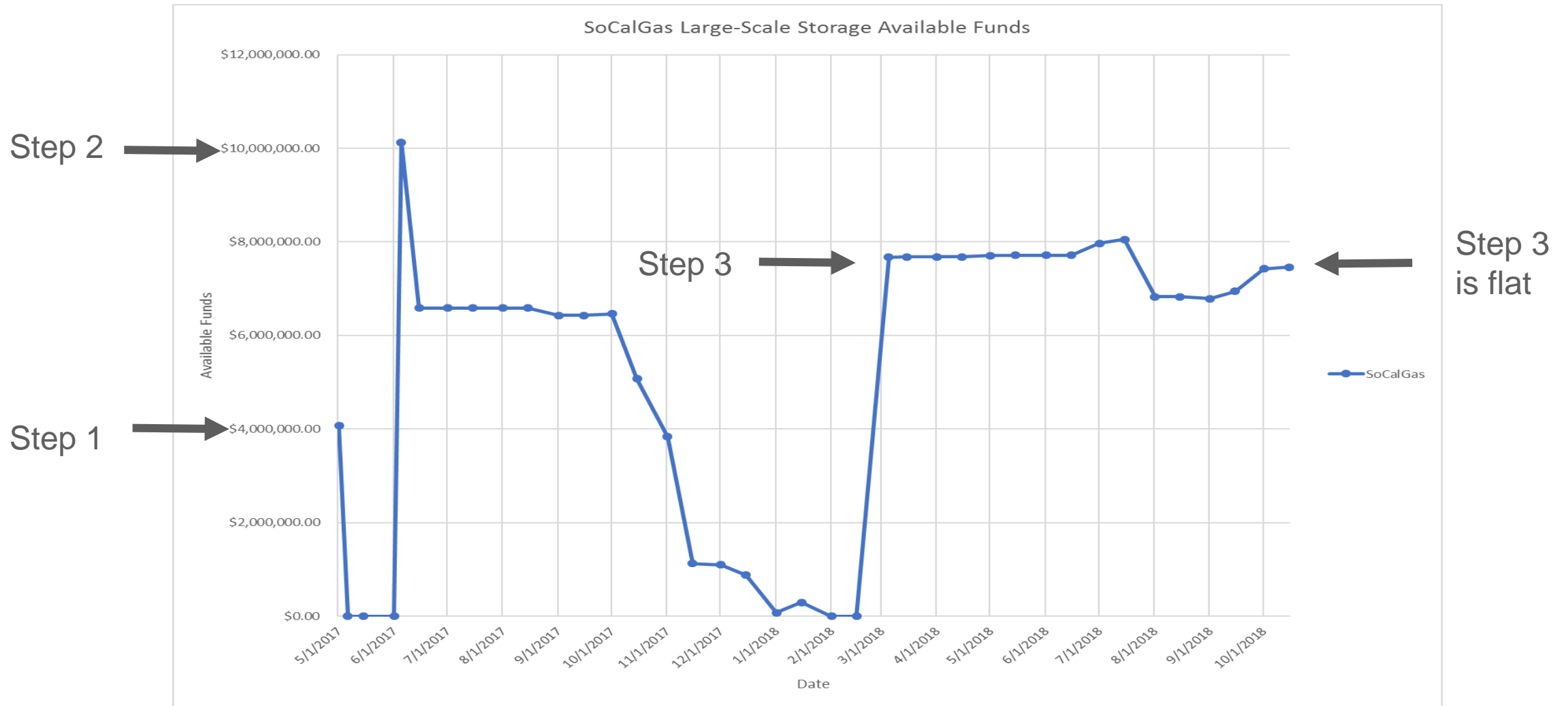
PG&E Large Commercial Storage Budget Since May, 2017



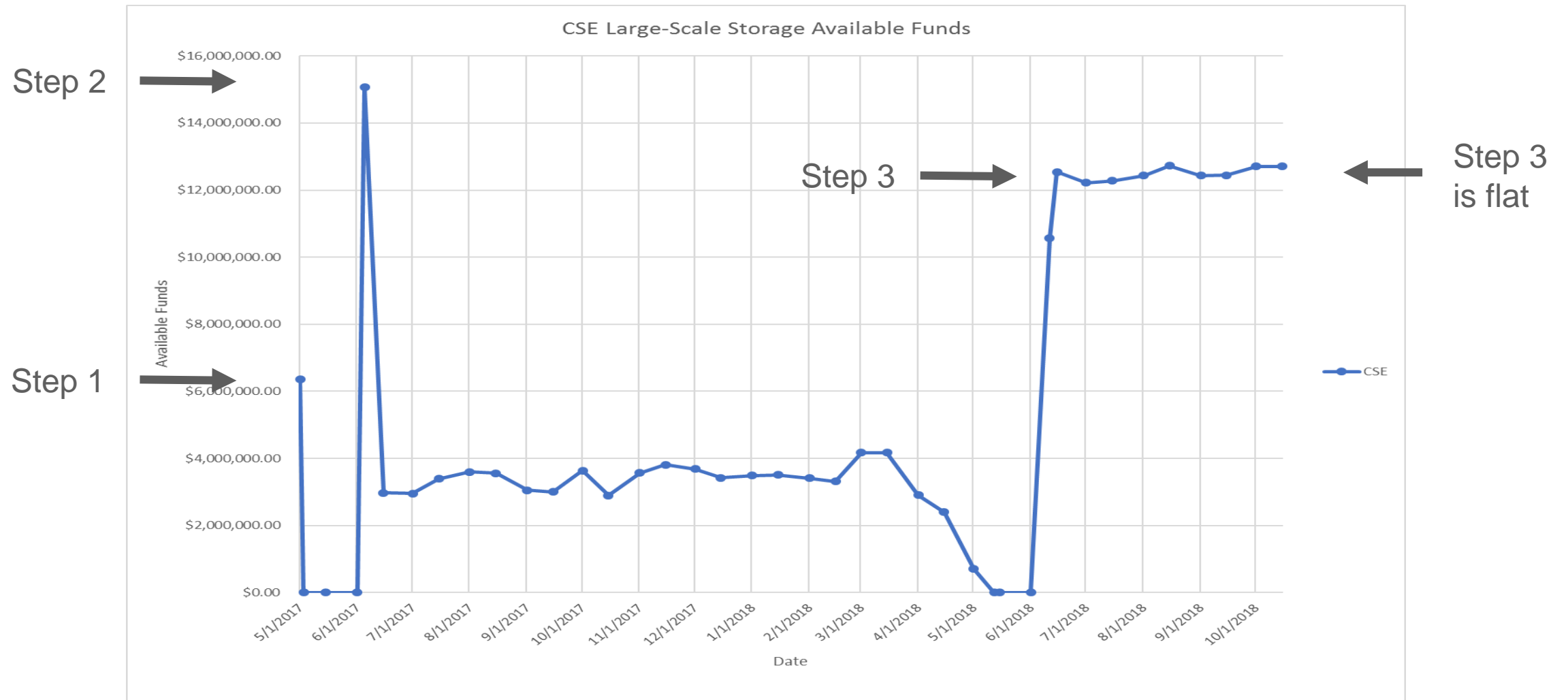
SCE Large Commercial Storage Budget Since May, 2017



SoCalGas Large Commercial Storage Budget Since May, 2017



CSE Large Commercial Storage Budget Since May, 2017



Potential Explanations for Current Market Stagnation

Market

- Solar is slow; it drives AES
- Stand-alone don't pencil
- Retrofits don't get ITC
- Market not as large as thought?

Investors

- Storage is too expensive?
- Investors awaiting new rates/tariffs
- Lack of confidence in ROI
- Building outside of SGIP?

Program

- Interconnection takes a while
- Incentive drop @ +2MW hurts ROI.
- Uncertainty of upcoming rule changes
- Program is complex

Uncertain economics (ROI, timelines) related to operations in a nascent market may be the cause of low adoption. Complex SGIP rules also of concern.

SGIP ONLINE DATABASE UPDATE



NOVEMBER 9, 2018

AGENDA

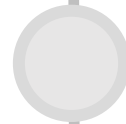
PRESENTED BY
JASON HUFFINE
ENERGY SOLUTIONS



RECENT IMPROVEMENTS



DEMO: CHECK MY APP STATUS



UPCOMING IMPROVEMENTS



OPEN Q&A



A photograph of the Golden Gate Bridge in San Francisco, California, taken during sunset. The bridge's towers and suspension cables are silhouetted against a warm, orange and yellow sky. The water below is a deep blue, and the hills in the background are also bathed in the golden light of the setting sun. A white rectangular frame is superimposed over the center of the image, containing the text.

RECENT IMPROVEMENTS

RECENT DATABASE IMPROVEMENTS

IMPROVEMENT GOALS

- REDUCE SUPPORT REQUESTS
- IMPROVE APPLICATION QUALITY
- EXPEDITE PA REVIEW TIME
- UPGRADE INFRASTRUCTURE



RECENT DATABASE IMPROVEMENTS

IMPROVEMENT OUTCOMES

- REVIEW STATUS FOR AD HOC DOCUMENTS
- NOTES FOR DOCUMENTS
- ENHANCED REVISION HISTORY FOR PAS
- NEW INSPECTIONS WORKFLOW/COMMUNICATION
- FEATURE: CHECK MY APP STATUS



A row of wind turbines is shown against a dramatic sky with soft, golden light from the setting or rising sun. The turbines are arranged in a line, receding into the distance. The sky is filled with wispy clouds, and the overall tone is warm and serene.

C H E C K M Y A P P S T A T U S

RECENT DATABASE IMPROVEMENTS

FEATURE: CHECK MY APP STATUS

- GREATER TRANSPARENCY FOR ALL PARTIES
- LESS BACK AND FORTH WITH APPLICANTS AND SUPPORT
- QUICK AND EASY



FEATURE: CHECK MY APP STATUS

Self-Generation Incentive Program
Online Application Database

	About SGIP	Resources	Program Metrics	Contact
--	----------------------------	---------------------------	---------------------------------	-------------------------



Applicant Companies must register in order to submit an application for SGIP incentives.

[Applicant Registration](#)

[Check My Application Status](#)

New! Click the button above to check the status of an application.

[Sign In](#)

[Forgot Username or Password?](#)

All applications must designate a registered Developer in order to submit an application. Even if the Applicant Company and Developer are the same entity, the Developer must register explicitly through this form. **Note to self-installers:** Self-installers need to register as a Developer even if they are not a corporate entity.

[Developer Registration](#)

[Approved SGIP Developer List](#)

Public Announcements
[Click here for information about step openings](#)



FEATURE: CHECK MY APP STATUS

The screenshot shows a web application interface for the Self-Generation Incentive Program (SGIP). The main page features a header with 'Self-Generation Incentive Program' and 'Online Application Data'. Below the header, there are navigation tabs for 'Program Metrics' and 'Contact'. A large blue button labeled 'Application Status' is prominent. Below this, there is a section for 'Check the status of an application' with a text input field and a 'Check My App Status' button. A modal window titled 'Check My Application Status' is overlaid on the page, providing instructions on how to check the status of an application. The modal includes a text input field labeled 'Enter Application Code Here' and a 'Check My App Status' button. A 'Close' button is located at the bottom right of the modal. The background of the page shows a landscape with wind turbines and power lines. At the bottom of the page, there is a 'Public Announcements' section with a link to 'Click here for information about step openings'.

Self-Generation Incentive Program
Online Application Data

Program Metrics | Contact

Application Status

Check the status of an application

Enter Application Code Here

Check My App Status

Close

Sign In

[Forgot Username or Password?](#)

All applications must designate a registered Developer in order to submit an application. Even if the Applicant Company and Developer are the same entity, the Developer must register explicitly through this form. **Note to self-installers:** Self-installers need to register as a Developer even if they are not a corporate entity.

Developer Registration

[Approved SGIP Developer List](#)

Applicant Companies must register in order to submit an application for SGIP Incentives.

Applicant Registration

Public Announcements
[Click here for information about step openings](#)



FEATURE: CHECK MY APP STATUS

Self-Generation Incentive Program
Online Application Data

Check My Application Status [Close]

App Code: SD-SGIP-2017-1245
Status: Payment Completed
Status Date: 09/12/18
Definition: The incentive has been paid. This application is now complete.

SD-SGIP-2017-1245 [Check My App Status]

[Close]

Program Metrics | Contact

Application Status

check the status of an

Forgot Username or Password?

All applications must designate a registered Developer in order to submit an application. Even if the Applicant Company and Developer are the same entity, the Developer must register explicitly through this form. **Note to self-installers:** Self-installers need to register as a Developer even if they are not a corporate entity.

Developer Registration

Approved SGIP Developer List

Applicant Companies must register in order to submit an application for SGIP incentives.

Applicant Registration

Public Announcements
Click here for information about step openings



FEATURE: CHECK MY APP STATUS

The screenshot shows the 'Self-Generation Incentive Program Online Application Data' portal. A modal window titled 'Check My Application Status' is open, displaying an error message: 'Application Code not valid. Please enter a valid Application Code'. Below the message is a text input field containing 'SD-SGIP-2017-0001' and a blue button labeled 'Check My App Status'. A 'Close' button is located at the bottom right of the modal. The background page features a header with 'Program Metrics' and 'Contact' links, a main content area with a 'Check My Application Status' button, a 'Sign In' button, and a 'Developer Registration' button. A footer section contains 'Public Announcements' with a link for 'step openings'. A background image of wind turbines and power lines is visible on the left side of the page.



A background image featuring silhouettes of numerous palm trees against a sunset sky with warm orange and pink tones. Two birds are visible in flight near the top center. A white rectangular box with a thin border is centered horizontally, containing the text 'UPCOMING IMPROVEMENTS' in white, uppercase, sans-serif font.

UPCOMING IMPROVEMENTS

UPCOMING IMPROVEMENTS
IN THE DEVELOPMENT QUEUE

- REDESIGNED TECHNICAL REVIEWER USER EXPERIENCE
- REDESIGNED RESOURCES PAGE
- APPLICANT SELF-REGISTRATION
- PROGRAM STREAMLINING EFFORTS
- GHG REDUCTIONS DECISION PENDING
- MORE TBD





THANK YOU

J H U F F I N E @ E N E R G Y - S O L U T I O N . C O M

Streamlining SGIP Application Requirements Update

Rebecca Feuerlicht
SGIP Sr. Project Manager
Center for Sustainable Energy



- On August 24, 2018, Program Administrators (PAs) hosted the 3rd Quarterly SGIP Workshop in San Diego, which focused on the current SGIP application process requirements and best practices. PAs asked stakeholders for feedback and ideas regarding ways to streamline the application process and improve customer experience.
- PAs reviewed the input from the workshop and subsequent meetings with industry participants and developed a list of supported recommendations.
- **Disclaimer: The following list is subject to change, and must be approved by the CPUC through standard regulatory procedure (PFM or AL) before going into effect.**

Ideas for Reservation Request Stage (RRF):

- Remove the 5% application fee requirement for residential projects
- Remove requirement to upload a copy of the check for nonresidential projects
- Remove requirement to upload *component* specifications for packaged systems (i.e.: battery and inverter) once approved by Technical WG. Integrator specifications would continue to be required for each project.
- Remove requirement to upload LOA for systems ≤ 10 kW (CSE territory only)

Ideas for Reservation Request Stage (RRF) cont.:

- Considering general disclaimer language to allow minor changes on RRF without new signature requirement. Any changes would be confirmed to all parties via conditional/confirmed reservation
- Remove requirement to upload copy of energy efficiency audit as separate document. Alternatively, RRF form could have section that attests customer has reviewed an energy efficiency audit for their property
- Allow PMP to be system-specific rather than site specific for non-PBI storage systems claiming to be charged 75% from onsite renewables
- Database modification to create energy storage system dropdown with pre-populated system capacity values (kWh) for pre-approved equipment

Ideas for Incentive Claim Stage (ICF) cont.:

- Remove the separate Cost Breakdown Worksheet and Affidavit document requirement and incorporate information into the ICF form. Simplify the cost categories into more meaningful breakouts for energy storage projects.
- Remove requirement to upload final building permit if PTO is provided (SCE and SDG&E only)
- Require Final Monitoring Schematic/Single Line Diagram for all projects regardless of priority status in lottery.
- Create a virtual inspection option as part of the sampling protocol

Misc. Improvement Ideas

- Create a “1-Step” application option for projects that are already installed and received PTO
- Allow residential customers to “opt out” of receiving non-critical notifications (TBD) and suspension notices sent to the applicant
- Create new application checklist to clarify application requirements
- Clarify suspension notices
- PA-specific contact information

Next Steps

- Consult with Energy Solutions on necessary database development (level of effort, cost, timeline, etc.)
- PAs finalize list of recommended improvements
- File Advice Letter to CPUC Energy Division to amend Handbook (Q4 2018 or Q1 2019)
- File PTM to Commission to amend prior Decision language and Handbook (Q4 2018 or Q1 2019)

Virtual Inspections



Table of Contents

1. Virtual Inspections
2. Video Option
3. Geotagged Photo Option
4. Discharge Data Requirements

Virtual Inspection Protocol

1 – Virtual Inspections



- If a project is selected for a virtual inspection, the virtual inspection will be conducted by either the host customer or the developer of the project.
- The inspector, instead of going to the site physically, will ask for video or geotagged photos from the host customer site.
- This video or photos with geotag can be provided by the host customer or the developer and they can be taken on any day after the host customer has been contacted by the inspector for the virtual inspection
- The host customer will have a 20-day period to turn in the required material.

2 – Video Option

- A continuous video of the project site, starting from the street view of the house with a clear view of the house number. In addition, the video should include:
 - Overall layout of the battery system and other electrical equipment
 - Close-up view of each equipment one by one
 - Serial numbers of the batteries and the inverters should be captured clearly
 - Any display panels showing power, energy or battery/inverter charge status readings should be captured in the video
 - All the electrical panels like the subpanel, backup loads panel, protected loads panel, main service panel, etc. should be opened up after the close-up shots to get a clear view of the breaker switches inside
 - Utility Smart Meter with the meter number clearly visible

3 – Geotagged Photo Option



- Individual geotagged photos of the project site, battery and other electrical equipment. While taking photos the location settings of the camera should be in ON position such that each photo will have a location tag attached to it which will be verified by the inspector. The photos should include:
 - Street view of the house with house number clearly visible
 - Overall layout of the system; if the entire system is not in one place, then capture the overall layout of a subsystem followed by the close-up shots of each equipment in that subsystem and then repeat the same thing for all the subsystems
 - Serial numbers of the batteries and the inverters should be captured clearly
 - Display panels showing power, energy or battery/inverter charge status readings
 - Outer view of all the electrical panels like the subpanel, backup loads panel, protected loads panel, main service panel, etc. followed by the inside view of each panel
 - Utility Smart Meter with the meter number clearly visible

help link for android phones <https://smallbusiness.chron.com/geotagging-android-smartphones-38742.html>,

help link for iPhones <https://www.techwalla.com/articles/how-to-geotag-photos-on-your-iphone>

4 – Discharge Data

Being selected for Virtual Inspection does not exempt the project from providing discharge data.

Still Required:

1. Factory or Onsite Discharge Data verifying the energy capacity of the system
2. One week discharge data verify the operation of the system.

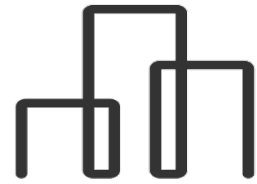
5 – Thank You!



Dara Salour, PE
dsalour@aesc-inc.com
(925) 200-0499

Industry Lessons Learned: Success Stories & Best Practices





Advanced Microgrid Solutions

SGIP Quarterly Workshop

11/09/2018

Sanjna Malpani

Associate, Government Affairs

Self-Generation Incentive Program at AMS



Advanced Microgrid Solutions

- Advanced Microgrid Solutions or AMS is an energy platform and services company that designs, develops & monetizes energy storage portfolios to maximize customer value and provide dynamic grid and utility services. The company is headquartered in San Francisco and has just under a 100 MWh of operating energy storage assets under its management
- Sanjna Malpani manages and oversees all utility programs and grants at Advanced Microgrid Solutions. Prior to AMS, she was at Growing Energy Labs, Inc – another energy storage platform company in San Francisco where she worked in Product Strategy. Sanjna holds a Masters in Environmental Management and Policy from Yale University – she’s also a Fellow at the Clean Energy Leadership Institute and a OneEnergy Renewables Scholar.”



SGIP Participation at AMS

- SGIP Program participation since 2014
- Projects in all Four Service Territories/IOUs
- ~100 active SGIP applications
- All Behind-the-Meter Commercial Projects – all PBI
- ~250 KW to 2 MW Projects



SGIP Management within AMS

Focusing on Customer Education & Streamlining Processes

SGIP seems complex – but it's an extremely well designed incentive program

Two foundations of managing SGIP successfully:

1) Build Confidence through Host Customer Education

- The host customer must have a great experience overall with the developer (AMS) – SGIP is a huge part of this
- Explain the trailblazing nature of SGIP & program objectives of GHG reduction and market transformation
- Send personalized Project Documents like Cheat Sheets, Case Studies & Program statistics + Customized Timelines (slide 5)
- Setting expectations with the customers early in the process and doesn't catch them off-guard with random requests

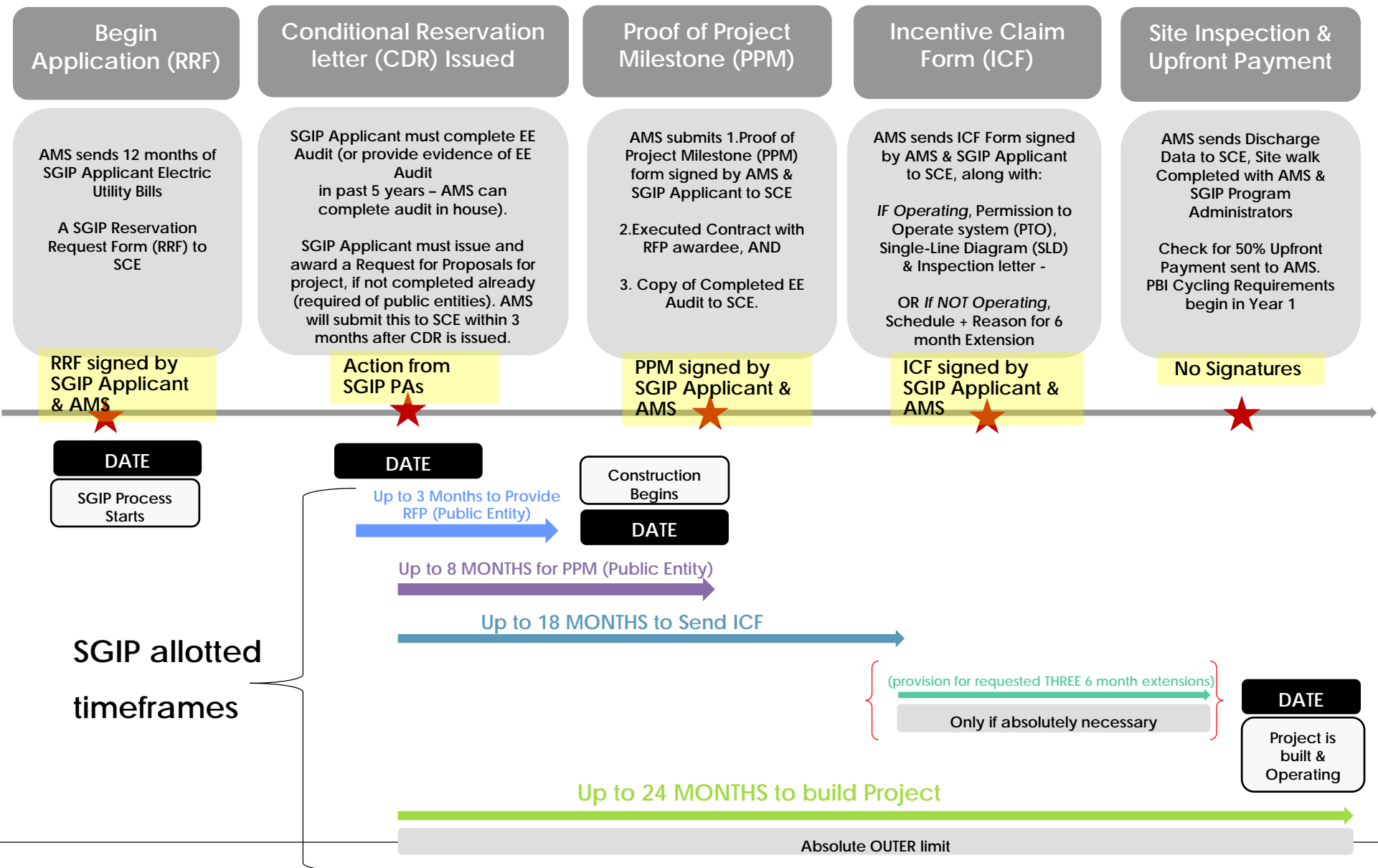
2) Internal Process-streamlining & Continuous Improvement

- In-house, each team is well aware of the SGIP process and timeline
- Additionally, SGIP involves so many teams– tools like RACI matrix' as super helpful in defining responsibility and accountability for such a process (slide 6)
- We build the SGIP process into our on-boarding for new hires as well
- Since it's such a date and timeline driven process, we use online databases like Salesforce to track progress for projects (so each and every person in the company has visibility)



SGIP Timeline

Unique to each Project & Shared with Host Customers



SGIP Management within AMS

Do what you can In-House; Outsource the Rest

SGIP PBI Projects have several requirements – **you don't need to do it all yourself!**

- **EE Audits** : needed at the PPM stage - this can be outsourced for a cheap price (ASHRAE Level I Audits work as of 2017) and there are even Utility surveys business owners can complete themselves to fulfil this requirement
- **Performance Data Provider** : several developers outsource this requirement since you have to report data monthly for 5 years. While this can add up quickly, it's better to start out outsourcing and eventually bring it in-house (like AMS did)



SGIP – Program Management

How we Define & Allocate Responsibility internally

- An important piece of Program Management – defining tasks, responsibilities & accountability within AMS

RACI; R = Responsible, A = Accountable, C = Consulted, I = Informed											
Action Items/Deliverables	Policy		Business Development		Development/Field Engineering		Accounting		Analytics		Project Finance
	Associate	Manager	CSM	BD Lead	Associate	Project Manager/Developer	Accountant	CFO	NOC Operator	Engineering	Analyst/Director
Step 1 : RRF											
Customer Information for form in SalesForce	I	C									
Electric Utility Bill - 12 months (+ Gas Bill if SCG)	I	C									
RRF Form generated	R	A									
RRF Form sent to Customer for Signature	R	I	I	R							
Equipment Specifications	R	A									
Preliminary Monitoring Plan	R	A									
Approval for an Application Fee (5% of Project cost)	I	I		R			I	C			
Generating the Check for Application fee	I	I					R	A			
Signing & Uploading RRF Received back from customer	R	A									
Uploading copy of Physical Check	R	I									
Mailing out Check to Utility	R	I		I			I	I			
Conditional Reservation Letter Received - Salesforce Updated	R	I	I	I	I	I					
Step 2 : PPM (90 Days After RRF)											
Notification of Upcoming Projects (8 weeks prior)	R	C									
PPM Form Generated	R	A	I								
PPM Form sent to Customer for Signature	R	I	I	I							
Executed Contract (EMSA)	R	C	R	R							
Energy Efficiency Audit/Online EE Survey	?	?	?	?	?					I/R	
Signing & Uploading PPM Received back from customer	R	I									
PPM Confirmation Received - Salesforce Updated	R	C	I	I	I	I					
Step 3 : ICF (6 Months After PPM)											
Notification of Upcoming Projects (8 weeks prior)	R	C									
ICF Form Generated	R	A	I								
ICF Form sent to Customer for Signature	R	I	I	I							
Site Walk - Scheduling & Completing	R	A					R			I	
Building Inspection Report	I						R			C	
Final Monitoring Schematic (As-Built)	I						R			C	
Permission to InterConnect (PTO)	I						R			C	
Project Cost Breakdown Worksheet	R	I									C



Thank you & Questions/Feedback?



The logo for Maxwell Developments features the word "MAXWELL" in a bold, blue, sans-serif font. A large, stylized "X" is formed by two overlapping diagonal lines, one blue and one light gray, passing through the letters. Below "MAXWELL", the word "DEVELOPMENTS" is written in a smaller, gray, sans-serif font. The background consists of a white central area with blue and gray geometric shapes at the top and bottom corners.

MAXWELL DEVELOPMENTS

David Mintzer
VP Business Development
Dmintzer@maxwellddevelopments.com
510-594-8240

SGIP – Quarterly Workshop

Goal

- Share experience building a positive customer experience including the benefits of SGIP

Topics

- Proposals
- How Utilities can help
- SGIP benefits and best practices

SGIP – Quarterly Workshop

Proposals

- Expressions (project and financial) of the product or service to capture electricity savings
- Many decision makers and the proposal needs to support an un-aided review
- Not all the same
- Good ones include (minimum)
 - **Goal** - self-generation and consumption, savings, resiliency, GHG reduction, etc.
 - **Project Summary** – facility plans (alignment to current and future state), load (dynamic, predictable, demand charges), size of PV & ES, etc.
 - **Billing** - current and new
 - **Demand Profiles** – 15-min, 12 months, Utility API
 - **Electricity rate** - current and proposed
 - **Proposed Design** – PV, ES, other, size, location
 - **Financials (and pro forma)** – current spend, expected spend, with SGIP and without, tax implications, cash vs. lease vs. loan options
 - **Operational breakdown** – HOMER, ETB, GELI, CES, etc.
 - **Equipment and Warranties**
 - **SOW**

SGIP – Quarterly Workshop

Utility Participation

- **Client meeting.** Assuming proposal is accepted, and the facilities managers want to proceed, there will be a meeting with the client's executives – COO, CFO, sometimes CEO. Generally inspecting/validating the recommendation, will ask at least these questions that need to be answered in real-time (or virtual real-time).
- **Having a Utility representative present at the meeting is invaluable, trusted:**
 - Is this what we can expect in terms of savings if we proceed
 - What if my building load changes (increases/decreases)
 - How much space is this going to occupy
 - Do we need an upgraded integration service
 - How much electricity could we export (excess) and what is it worth
 - What electricity rate am I paying now, what rate am I going to pay and how will this effect savings
 - If we do nothing can we negotiate a better rate with the Utility, what is that worth
 - What **incentives** are available, how much
 - Has the utility (account executive) seen this project and what do they think

SGIP – Quarterly Workshop

Utility Participation

- **Account Executives** – goal is to provide a great experience but also *per capita* load reduction
- **Rate discussion** – yes, new rate is accurate
- **SGIP**
 - Description of the program
 - Confirmation that SGIP is available and at what Step number
 - Step number and confirmation of incentive value
 - Describe Rebate vs. Incentive portion
 - Confirm that it is a taxable event
 - Assignable to third parties
 - Describe the process to achieve – developer key, payment schedule, other
- **Other** – opportunity for the Utility representative to share other rebates or incentive schedules and other best practices for deeper savings

Morning Wrap-up



Self-Generation Incentive Program (SGIP)

Quarterly Workshop

The webinar is on hold from 12:00 PM – 1:00 PM for a lunch break. We will resume at 1:00 PM



Itron Update





Self-Generation Incentive Program

2017 Energy Storage Impact Evaluation Findings

OVERVIEW

- » About Itron and SGIP evaluation activities

- » 2017 SGIP Impact Evaluation Report
 - Description of evaluated population and overall approach

 - Summary of observed findings

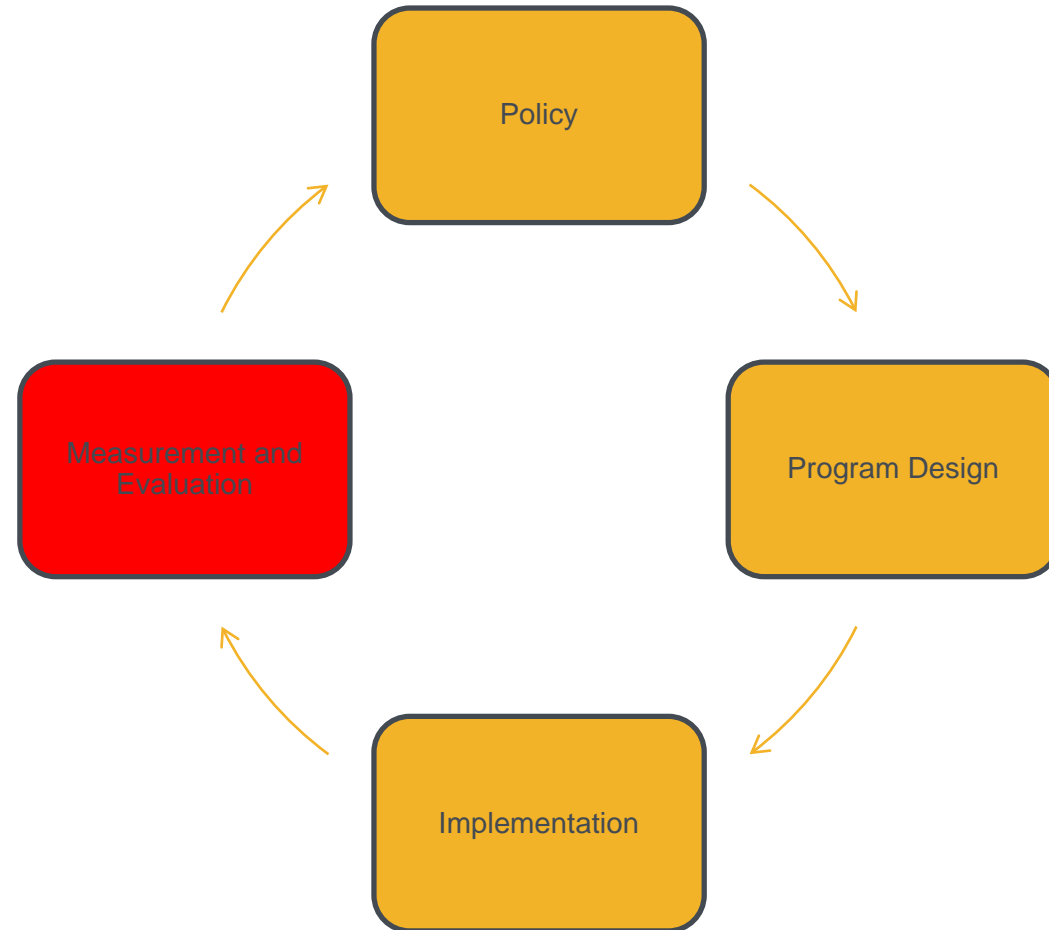
 - Short term ideal dispatch simulation findings

- » Questions

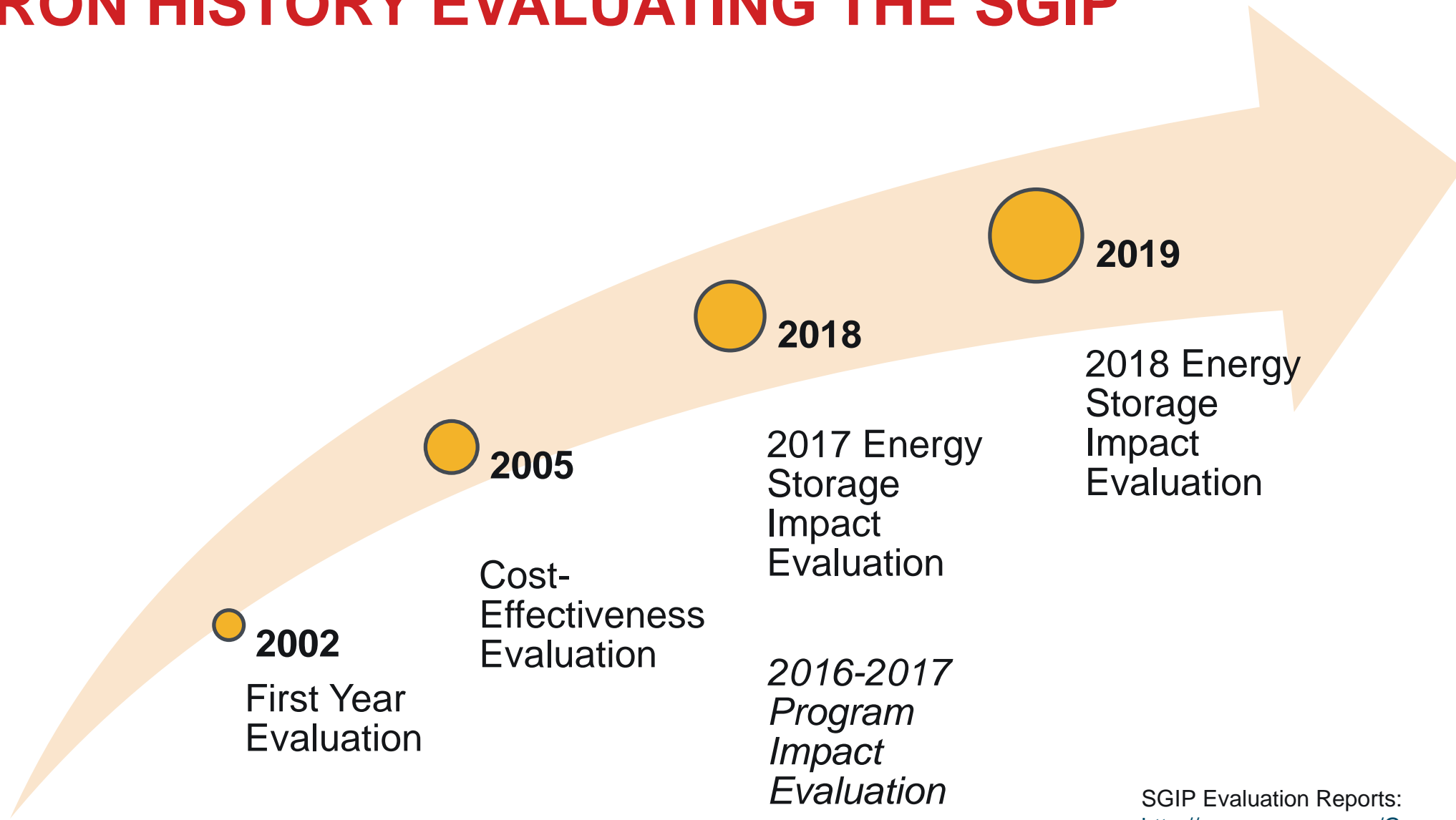
About SGIP Measurement and Evaluation

“If you can’t measure it, you can’t improve it.”

ABOUT MEASUREMENT AND EVALUATION



ITRON HISTORY EVALUATING THE SGIP



SGIP Evaluation Reports:
<http://www.cpuc.ca.gov/General.aspx?id=7890>

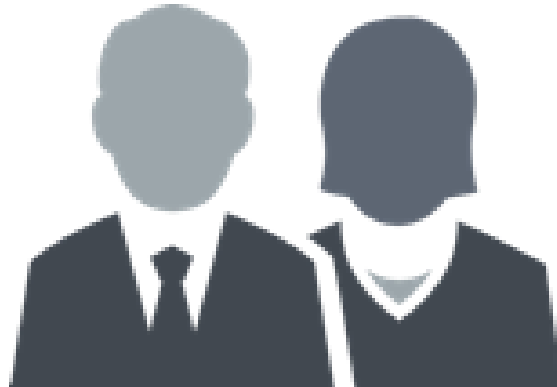
EVALUATION ACTIVITIES

How Itron Interacts with SGIP Participants

Data Collection



Interviews / Surveys



Metering



EVALUATION CONSIDERATIONS

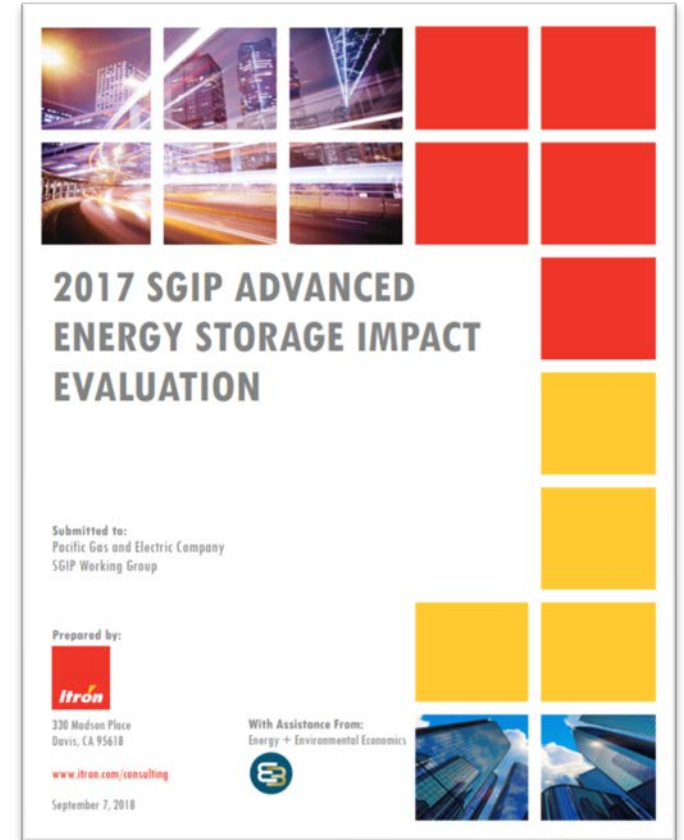
» Itron will not...

- Disclose metered data provided by SGIP participants or available via PBI
- Reveal SGIP participant names in public reporting

» Evaluation findings will not directly affect PBI payments

2017 SGIP ENERGY STORAGE IMPACT EVALUATION

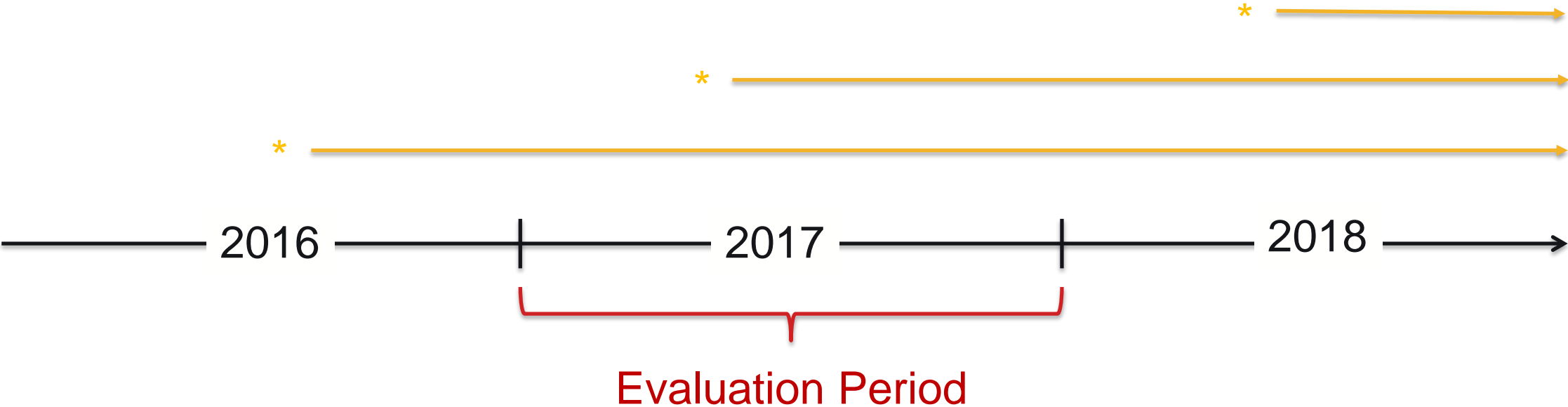
- » Evaluation of energy storage impacts during calendar year 2017
- » Scope includes all projects receiving an SGIP incentive on or before December 31, 2017
- » **Observed impacts** quantified using sampling methods and metered data
- » **Ideal dispatch simulations** provide context to interpret results



Evaluated Population and Approach

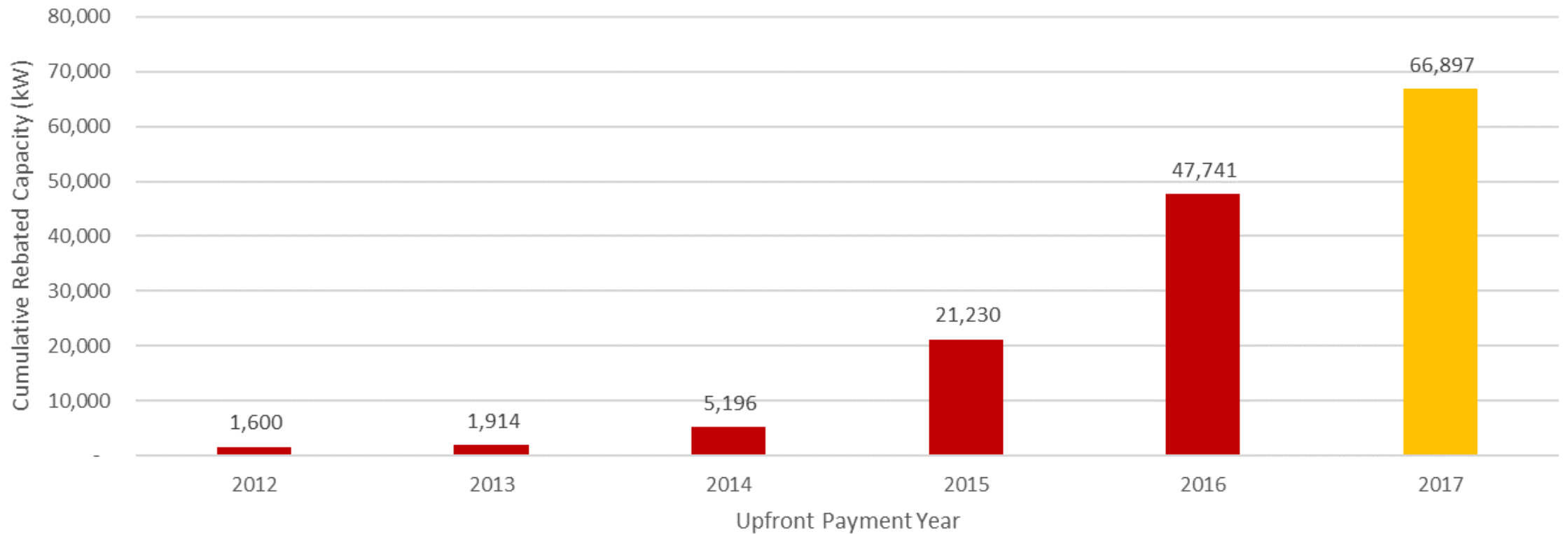
EVALUATED POPULATION

Timeline Discussion



EVALUATED POPULATION

By Upfront Payment Year



EVALUATED POPULATION

By Customer Class

Project Count

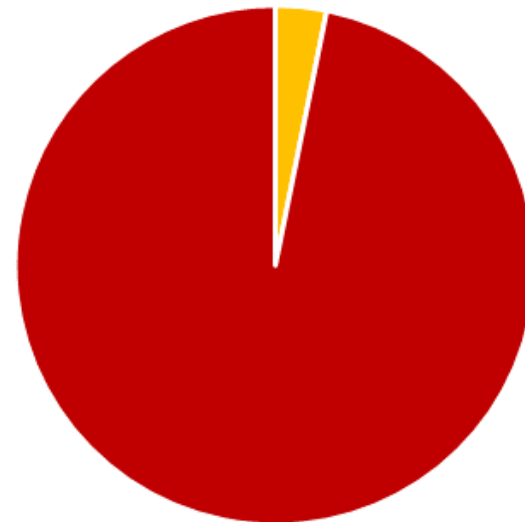
NonResidential (N = 421) - 51%



Residential (N = 407) - 49%

Rebated Capacity

Residential (2 MW) - 3%

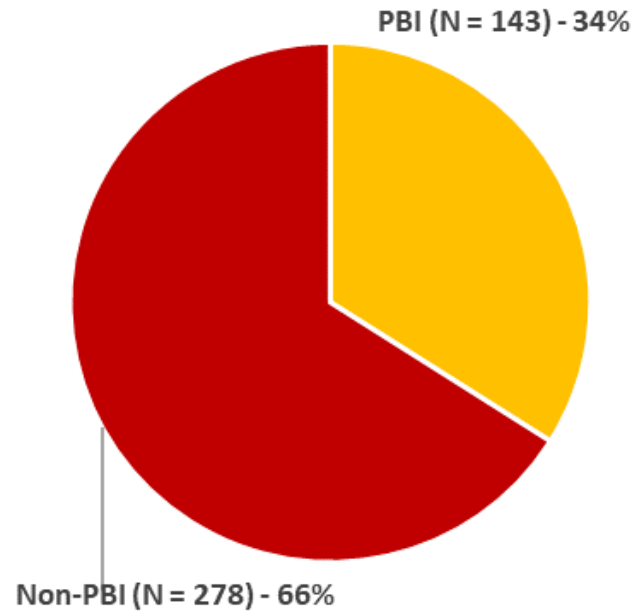


NonResidential (65 MW) - 97%

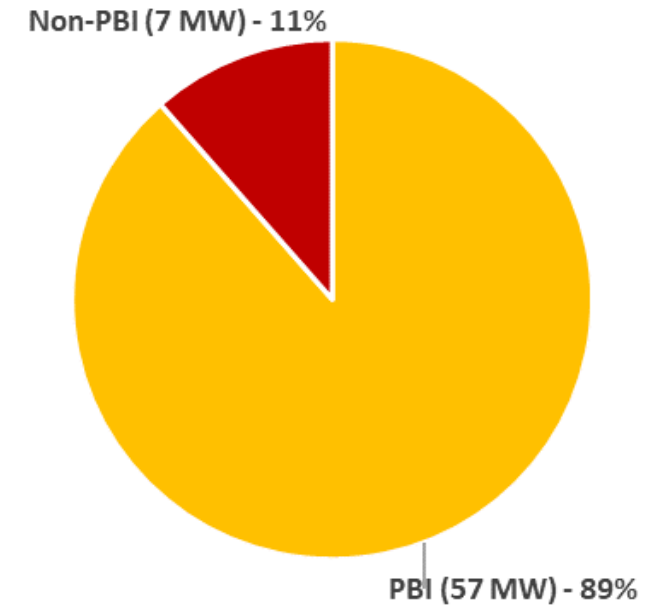
EVALUATED POPULATION

By Incentive Type, Non-Residential Only

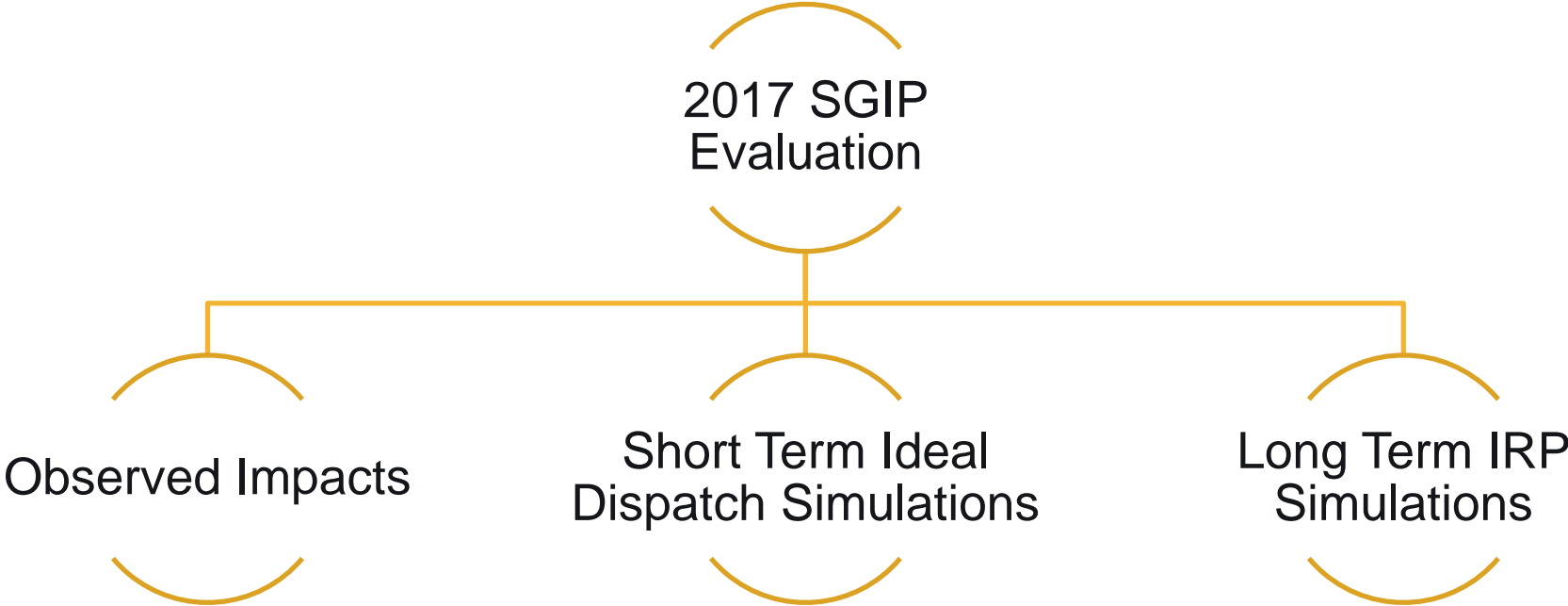
Project Count



Rebated Capacity



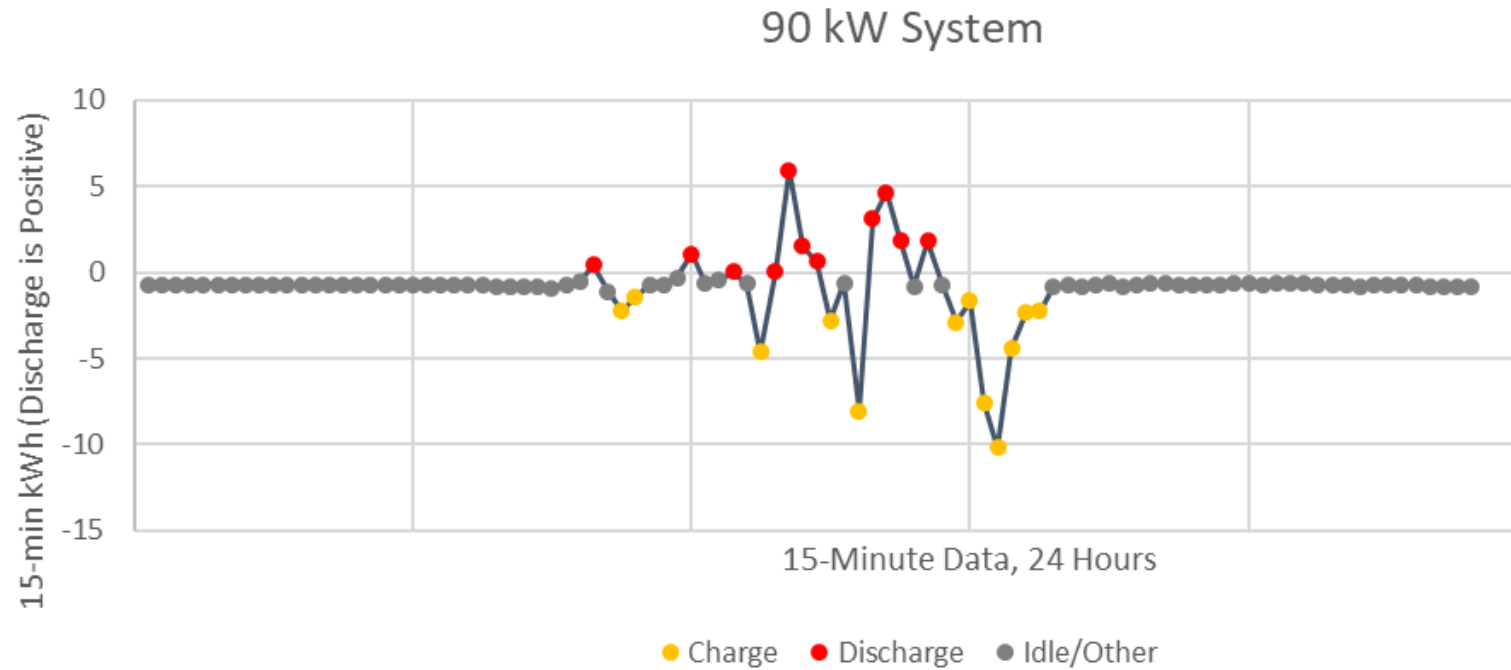
EVALUATION APPROACH



Summary of Observed Findings

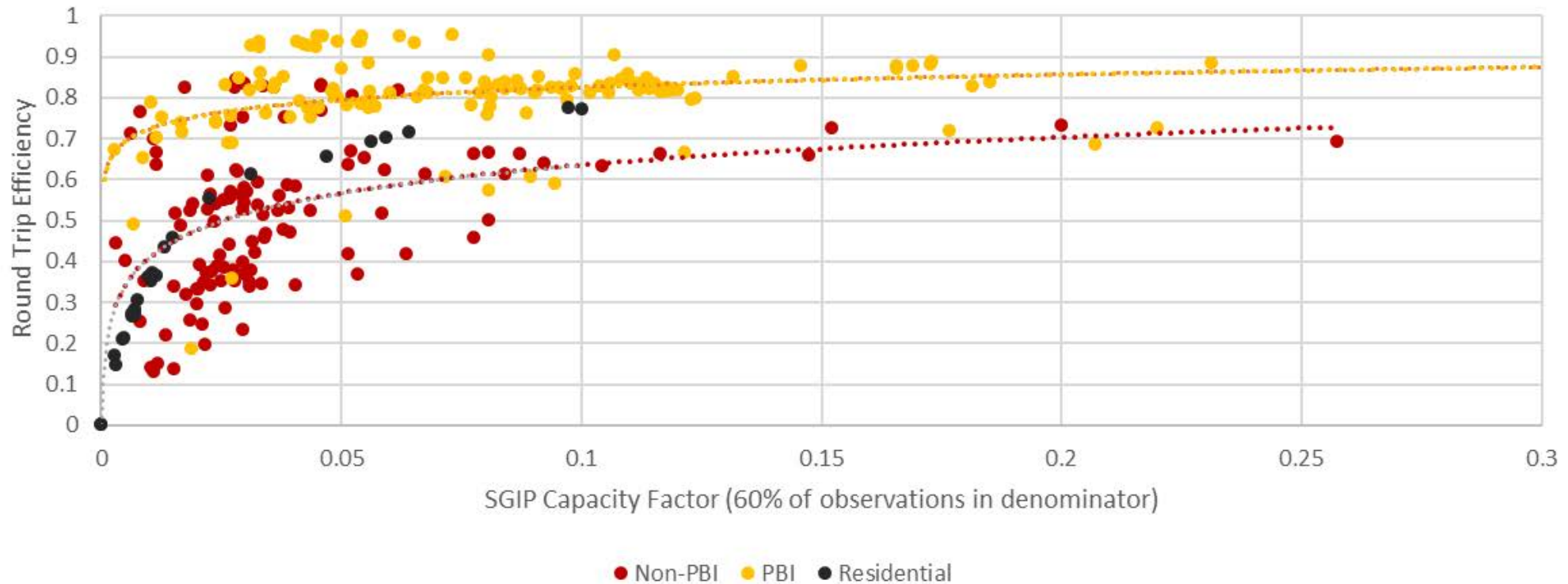
STORAGE PERFORMANCE METRICS

Background



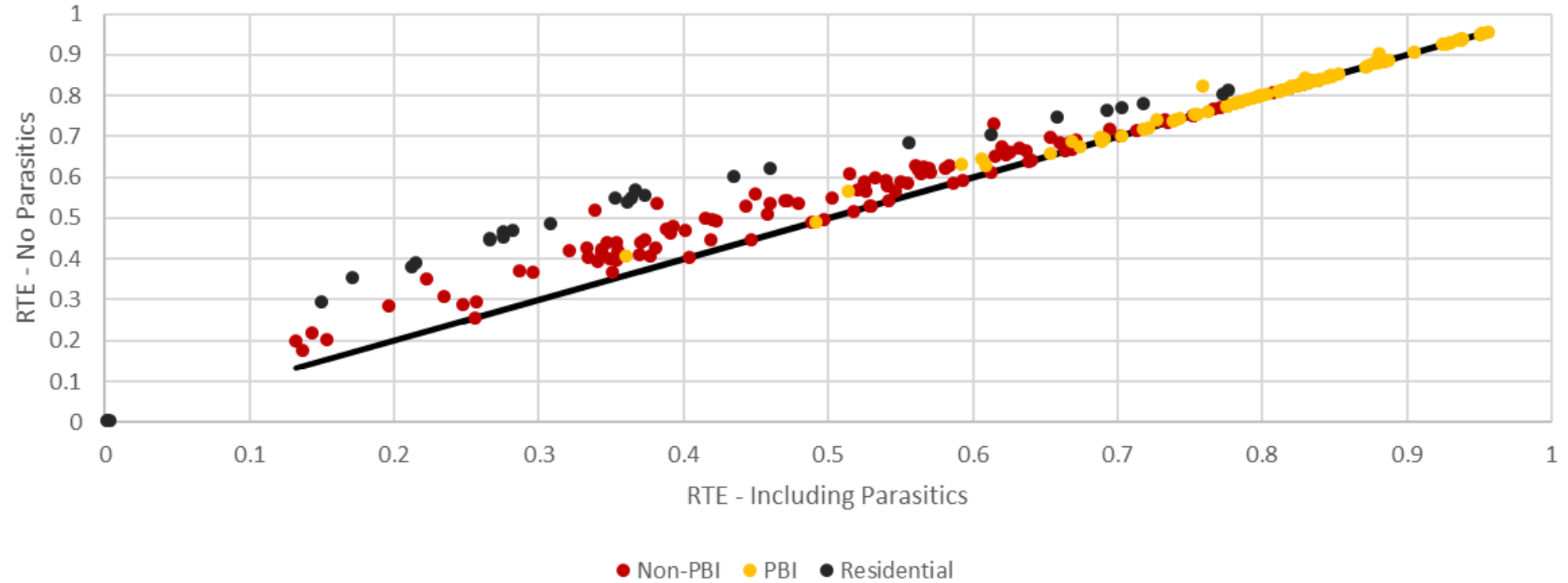
STORAGE PERFORMANCE METRICS

Capacity Factor and Round Trip Efficiency



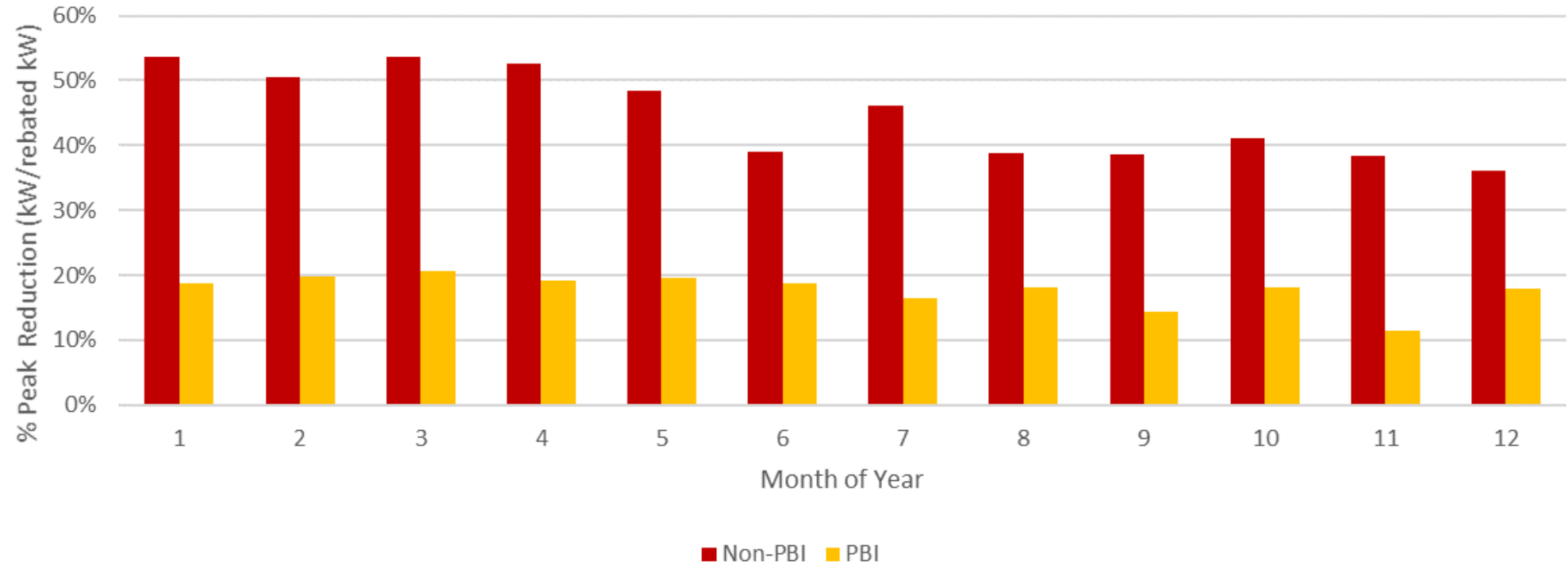
STORAGE PERFORMANCE METRICS

Parasitic Load Influence on Round Trip Efficiency



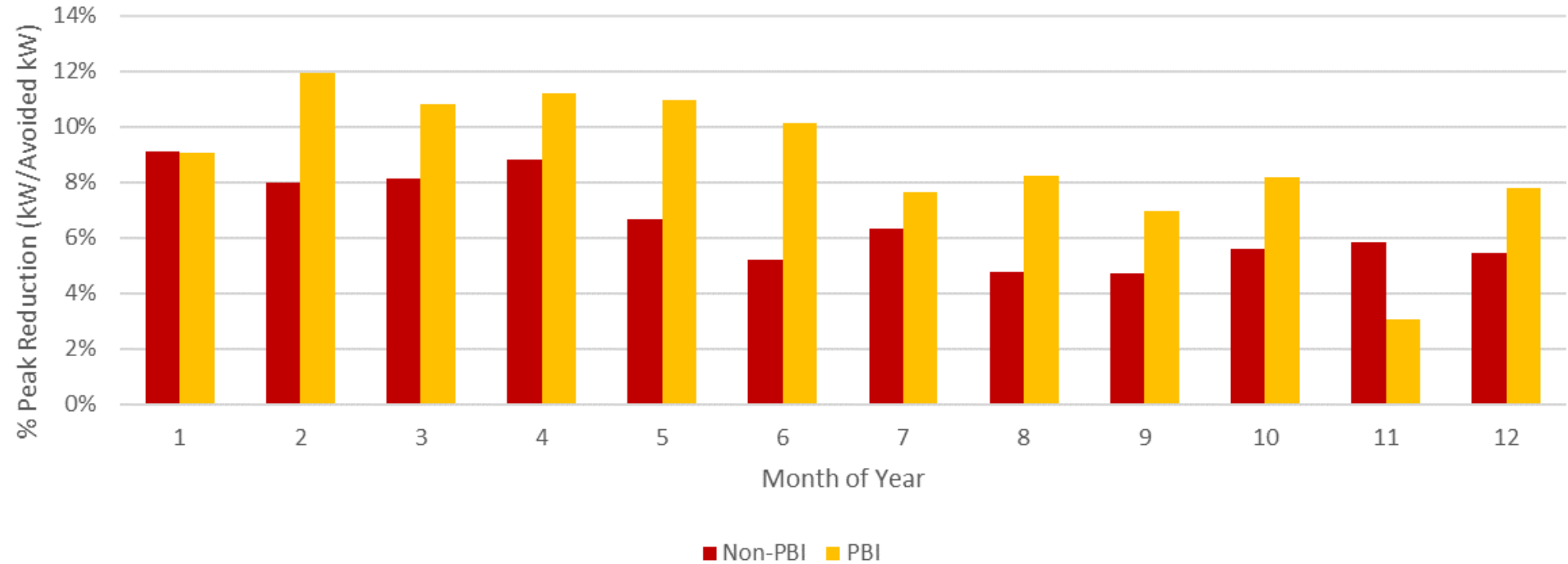
CUSTOMER IMPACTS

Non-Coincident Peak Demand Reduction (relative to rebated capacity)



CUSTOMER IMPACTS

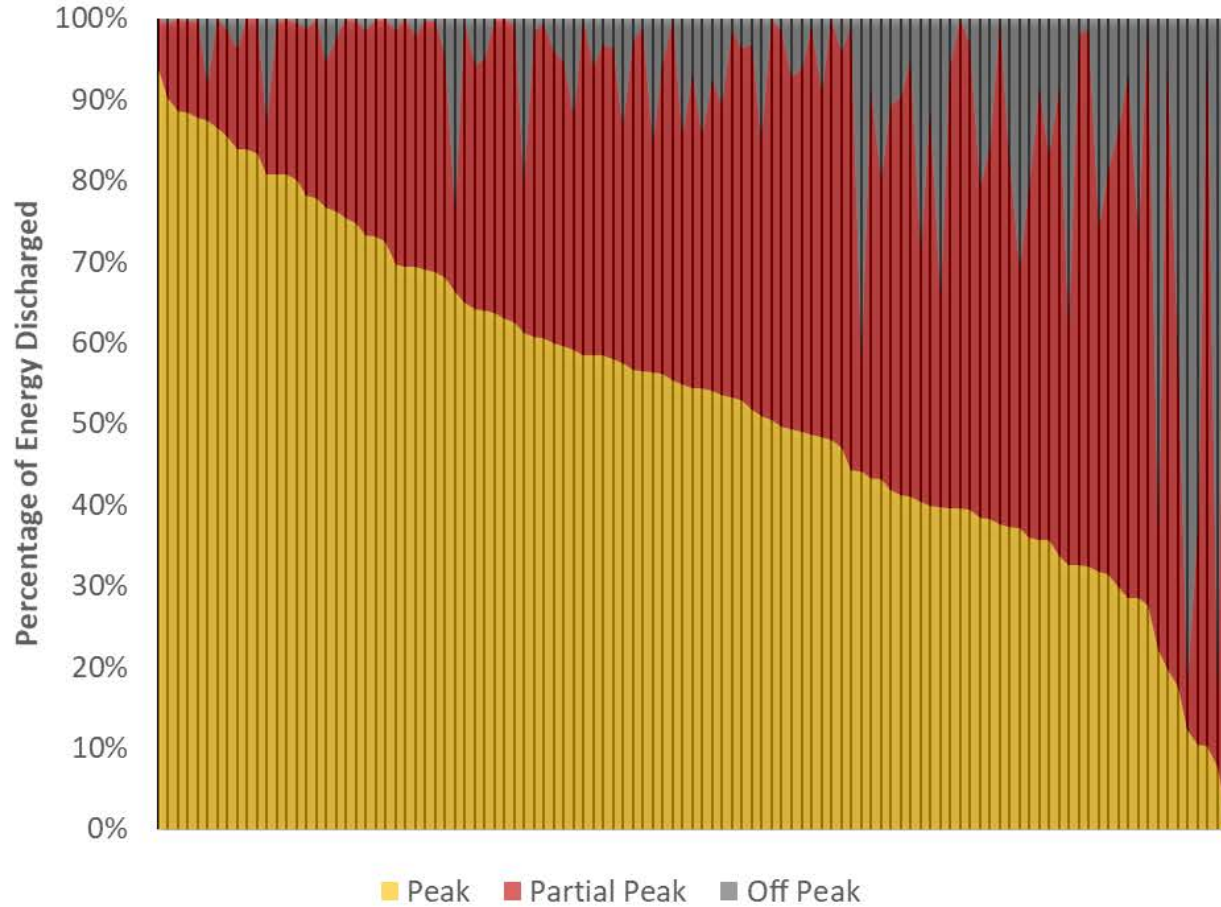
Non-Coincident Peak Demand Reduction (relative to gross load)



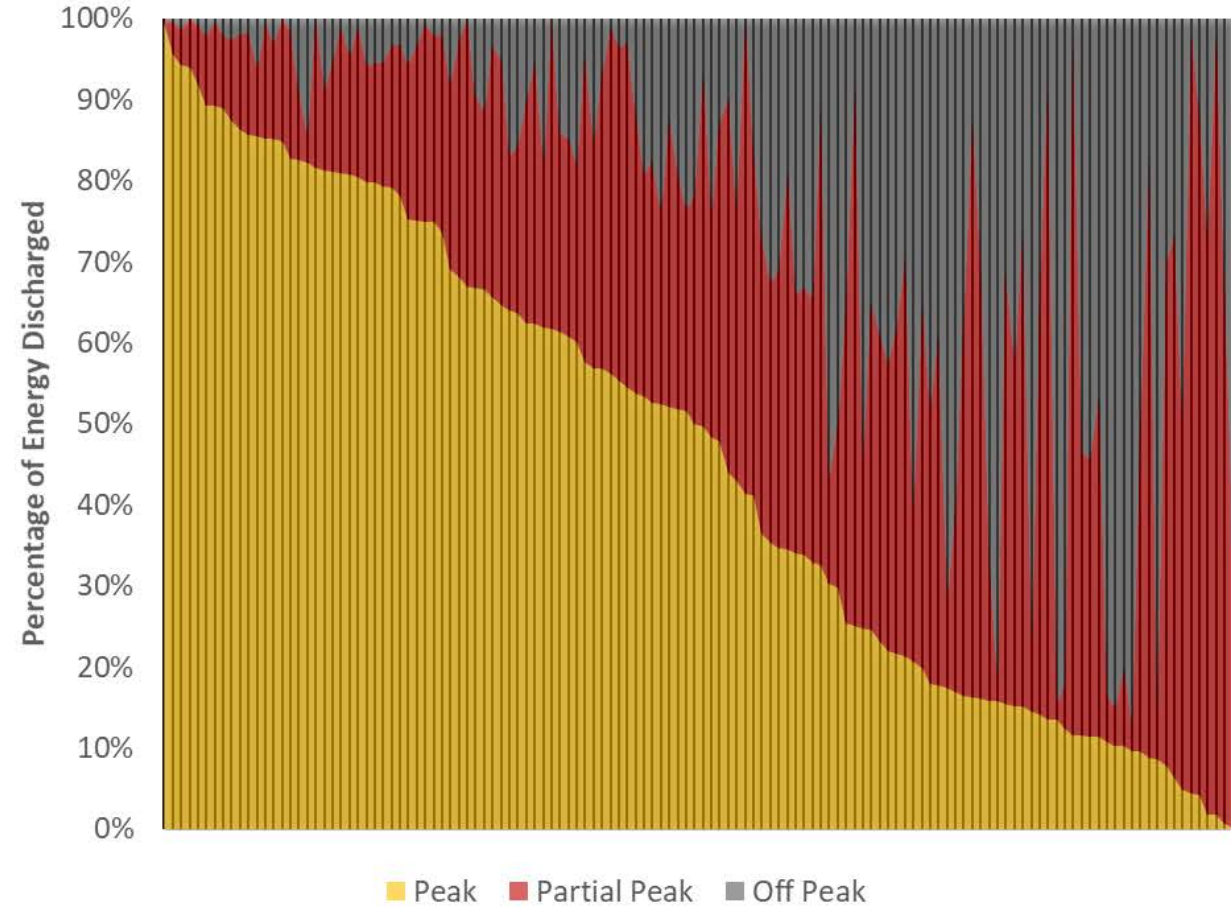
CUSTOMER IMPACTS

Storage Discharge By Utility Time of Use Period (Non-Residential Only)

Non-PBI Projects (Summer weekday/non-holiday)

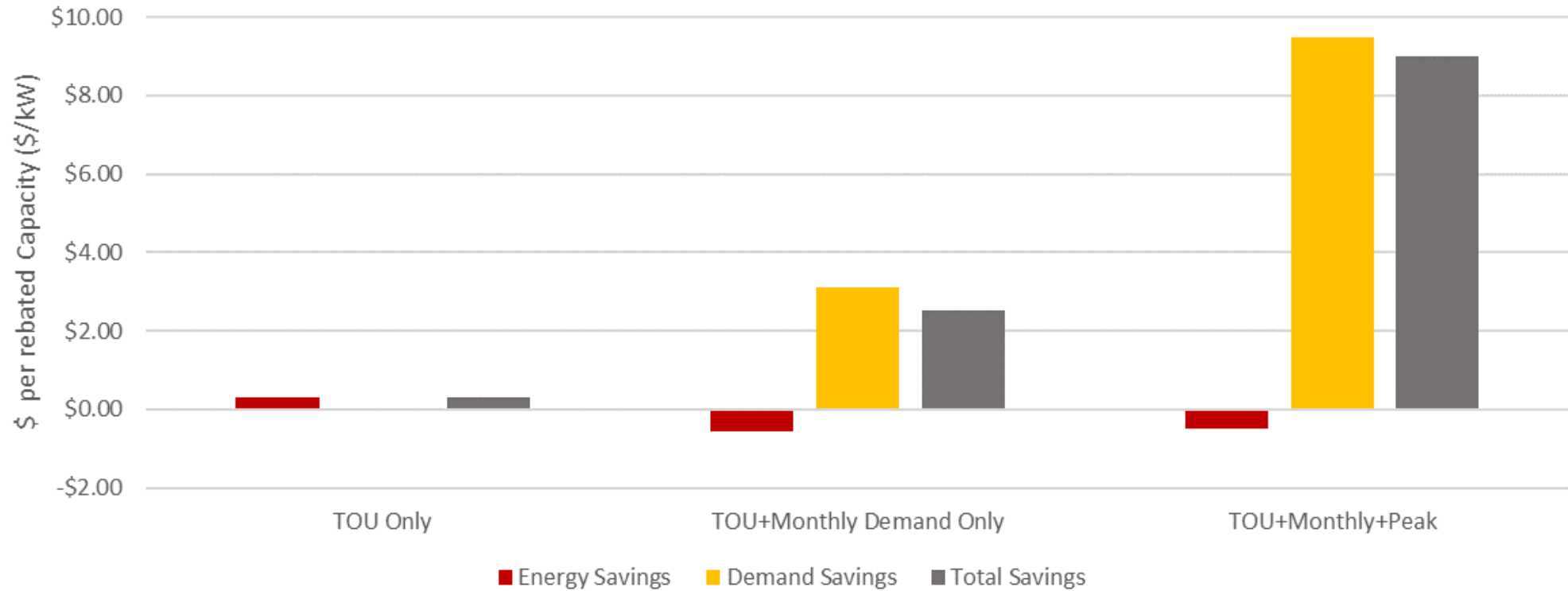


PBI Projects (Summer weekday/non-holiday)



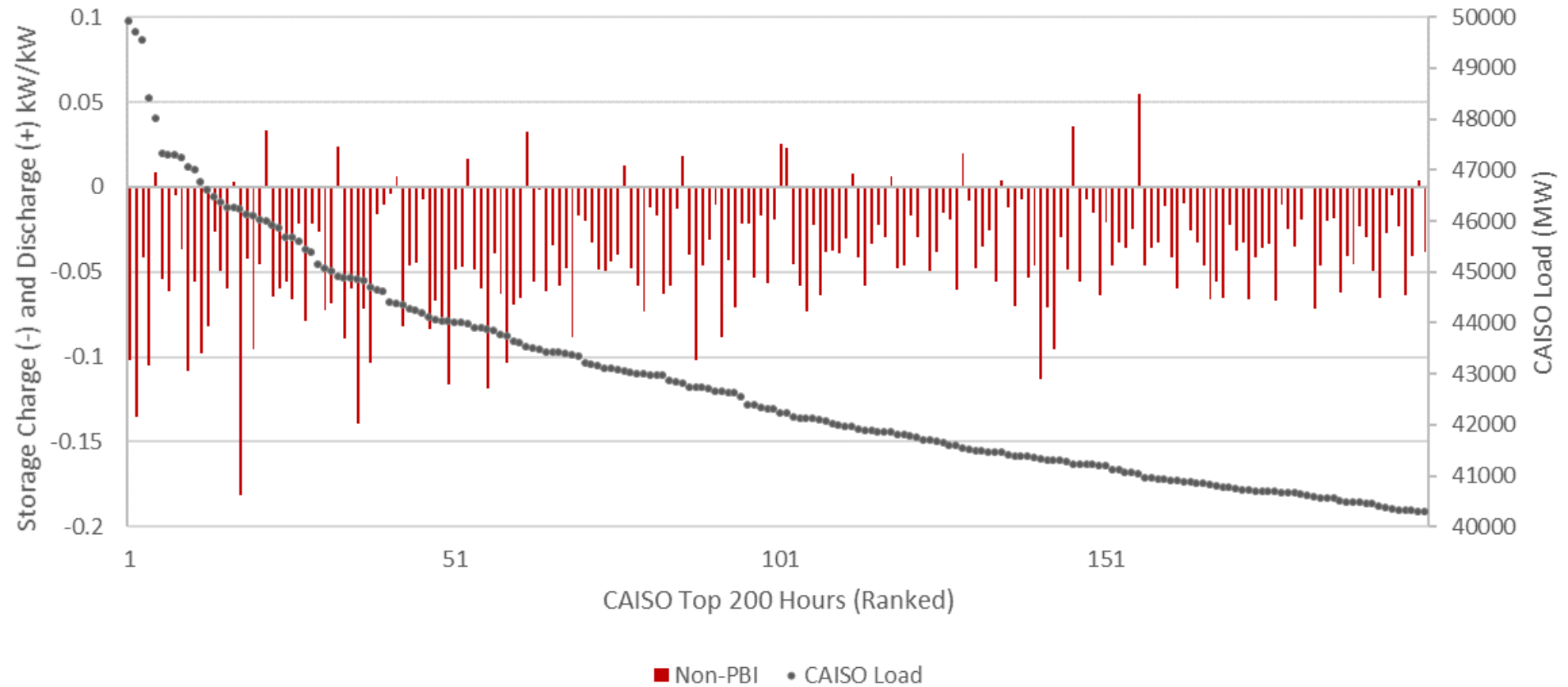
CUSTOMER IMPACTS

Non-Residential Bill Impacts



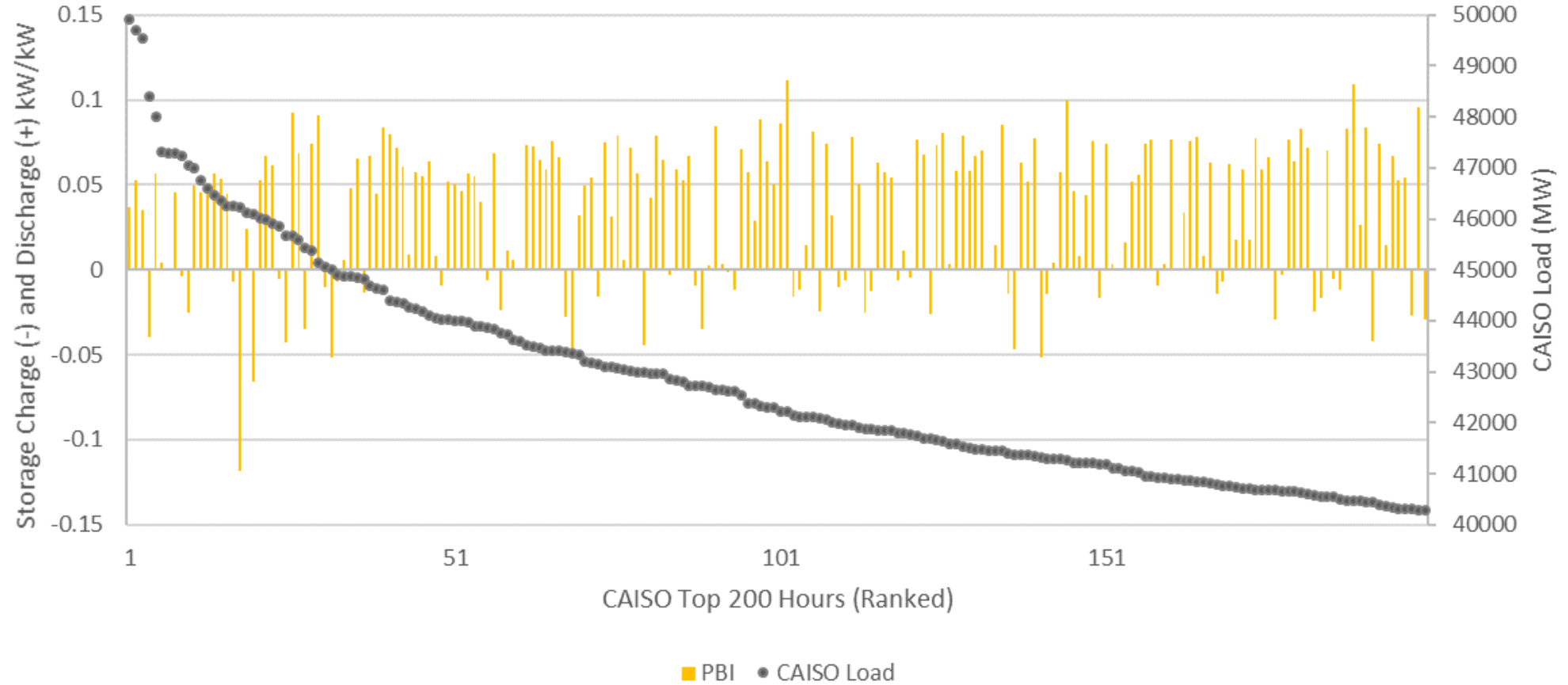
SYSTEM IMPACTS

CAISO Top 200 Hours – Non PBI



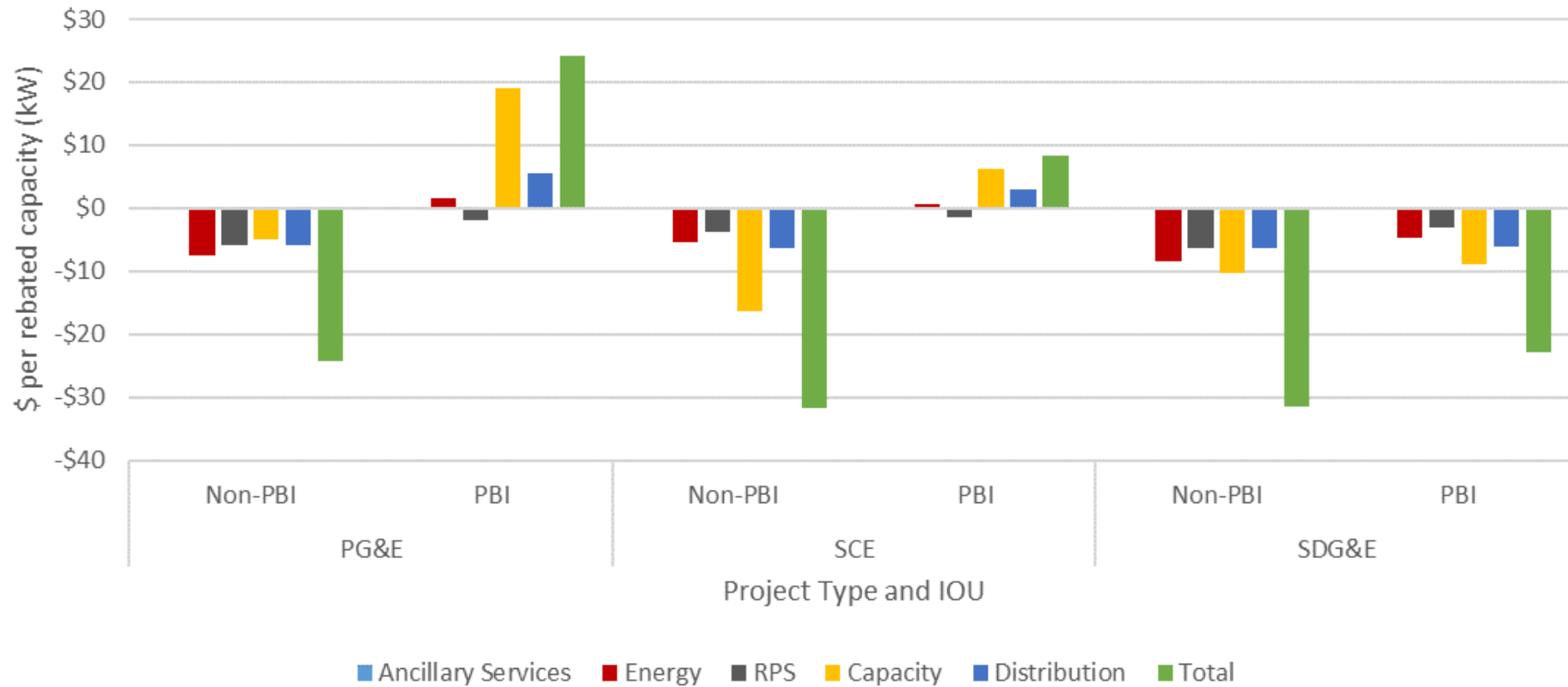
SYSTEM IMPACTS

CAISO Top 200 Hours – PBI



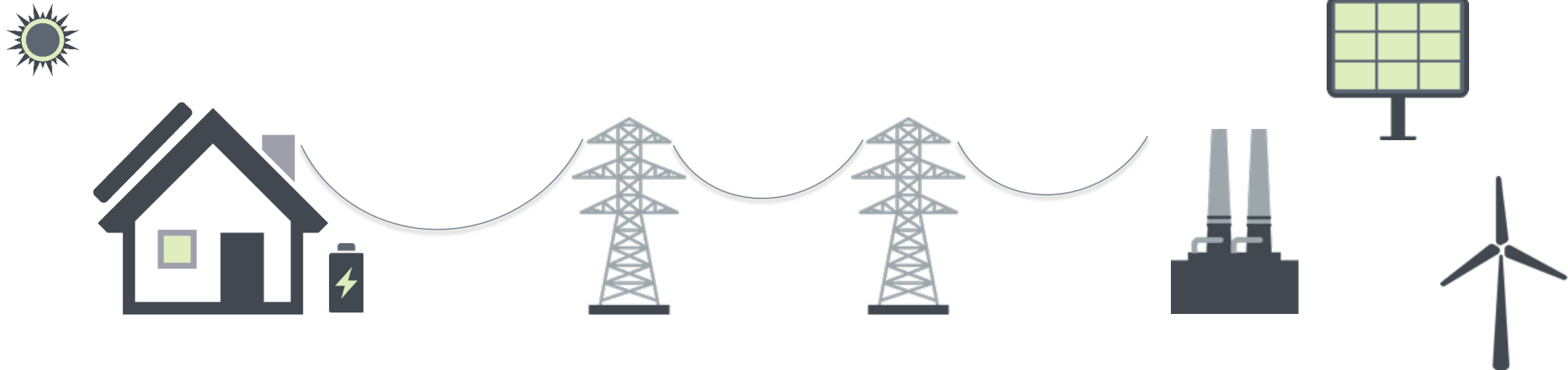
UTILITY MARGINAL COST IMPACTS

Non-Residential



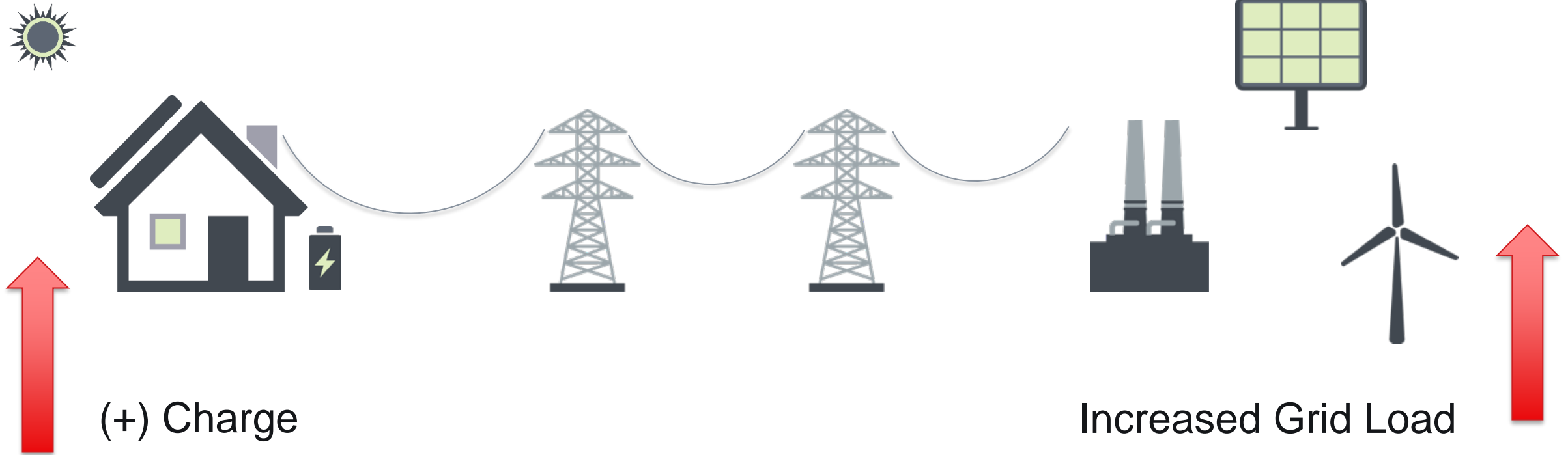
GREENHOUSE GAS ANALYSIS

Overview



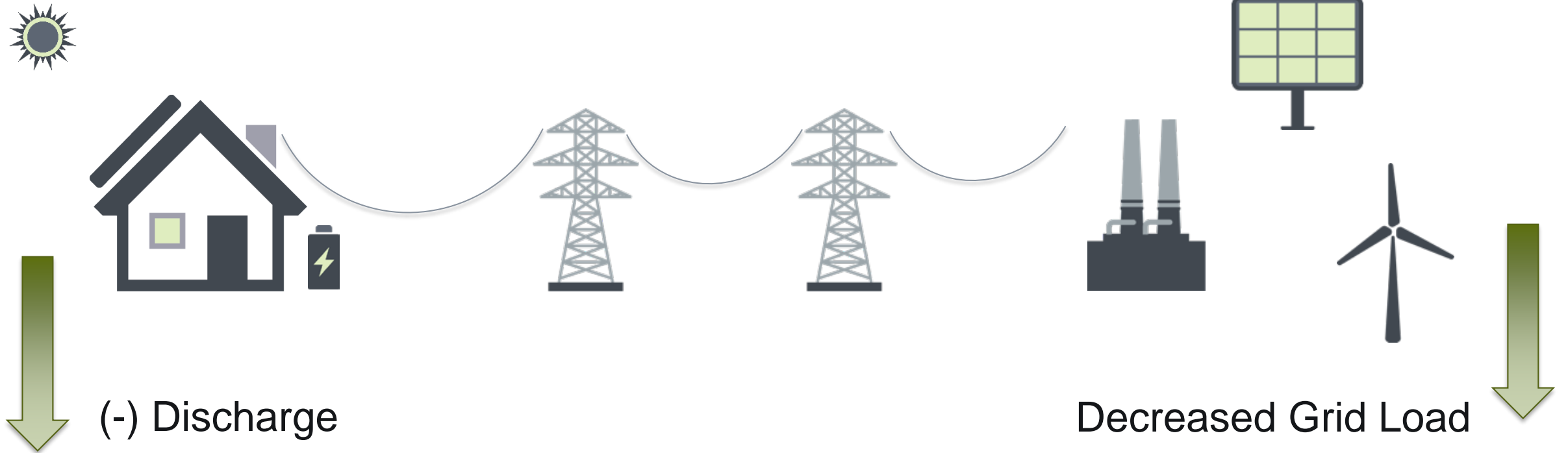
GREENHOUSE GAS ANALYSIS

Overview



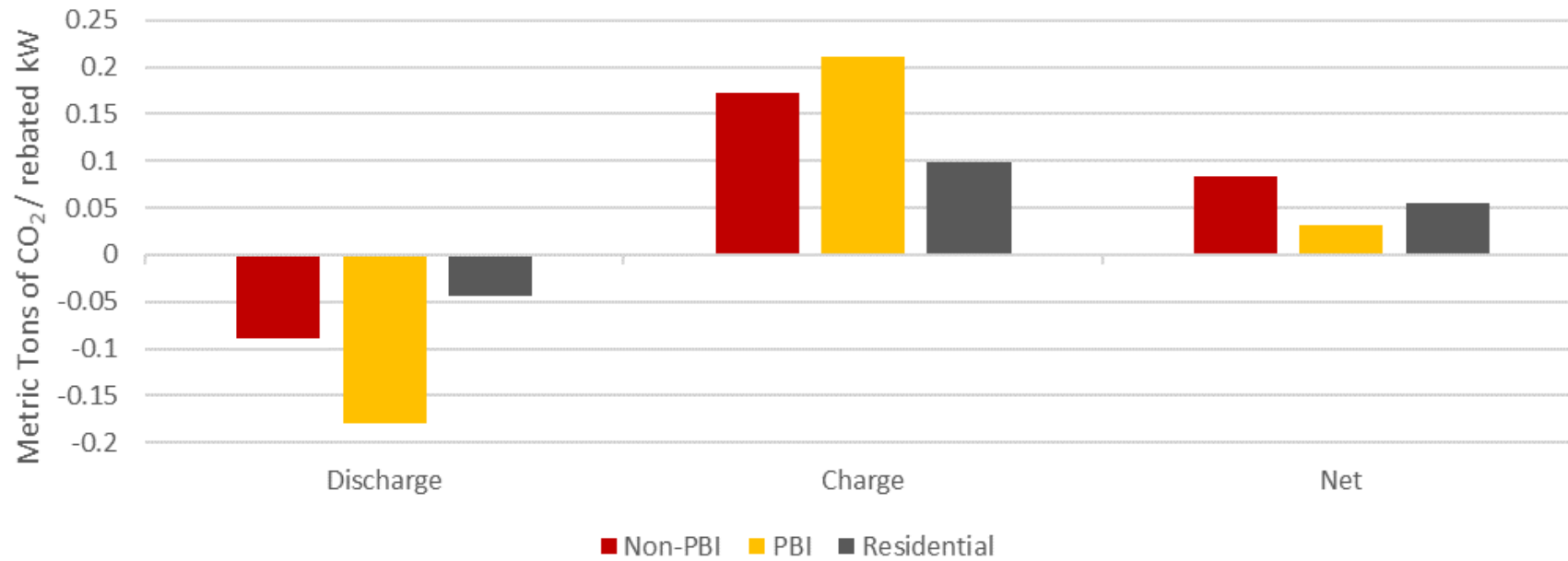
GREENHOUSE GAS ANALYSIS

Overview



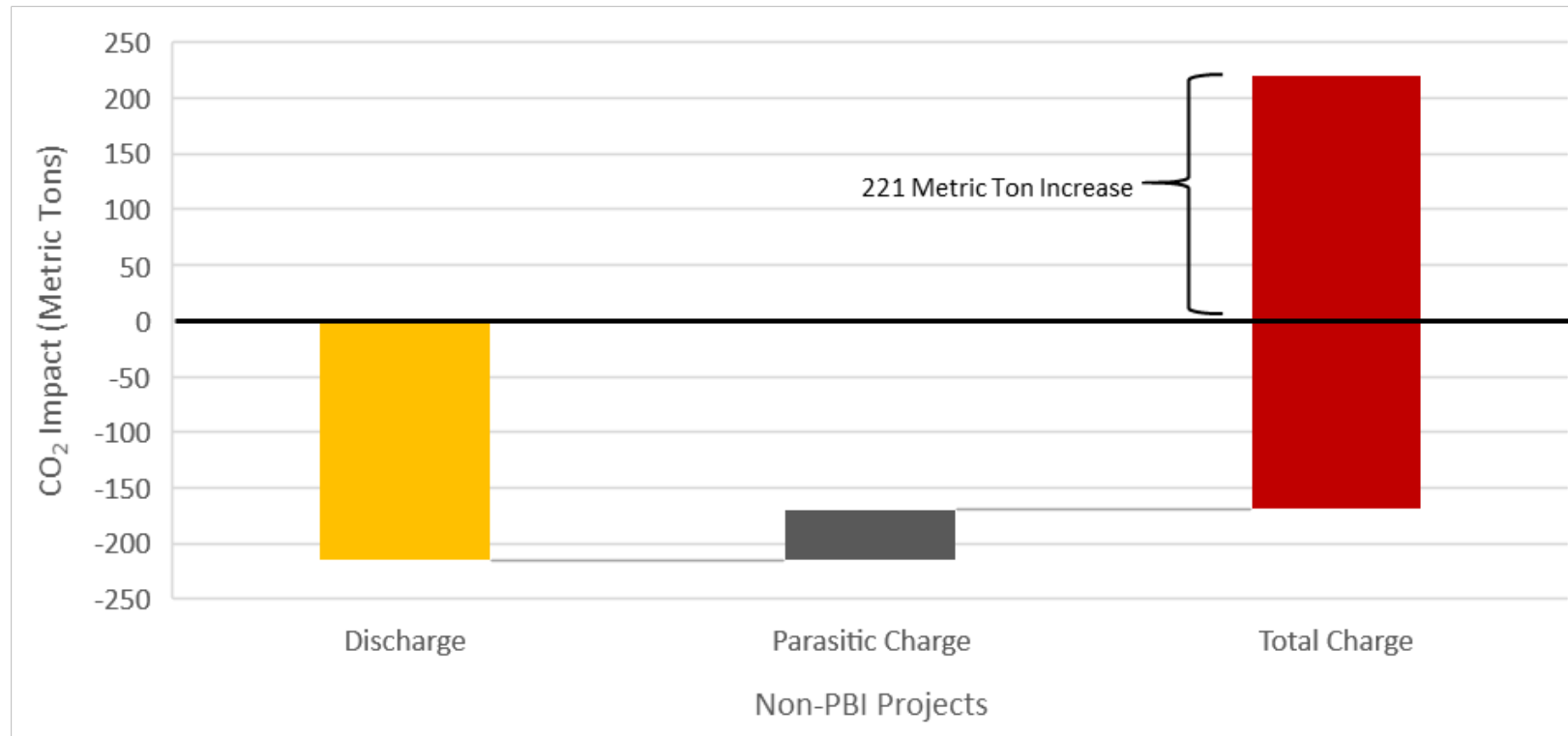
GREENHOUSE GAS IMPACTS

Summary



GREENHOUSE GAS IMPACTS

Influence of Parasitic Load



Note: not a population estimate

GREENHOUSE GAS IMPACTS

Importance of baselines

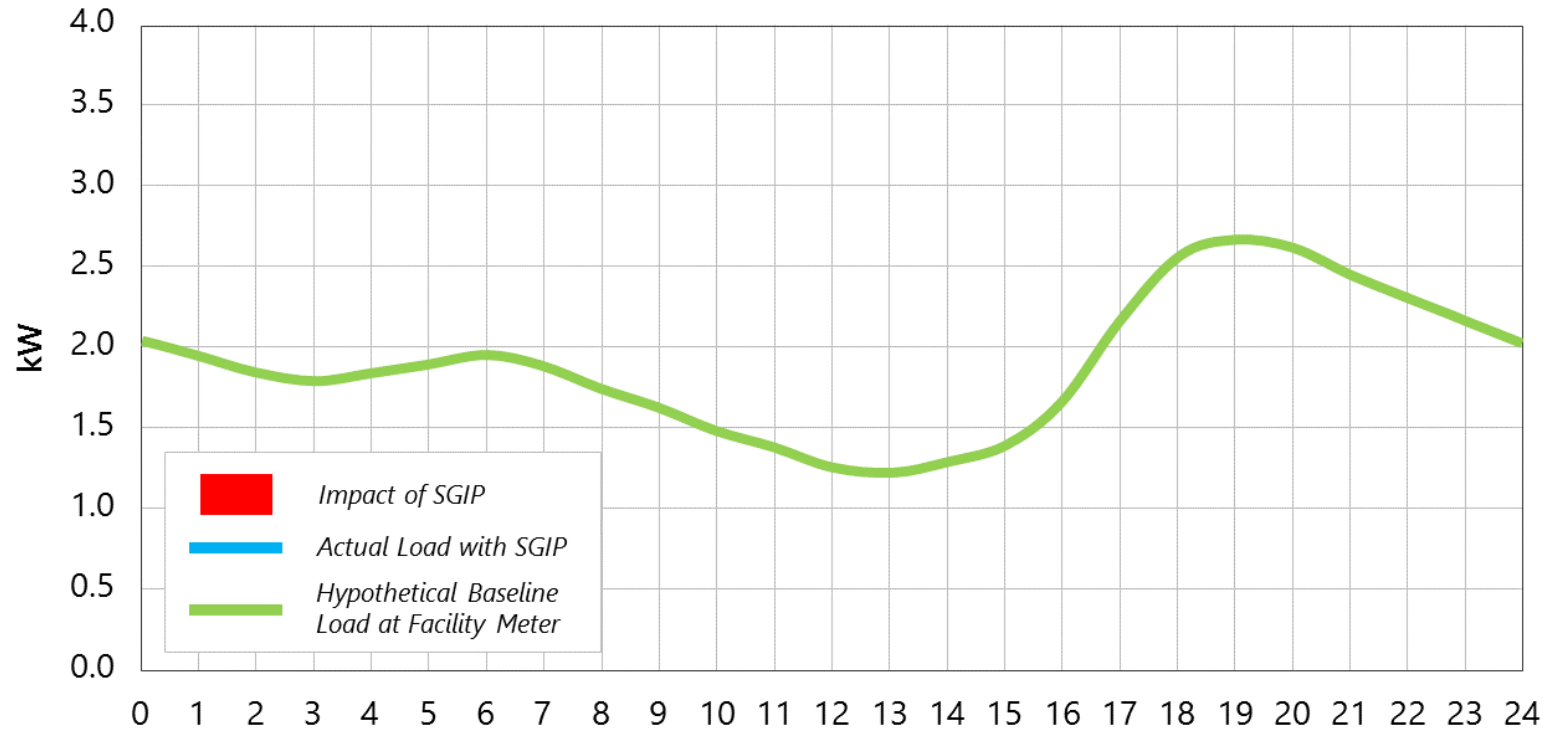
» What would the world look like today in the absence of the SGIP?

Standalone Storage	Customer installs storage anyway Customer does not install storage
Storage + PV	Customer installs storage anyway Customer does not install storage Customer installs PV only

GREENHOUSE GAS ANALYSIS

Customer installs PV

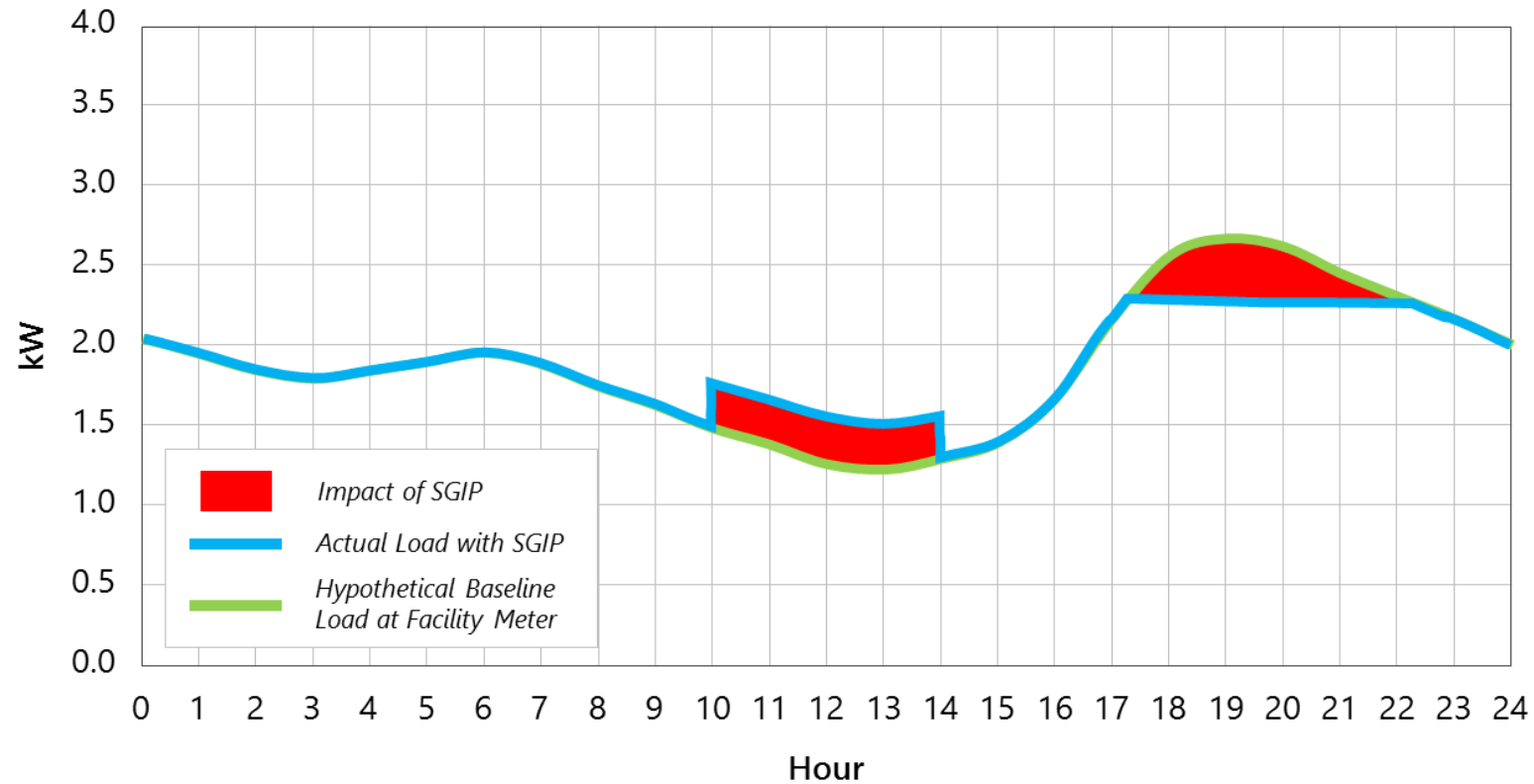
» Baseline condition



GREENHOUSE GAS ANALYSIS

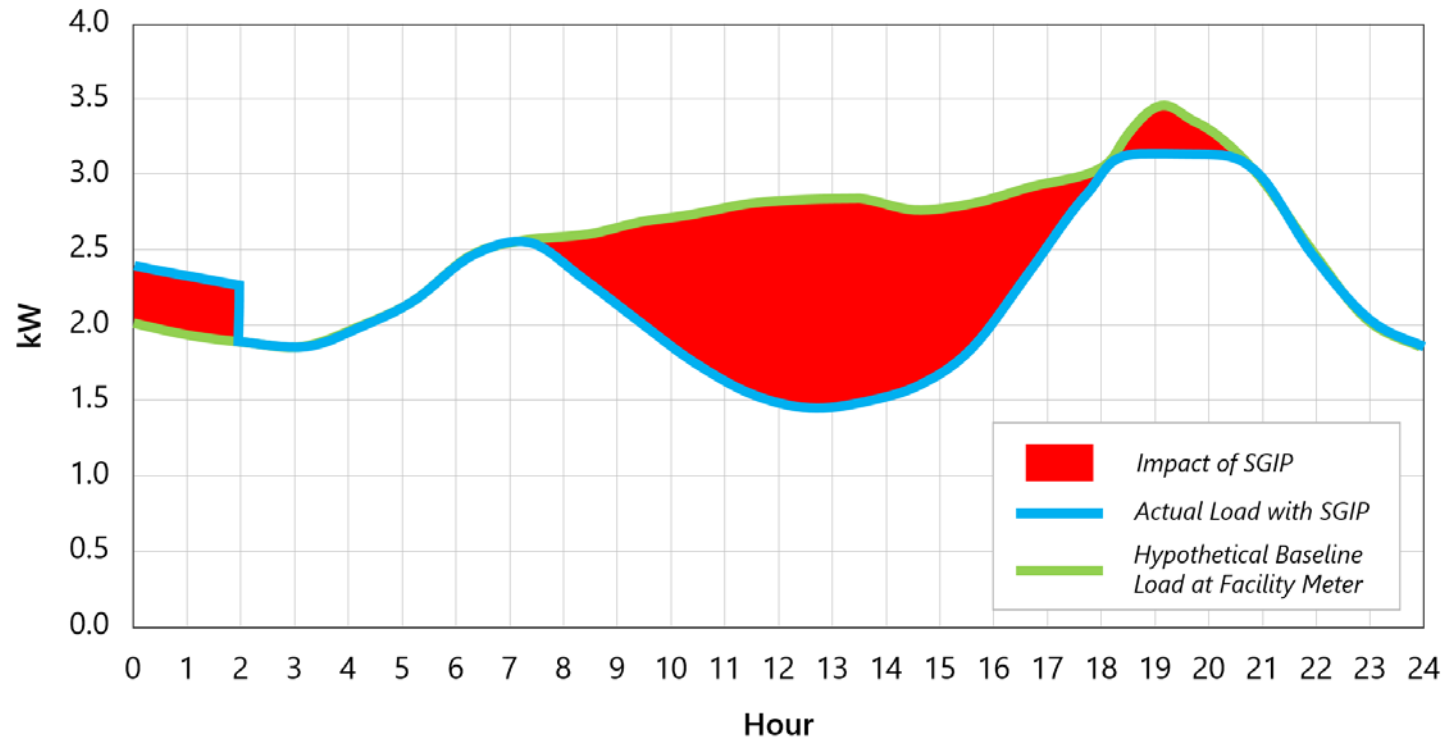
Customer installs PV

» SGIP condition:



GREENHOUSE GAS ANALYSIS

Customer would not have installed PV



Simulation Results

Ideal Dispatch

OPTIMAL DISPATCH SIMULATIONS

Overview

- » Short term **optimization** based on **perfect foresight**

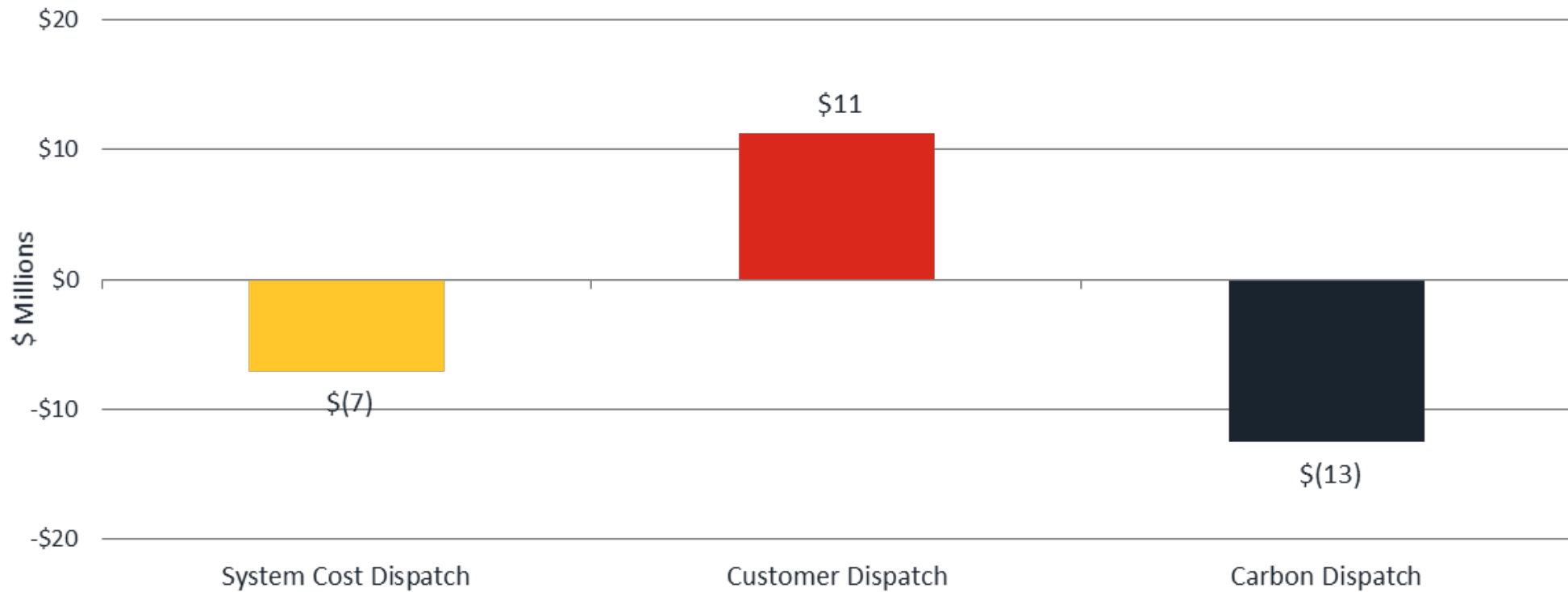
- » Three optimization parameters:
 - Bill savings
 - Utility costs
 - Carbon

- » Using actual customer load shapes, rates, and storage system characteristics

- » **Not** observed impacts, purely hypothetical

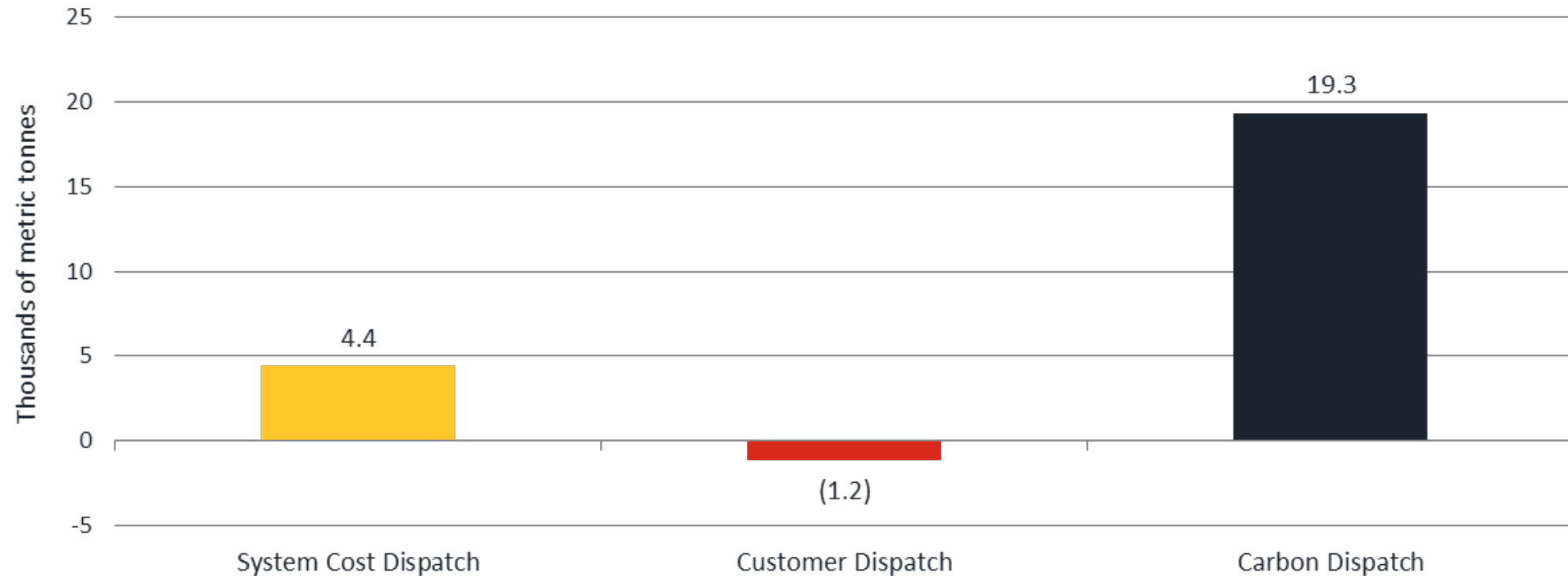
OPTIMAL DISPATCH SIMULATIONS

Customer bill savings



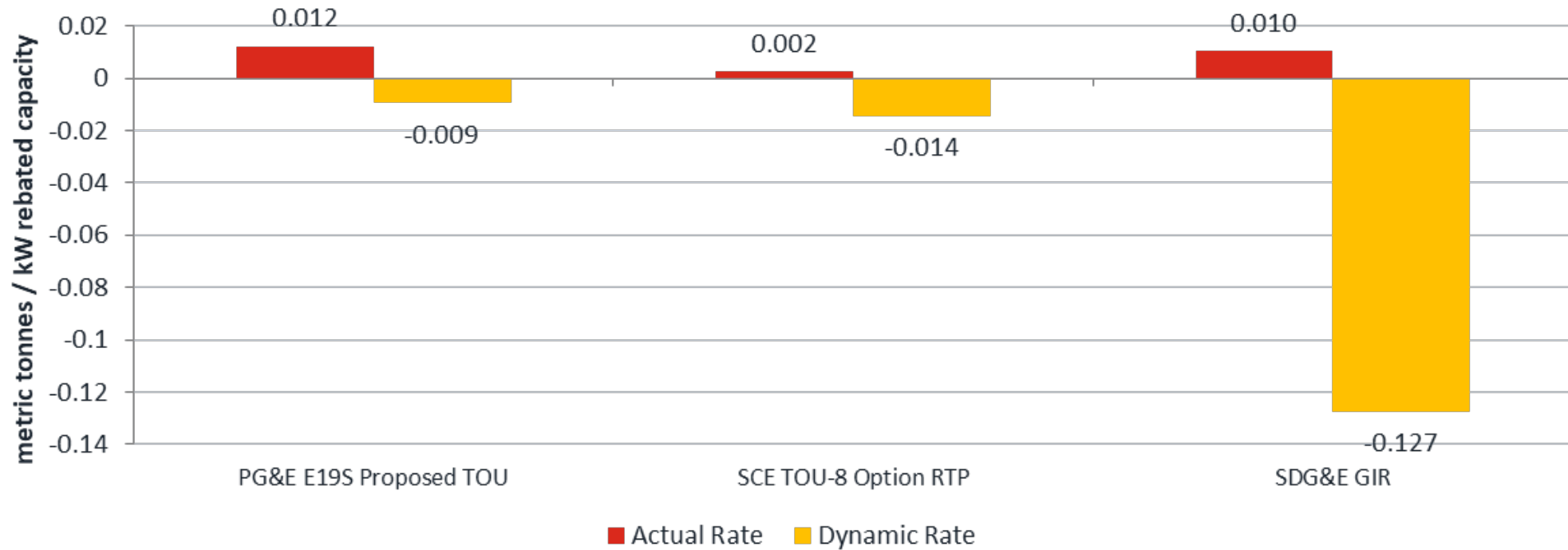
OPTIMAL DISPATCH SIMULATIONS

Greenhouse gas emissions



OPTIMAL DISPATCH SIMULATIONS

Dynamic rate analysis



THANK YOU



www.itron.com

Stakeholder Q&A



Afternoon Wrap-up



Thank you for attending the SGIP Quarterly
Workshop! Slide materials are also posted at
www.selfgenca.com

