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# Briefing: The California Self-Generation Incentive Program (SGIP)

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## 1. Introduction

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The Self-Generation Incentive Program (SGIP) offers financial incentives for distributed energy resource (DER) systems installed behind the customer meter (BTM) in California. The California Public Utilities Commission (CPUC) opened SGIP in 2001, originally incentivizing solar, biomass generation, and other on-site power sources. Today solar no longer qualifies, and the program has largely refocused on energy storage. To date, the SGIP has contributed to 336 MW of BTM energy storage in California—and it is slated to contribute more. On September 27, 2018, California Governor Jerry Brown signed [Senate Bill 700](#), which extends the administration of SGIP through 2025 and supplies an additional \$830 million in incentives for qualifying BTM technologies. With the [federal investment tax credit \(ITC\) for various DER technologies set to decline starting in 2020](#), those interested in energy storage and other DER projects in California would be wise to familiarize themselves with SGIP.

GI Energy has published this briefing as a general SGIP primer. For an in-depth assessment of SGIP potential for particular storage or DER projects in California, GI Energy encourages customers to reach out to us directly at [gienergyus.com](http://gienergyus.com). Incentive agency outreach, scenario modelling, and financial sensitivity analysis are a core competency of our Analytics and Development groups. Optimizing the combination of SGIP, federal ITC, and other incentives is often the difference between go and no-go decisions for many DER projects in California.

## 2. SGIP Program Overview

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The stated purpose of SGIP has changed since the program's inception in 2001. The program was created as a peak-load reduction program in response to the California energy crisis. In 2009, [Senate Bill 412](#) shifted the program's goal to greenhouse gas reductions. Further changes were made to SGIP in 2016 when the first-come, first-served awards system was modified to include a lottery process, and a majority of its funds were carved out for energy storage projects.

### 2.1. Incentive Structure

In June 2016, [CPUC Decision 16-06-055](#) instituted the current SGIP incentive structure. Incentive dollars are divided into “steps,” or buckets, for each Investor Owned Utility (IOU) or Program Administrator (PA). When funding in a step is fully committed, the next step commences and incentive rates per watt (W) or watt-hour (Wh) decline. There is a 20-day pause period between steps during which no new applications to the budget category are accepted.

There are separate steps for generation and energy storage categories. Energy storage technologies are allocated 75% and generation technologies 25% of incentive collections. Energy storage is further divided into small storage, large storage, and equity fund categories. Only customers within non-profit, small business, education, and government sectors are eligible to access equity funds, and equity projects must be located within [a disadvantaged or low-income community](#). CPUC allocated 25% of the energy storage

funds for this Equity Budget. Current step and incentive rates (as of January 2019) are summarized below.

### 2.1.1. Energy Storage Incentive Steps

	Residential	Large	Equity Fund – Residential	Equity Fund – Large
Current Step (SCE example, Varies by PA)	4	3	3	3
Current Incentive Rate	\$0.30/Wh	\$0.35/Wh	\$0.50/Wh	\$0.50/Wh

### 2.1.2. Generation Incentive Steps

	Wind	Other Generation	Max Bio-Gas Adder
Current Step	1	1	1
Current Incentive Rate	\$0.90/W	\$0.60/W	\$0.60/W

## 3. Eligible Technologies

SGIP provides rebates for distributed energy systems installed behind the customer meter. Eligible technologies are broken into two categories: Energy Storage and Generation technologies.

### 3.1. Energy Storage

Seventy-five percent (75%) of the SGIP incentive budget is allocated to energy storage projects. The eligibility requirements for energy storage projects are below.

#### 3.1.1. Energy Storage Eligibility Requirements

Requirement	Description
Discharge Requirements	System is capable of discharging fully, once per day. Commercial systems required to discharge a minimum of 130 times/year
Greenhouse Gas Emission Standards	Round Trip Efficiency ≥ 69.6% in the first year; 10-year average Round Trip Efficiency of 66.5%
Sizing – Extant Data	System is sized up to previous 12-month peak demand.

Sizing – New Construction/Future Load Growth	System is sized up to future peak demand, substantiation required prior to incentive payment
Sizing – HVAC Integrated and Refrigeration TES Systems	System must be sized according to tonnage of accompanying system

### 3.1.2. Energy Storage Priority Order

Should a lottery be initiated for an energy storage step, projects that meet more than one of the following criteria will have priority.

- Energy storage projects located within Los Angeles Department of Water and Power (LADWP) service territory
- Energy storage projects located within the [West Los Angeles Local Reliability Area](#) of Southern California Edison’s service territory
- Energy storage systems paired with an on-site renewable generator and claiming the Investment Tax Credit (ITC) or, if not claiming the ITC, charging a minimum of 75% from the on-site renewable generator

## 3.2. Generation

Twenty-five percent (25%) of the SGIP incentive budget is allocated to generation projects. Generation technology projects are subject to operational, sizing, and fuel requirements depending on their usage of renewable, blended, or non-renewable fuels. Blended fuels are defined as a fuel mix containing any amount of fossil fuel.

### 3.2.1. Blended Fuel Eligibility Requirements

Requirement	Description
Operating Efficiency	Satisfied by either meeting waste heat utilization or minimum electric efficiency thresholds; see <a href="#">Sample Worksheet</a> . Requirement must be met without the inclusion of renewable fuel.
NOx Emission Standard	System must not exceed standard of 0.07 lbs/MW-hr - or meets the 60% minimum system efficiency standard. See <a href="#">NOx CHP flow chart</a> .
Greenhouse Gas Emission Standard	Emission standards are based on the year in which an application is accepted. In 2019: <ul style="list-style-type: none"> <li>• CHP Systems - 10-year average of 340 kgCO<sub>2</sub>/MWh</li> <li>• Electric Systems - 1<sup>st</sup> year average of 325 kgCO<sub>2</sub>/MWh</li> </ul>
Reliability Requirements	Power factor 0.95 lagging and 0.90 leading
Capacity Factor	Wind turbine – 25%. All other generation – 80%
Fuel Blending Requirement	All gas generation technologies must blend a percentage of renewable fuel. In 2019 – 50% of fuel must be renewable. In 2020 – 100%.

### 3.2.2. Renewable Generation Eligibility Requirements

Unlike blended fuel generation, renewable generation is subject to rating and sizing criteria rather than operational requirements. Rating criteria are based on the net continuous power output of the packaged prime generator. Sizing requirements for all generation systems are established by technology category:

Wind Turbines	CHP, Pressure Reduction Turbine (PRT), Waste Heat to Power, Fuel Cells	Projects Exporting Power to the Grid
Previous 12-month annual peak demand < 333 kilowatt (kW) <ul style="list-style-type: none"> <li>May size up to 200% of annual peak demand at the proposed site</li> </ul>	May be sized up to the host customer’s previous 12-month annual peak demand at the proposed site.	May size generators based upon 125% of the last twelve months of consumption at the site. The incentivized capacity of the generator will be based upon 100% of the last twelve months of consumption.
Previous 12-month annual peak demand > 333 kW <ul style="list-style-type: none"> <li>May size up to 300% of annual peak demand at proposed site.</li> </ul>		

### 3.2.3. Generation Priority Order

In the event a lottery is triggered, generation projects shall have priority in the following order:

- First priority: Renewable projects using wind, waste heat to power, pressure reduction turbines, or 100% on-site biogas
- Second priority: 100% directed biogas
- Third priority: Blended on-site biogas
- Fourth priority: Blended directed biogas

## 4. Incentive Application Process

There are five parties to the SGIP incentive application process: the host customer, the system owner, the applicant, the payee, and the developer. See the [program handbook](#) for descriptions and responsibilities of each. All SGIP projects must obtain [a pre-approved developer](#) before application submittal.

The application portal is open each day from 1 am-12 am Pacific Time. Should a given step become oversubscribed over the course of the day, a lottery is triggered at 12 am. A project’s chance in the lottery is not dependent on the time it was submitted on the previous day. A description of the application process follows.

### 4.1. Three-Step Application Process

Projects greater than 10 kW undergo the three-step application process consisting of 1) Reservation Request, 2) Proof of Project Milestone, and 3) Incentive Claim.



### 4.1.1. Reservation Request

An online Reservation Request Form (RRF) is submitted with required attachments (these include equipment specifications, proof of utility service, monitoring plans, etc.) and an application fee equal to 5% of the requested incentive amount. Projects with multiple technologies must submit a separate application for each. Projects are reviewed in the order in which they are received. Program administrators will review documents and, if approved, issue a Conditional Reservation Letter.

### 4.1.2. Proof of Project Milestone

If a Conditional Reservation Letter is issued, Proof of Project Milestone (PPM) documents are due 90 calendar days after the Conditional Reservation date. These include a copy of the executed contract or agreement for installation, an energy efficiency audit, and proof of fuel contract for renewable fuel and waste gas projects. Upon successful review of these, the PA will issue a Confirmed Reservation Letter.

### 4.1.3. Incentive Claim

Incentive Claim Form (ICF) documents are due within 18 months of the Conditional Reservation. These include proof of authorization to interconnect, a project cost affidavit, final permits and substantiations, and final monitoring schematics for generation projects. Completed documents are submitted to the PA once the system is installed, interconnected, and operational. The PA will review and may schedule a site inspection to verify. An upfront incentive will be issued, and performance-based payments will also begin if the system capacity is greater than 30 kW.

## 4.2. Incentive Rates

Current steps, incentive rates, and collections for the various budget categories can be found on [SGIP's Program Metrics webpage](#). As of January 2019, large energy storage projects for all PAs except PG&E are in step 3, while generation projects for all PAs are in step 1.

Currently Displayed: Large-Scale Storage as of 1/28/2019

	CSE	SCE	SCG	PG&E
Step Status	Open	Open	Open	Open
Active Step	3	3	3	2
Step Opening Date	June 11, 2018	Jan. 11, 2018	March 5, 2018	June 5, 2017
Days in Step	231	382	329	602
Authorized Collections	\$14,101,755.28	\$34,226,537.27	\$9,702,057.77	\$43,925,956.50
Reallocations	\$2,146,585.78	\$4,834,026.45	\$2,362,697.44	\$5,652,021.23
Authorized Rollover	\$2,957,385.00	\$15,956,578.78	\$1,671,658.50	\$5,774,380.04
Allocated Funds	\$1,705,948.90	\$14,018,585.97	\$1,318,367.94	\$32,468,243.89
Available Funds	\$13,206,605.60	\$40,998,556.53	\$7,692,650.89	\$22,884,113.88

Figure 1: Energy Storage Collections by utility as of January 2019

Currently Displayed: Generation as of 1/28/2019

	CSE	SCE	SCG	PG&E
Step Status	Open	Open	Open	Open
Active Step	1	1	1	1
Step Opening Date	May 1, 2017	May 1, 2017	May 1, 2017	May 1, 2017
Days in Step	637	637	637	637
Authorized Collections	\$5,718,173.52	\$13,464,605.80	\$3,796,734.23	\$16,757,415.49
Reallocations	\$4,611.60	\$229,098.61	\$829,637.68	\$6,092,276.66
Authorized Rollover	\$0.00	\$0.00	\$0.00	\$0.00
Allocated Funds	\$1,316,400.00	\$7,213,662.50	\$2,164,800.00	\$4,839,450.00
Available Funds	\$4,406,385.12	\$6,480,041.91	\$802,296.55	\$18,010,242.15

Figure 2: Generation Collections by utility as of January 2019

There is an additional incentive of 20% added to the technology incentive for projects that use equipment manufactured in California. To be eligible for this adder, at least 50% of the project’s capital equipment value must be manufactured by an [Approved California Manufacturer](#). The maximum incentive amount per project is \$5 million, and no project can receive incentives that exceed the total eligible project costs. These costs may include engineering and design, permitting, etc. See the [SGIP program handbook section 3.2](#) for a list of eligible project costs.

### 4.3. Performance-Based Incentive Payment (PBI)

Projects 30 kW and larger will be paid 50% of the full incentive amount upon project completion and inspection. The remaining 50% will be paid annually over five years via a Performance-based payment. Performance measurements vary by technology in the following manner.

#### Energy Storage

$$PBI\ Payment = \frac{\$}{kWh} \times Actual\ Annual\ kWh$$

where:

$$\frac{\$}{kWh} = \frac{Remaining\ 50\% \ of\ Incentive}{Total\ Anticipated\ kWh\ Discharge/Offset}$$

where:

$$Total\ Anticipated\ kWh = Energy\ Capacity\ (kWh) \times 130\ Full\ Discharges \times 5\ years$$

#### On-site biogas, wind, waste heat to power and PRT projects

$$PBI\ Payment = \frac{\$}{kWh} \times Actual\ Annual\ kWh$$

where:

$$\frac{\$}{kWh} = \frac{\text{Remaining 50\% of Incentive}}{\text{Total Anticipated kWh Production}}$$

where:

$$\text{Total Anticipated kWh} = \text{Rated kW} \times \text{Anticipated Capacity Factor} \times \text{Hours per Year} \times 5 \text{ years}$$

Direct biogas projects will receive PBI payments plus a renewable fuel adder.

$$\begin{aligned} \text{Renewable Incentive Annual Payment} = \\ \text{Rated kW} \times \% \text{ Above Min. RN Fuel} \times \frac{\text{RN Adder Rate}}{5} \times \frac{\text{Actual Capacity Factor}}{\text{Anticipated Capacity Factor}} \end{aligned}$$

Projects that qualify for a feed-in tariff may export up to 25% of on-site consumption to the grid, on an annual basis. In this case, the PBI payment will be calculated based on generated electricity consumed on-site.

$$\text{PBI Payment} = \frac{\$}{kWh} \times \text{Generated Electricity Consumed Onsite}$$

## 5. Project Specific Factors to Consider

Applicants must understand a great deal of information before applying for SGIP funding. Further complicating this process is the reality that DER projects are increasingly less prescribed, and can vary significantly in their business proposition, design, or utility interconnection scheme. Therefore, it may be difficult to determine whether SGIP is worth pursuing for your specific project. Here is a selection of factors to consider when making the decision to apply for SGIP funding.

### 5.1. Does your project also qualify for the federal Investment Tax Credit (ITC)?

Energy storage projects that also claim the ITC will be given priority in the event of a lottery. However, energy storage technologies only qualify for the ITC if paired with renewable generation, such as solar PV or wind. This will limit the storage system's grid charging capabilities. If your battery energy storage system's business case requires discharging at hours that do not match the solar or wind availability curve, or if the business case demands more power than renewables can provide, it may be best to keep grid-charging an open option and forgo the ITC. Check out [GI Energy's post on Peak Shaving](#) for more information on demand charges and BTM battery installations.

### 5.2. If your battery project does use renewable-charging, how will you verify it?

Available incentives may increase for projects that integrate distributed energy technologies, such as solar plus storage systems, or storage paired with another type of renewable generation. As mentioned, storage projects can claim the ITC with renewable charge-pairing – and for SGIP – energy storage technologies charging with at least 75% renewable power are prioritized. However, integrated projects will require sophisticated

measurement to verify the claimed amount of renewable charging. Project owners can approach this requirement in a variety of ways including: design a metering scheme that facilitates dual resource measurement (see [AC versus DC coupled solar plus storage systems](#)) or render the system [incapable of charging from grid power](#).

### 5.3. Is your project in a disadvantaged or low-income community (DAC)?

SGIP funds in the equity budget category are notably less accessed. There are currently no authorized collections in the large residential energy storage equity category. That said, opportunities in disadvantaged communities are growing, and these projects may stand a better chance at securing a reservation. Take a look at the [CalEnviro Screen website](#) for more information on DACs.

Currently Displayed: Non-Residential Storage Equity as of 1/28/2019

	CSE	SCE	SCG	PG&E
Step Status	Open	Open	Open	Will Open Soon
Active Step	3	3	3	3
Step Opening Date	June 11, 2018	Jan. 11, 2018	March 5, 2018	TBD
Days in Step	231	382	329	TBD
Authorized Collections	\$0.00	\$0.00	\$0.00	\$0.00
Reallocations	\$3,653,321.99	\$10,948,233.85	\$2,485,328.76	\$11,051,184.57
Authorized Rollover	\$0.00	\$0.00	\$0.00	\$0.00
Allocated Funds	\$0.00	\$0.00	\$0.00	\$0.00
Available Funds	\$3,653,321.99	\$10,948,233.85	\$2,485,328.76	\$11,051,184.57

Figure 3: Non-Residential Storage Collections by utility as of January 2019

### 5.4. Will your generation technology use non-renewable fuel?

The passage of [SB 700](#) ushers in the end of SGIP funds for non-renewable generation technologies. The bill specifies that generation technologies using non-renewable fuels will not be eligible for SGIP incentives after January 1, 2020. If you have a generation project underway that plans to use non-renewable fuel, such as combined heat and power using blended biogas, time to apply for SGIP funding is running short.

### 5.5. Will your project apply for other utility incentive programs?

If you plan to apply for other incentives, available SGIP funds may be reduced depending on their source. For incentives funded by ratepayers, the SGIP incentive will be reduced by the full amount. For example, [Preferred Resources Pilot](#) participants could not concurrently claim SGIP incentives.

Utility programs that reward customers for grid exports will allow concurrent participation in SGIP, namely net energy metering and the Renewable Energy Self-Generation Bill Credit Transfer ([RES-BCT](#)) program. SGIP projects that qualify for a feed in tariff, such as NEM 2.0, may export a percentage of their output to the grid once on-site electric load

has been met. RES-BCT participants are eligible for SGIP incentives up to the total annual electrical load at the site where the generating system is located.

## 6. Additional Resources

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We hope this entry bettered your understanding of California's SGIP. Below is a selection of additional resources to further your knowledge. Please don't hesitate to contact GI Energy with questions about the applicability of SGIP to your project. GI Energy has experience leveraging incentives in order to make DER projects pencil out, especially within California. The authors can be reached at [acaryotakis@gienergyus.com](mailto:acaryotakis@gienergyus.com) and [pfalcier@gienergyus.com](mailto:pfalcier@gienergyus.com) for further discussion.

1. [CPUC - About the Self Generation Incentive Program](#)
2. [CPUC SGIP Homepage](#)
3. [CPUC SGIP Equity Budget Press Release](#)
4. [SGIP Incentive Examples](#)
5. [SGIP Resources](#)