

# 用戶端資源參與電網服務 - 以美國加州儲能為例

Brian.Huang  
2020/11/12

# 簡報內容



- 翰可國際公司介紹
- 加州SGiP介紹
- SIC USA 應用介紹

# 公司簡介

SIC



## 公司名稱

翰可國際股份有限公司 Skwentex International Corp. (SIC)



## 成立時間

1989年9月



## 資本額

2億元



## 代表者

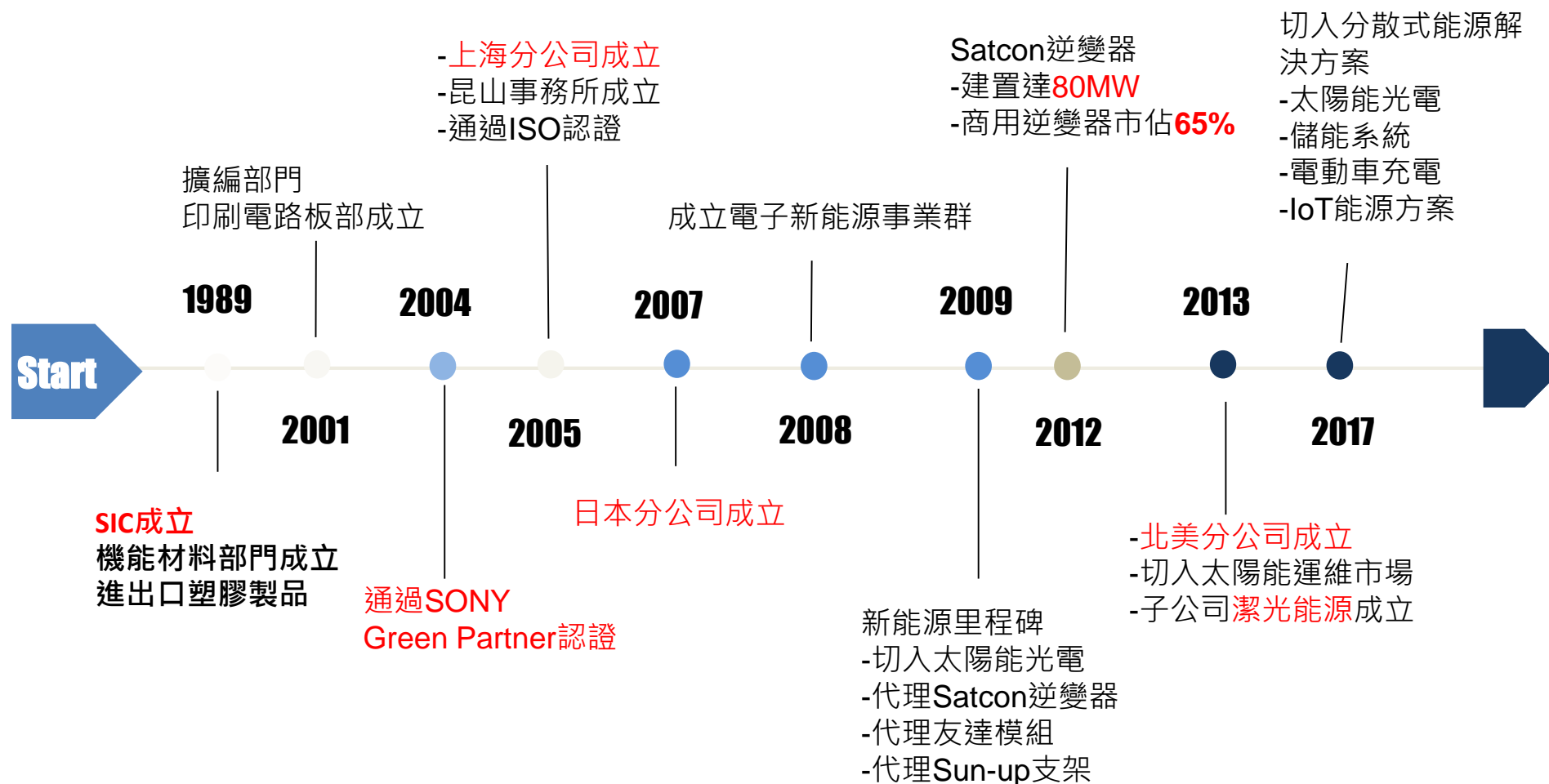
陳洋淵  
(Andy Chen)



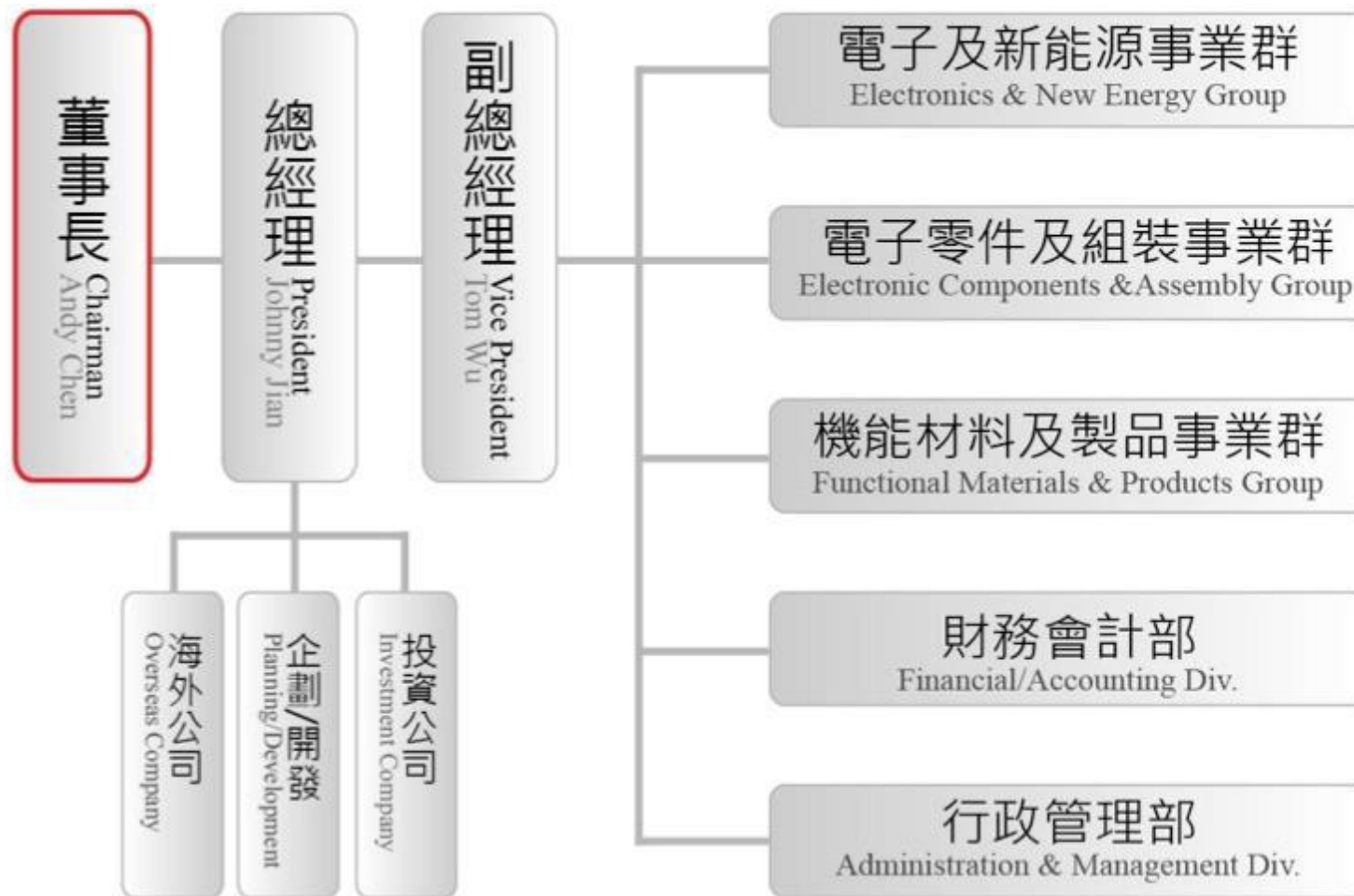
## 總公司

台灣114 台北市內湖區瑞光路  
258巷2號6樓之2

# 企業沿革-創立至今已30年



# 組織概要



# 全球營業所

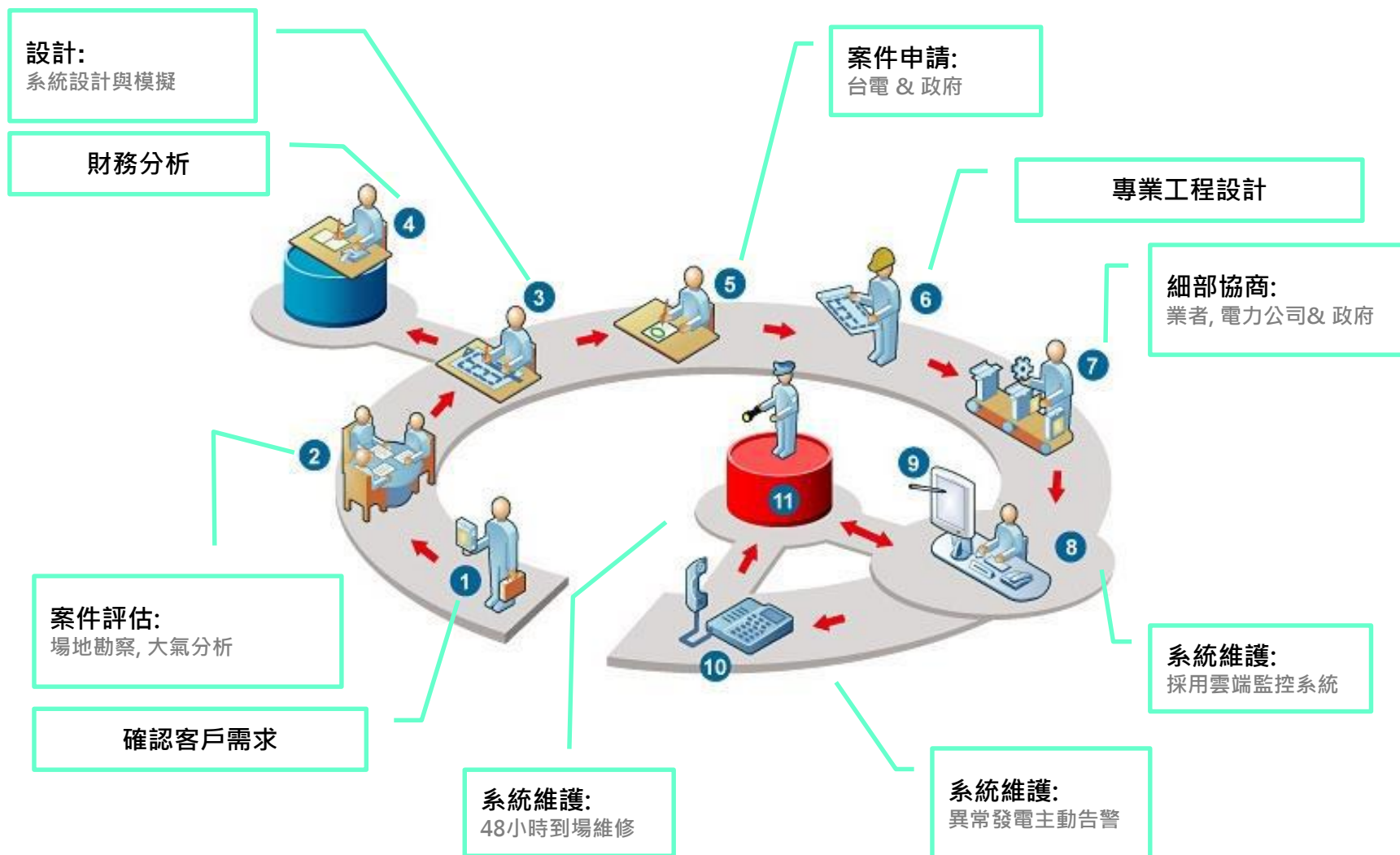
SIC



# 電 子 及 新 能 源 事 業 群

# 一站式全方位服務

SIC





# 加州 Self-Generation Incentive Program (SGiP) 介紹

# California's Climate Goals



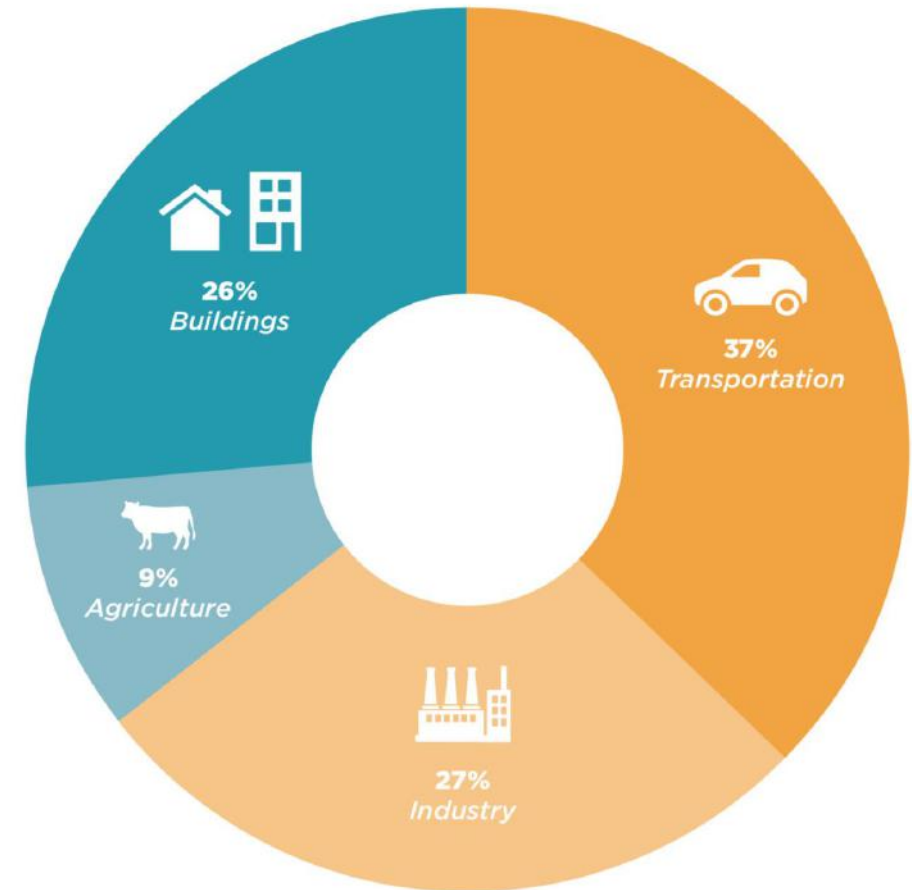
- By 2030
  - 40% below 1990 level (SB 32, 2015)
- By 2045
  - 100% zero carbon electricity (SB 100) and carbon neutral economy-wide (EO B-55-18)



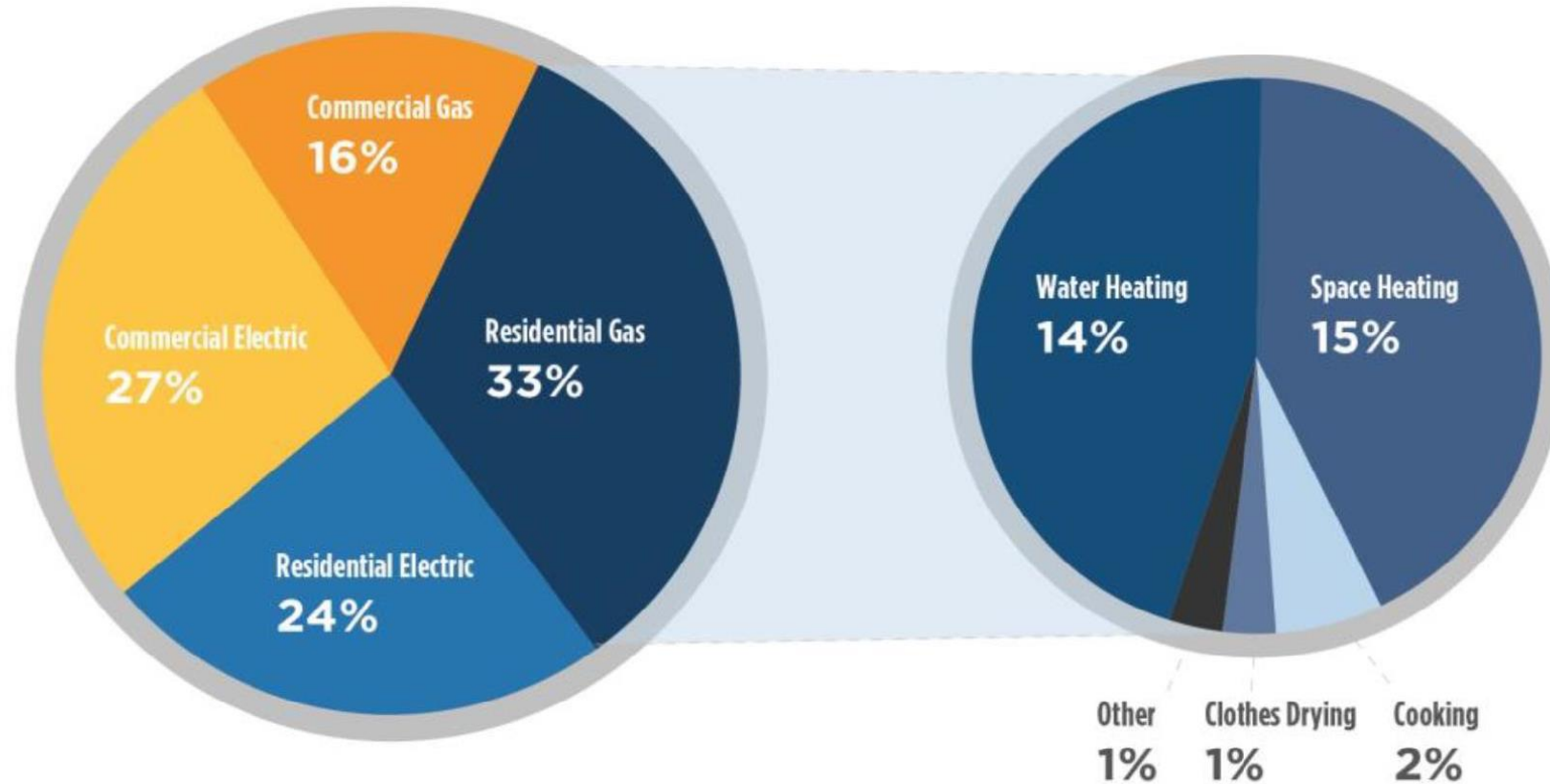
# California's GHG emissions

- Buildings 26%
- Transportation 37%
- Industry 27%
- Agriculture 9%

CALIFORNIA END USE GREENHOUSE  
GAS EMISSIONS<sup>1</sup>



# Energy Use in California Buildings



Source: California Energy Commission

# Program Administrators

SIC



# Changes to the Self-Generation Incentive Program (SGiP)

Help income qualified Californians save money  
Wildfire and Public Safety Power Shutoff (PSPS) resiliency  
Protection of medically vulnerable  
Extend benefits of energy storage technology

# Self-Generation Incentive Program (SGiP)補助 SIC



## Equity



- ~\$52 million for non-residential, ~\$31 million for residential
- Covers substantial portion of cost (around 85%) of most energy storage systems (\$.85/watt-hour)

每度電補助\$850美元  
先申請先補助・用完為止



## Equity Resiliency



- Over \$612 million in funding through 2024
- Covers full cost of most energy storage systems (\$1.00/watt-hour)
- Supports resiliency- Incentives adjusted to provide power during public safety power shutoffs and wildfire related outages.





# SGiP家用系統補助資格



Residential Equity Resiliency applicants must comply with a specified pathway under <u>both</u> criteria 1 & 2 (i.e. an option under 1 & an option under 2):			
Criteria:	Pathways for eligibility:	Description:	Additional Guidance:
1.	a) In HFTD Tier 2 or 3; or,	Located in a High Fire Threat District (HFTD) Tier 2 or Tier 3. Process initiated in D.17-01-009 and modified by D.17-06-024. <sup>1</sup>	Maps available here: <a href="https://www.cpuc.ca.gov/general.aspx?id=6442454972">https://www.cpuc.ca.gov/general.aspx?id=6442454972</a>
	b) Have experienced $\geq 2$ PSPS events.	Customers whose electricity was shut off during two or more discrete Public Safety Power Shutoff (PSPS) events prior to the date of application for SGIP incentives. <sup>2</sup>	List of circuits with two or more PSPS events posted on SGIP portal. To be updated 30 days after new PSPS event. <sup>3</sup>
<b>AND:</b>			
2.	a) Eligible for the equity budget; or,	Residential customers living anywhere in IOU service territory <sup>4</sup> but must reside in qualifying multi-family residential deed-restricted building or single-family home subject to resale restrictions or presumed resale restrictions. [See next page: <a href="#">Low-Income Residential Housing</a> ]	Residential properties in Indian Country <sup>4</sup> <b>must</b> meet definition of low-income residential housing. <sup>5</sup>
	b) Eligible for medical baseline; or,	Eligible for the medical baseline program as defined in D.86087, 80 CPUC 182.	Low-income residential housing requirements <b>do not</b> apply. <sup>6</sup>
	c) Have serious illness/condition that's life-threatening if disconnected; or,	Customer that has notified their utility of a serious illness or condition that could become life-threatening if electricity is disconnected, as defined in D.12-03-054.	Low-income residential housing requirements <b>do not</b> apply. <sup>6</sup>
	d) Have SASH, DAC-SASH, MASH, or SOMAH incentives reserved; or,	SGIP applicants who can demonstrate they have received an "incentive reserved" status in the SASH, DAC-SASH, MASH, or SOMAH programs are deemed eligible for the SGIP equity budget.	Incentive reservation letter or equivalent documentation verifying that applicant is approved to participate in listed programs is <b>sole documentation needed</b> . <sup>7</sup>
	e) Household reliant on electric pump wells for water supplies. <sup>8</sup>		No additional criteria, e.g. low-income residential housing requirements <b>do not</b> apply. <sup>9</sup>



# SGiP非家用系統補助資格



Criteria:	Pathways for eligibility:	Description:	Additional Guidance:
1.	a) In HFTD Tier 2 or 3; or,	Located in a High Fire Threat District (HFTD) Tier 2 or Tier 3. Process initiated in D.17-01-009 and modified by D.17-06-024. <sup>12</sup>	Maps available here: <a href="https://www.cpuc.ca.gov/general.aspx?id=6442454972">https://www.cpuc.ca.gov/general.aspx?id=6442454972</a>
	b) Have experienced $\geq 2$ PSPS events;	Customers whose electricity was shut off during two or more discrete Public Safety Power Shutoff (PSPS) events prior to the date of application for SGIP incentives. <sup>13</sup>	List of circuits with two or more PSPS events posted on SGIP portal. To be updated 30 days after new PSPS event. <sup>14</sup>
<b>AND:</b>			
2.	Is a critical facility or critical infrastructure provider. <sup>15</sup>	Police stations; fire stations; emergency response providers with the addition of tribal government providers; emergency operations centers; 911 call centers (also referred to as Public Safety Answering Points); medical facilities including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers and hospice facilities; public and private gas, electric, water, wastewater or flood control facilities; jails and prisons; locations designated by the IOUs to provide assistance during PSPS events; cooling centers designated by state, local or tribal governments; homeless shelters supported by federal, state, local, or tribal governments; grocery stores, corner stores, markets and supermarkets that have average annual gross receipts of \$15 million or less as calculated at the single location applying for SGIP incentives over the last three tax years; independent living centers; and food banks.	
<b>AND:</b>			
3.	a) Provides critical services or infrastructure to one or more communities in a Tier 3 or Tier 2 HFTD or a community with customers whose electricity was shut off during 2 or more discrete PSPS events, <b>AND</b> b) at least one of those communities is eligible for the equity budget.	Equity budget eligible community refers here to a disadvantaged community or low-income census tract as defined in D.17-10-004 or California Indian Country as defined in D.19-09-027.	

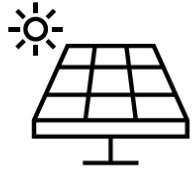
# SGiP非家用與家用系統補助資格摘要



## Equity Residential

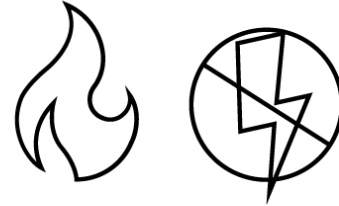


Live in affordable housing

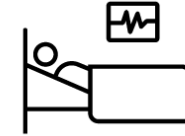


Income qualified solar participation

## Equity Resiliency Residential



Live in High Fire Threat Districts Tier 2 or 3 or have experience two or more PSPS



Medical Condition

## Equity Non-residential



Government, educational, small business, or nonprofit



In Disadvantage Community, or MHI < 80% of CA MHI

## Equity Resiliency Non-residential



Independent Living Center  
Food bank, grocery store



Critical infrastructure provider



California Public  
Utilities Commission

## Everything you need to know about the extension of the ITC



## 家用系統

- 座落在常停電區
- 2020年底前完成
- 10kW 太陽能系統
- 20kWh 電池系統
- 案件總金額 \$50,000

## 補助試算

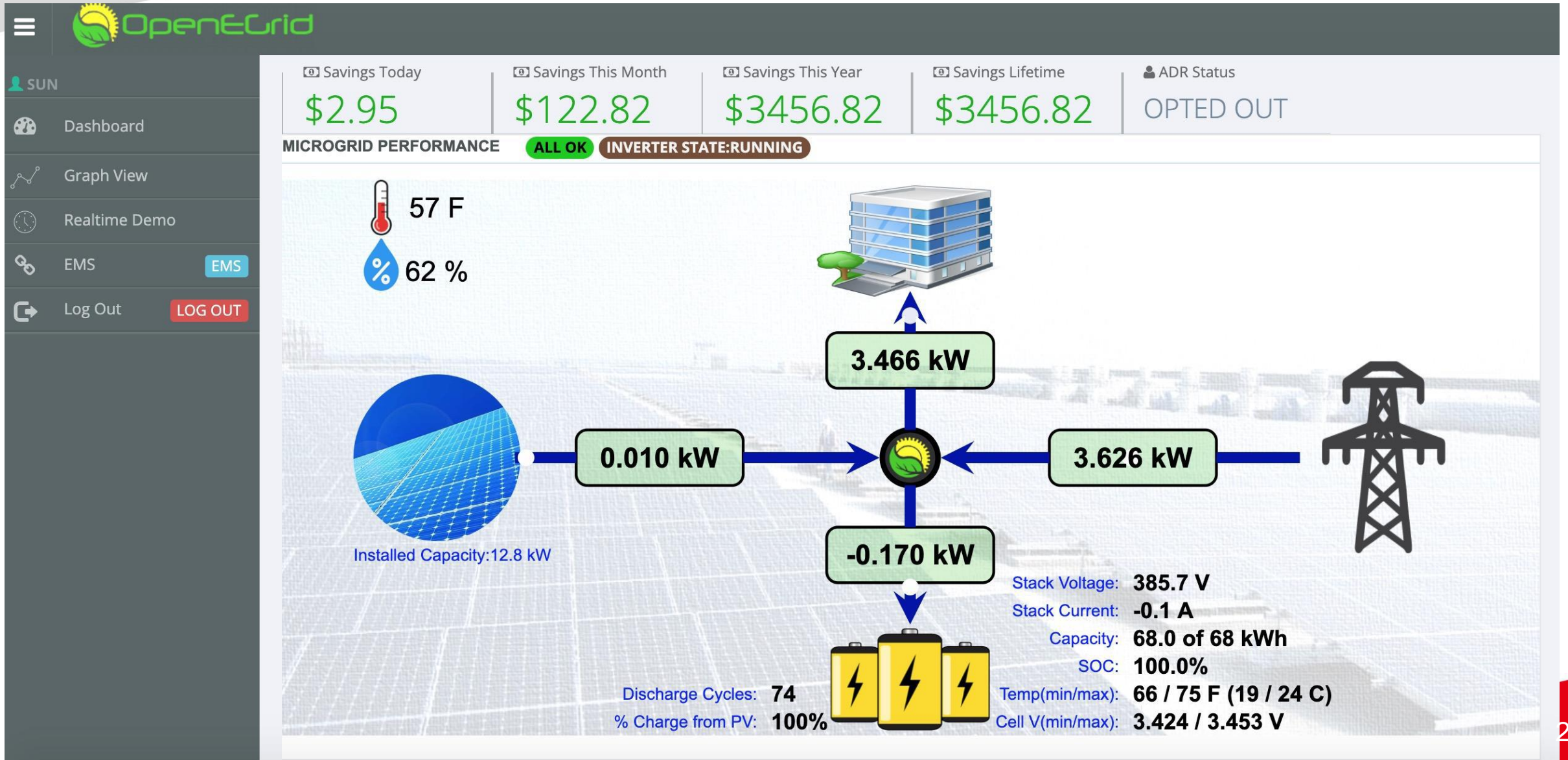
- 電池補助：20kWh x \$850 = \$17,000
- 案件IRS退稅補助：\$50,000 x 26% = \$13,000
- 以上合計：\$30,000
- 自行負擔：\$20,000

- 美國加州Rule21要求所有在2020年併網的inverter必須要IEEE 2030.5 compliance
  - 接受電網調度
  - 調度包含輔助服務
    - Frequency Regulation
    - Voltage Regulation
    - Spinning Reserve
    - Demand Response



# EMS系統畫面

SIC



# EMS系統畫面

SIC

Savings Today

\$2.95

Savings This Month

\$122.82

Savings This Year

\$3456.82

Savings Lifetime

\$3456.82

ADR Status

OPTED OUT

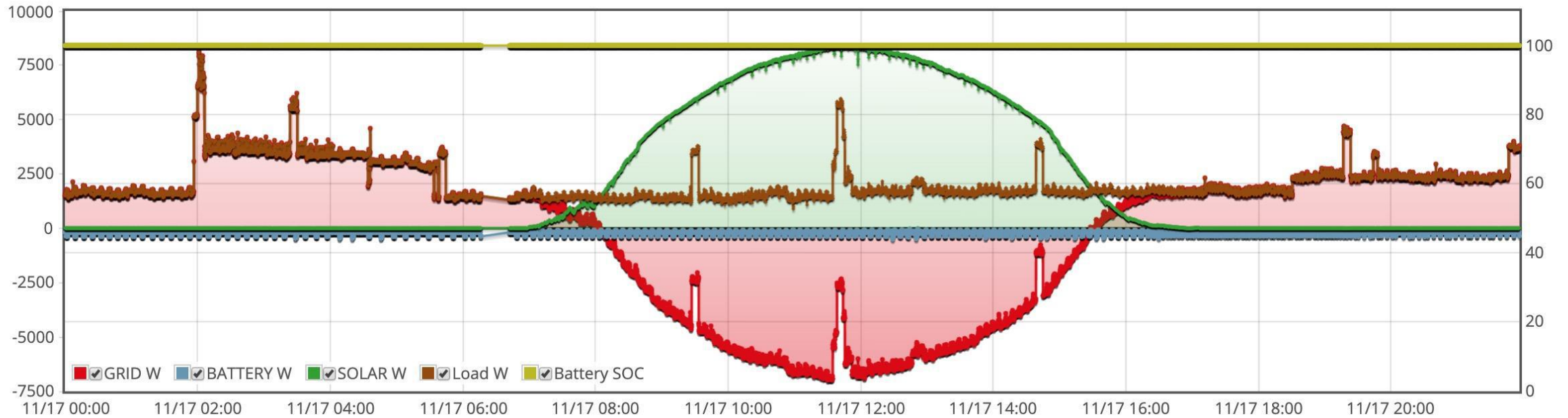
MICROGRID PERFORMANCE

ALL OK

INVERTER STATE: RUNNING

BATTERY TEMP (MIN/MAX): 19/24 C

DATE: 11/17/2019



STORAGE



SOLAR



GRID



BATTERY CURRENT

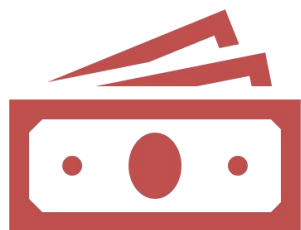


BATTERY VOLTS



BATTERY CAPACITY





天下沒有白吃的午餐

內部 vs. 外部成本



有目標以外，相關的配套也要有

法令要先建立及開放

沒有錢是萬萬不能