California Solar Initiative
Progress Report
2013 Annual
Data Annex

June 18, 2014

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This report was compiled by the California Solar Initiative (CSI) Program Administrators (PA or PAs) – Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and the California Center for Sustainable Energy (CCSE) – pursuant to direction from the California Public Utilities Commission (CPUC or Commission).

1 Introduction and Background:

The original step allocations and megawatt (MW) goals were divided among the three investor-owned utilities (IOUs) according to the proportion of their respective electricity sales. The goals and budgets were determined by each utility's percentage of electricity sales compared to the total of all three IOUs sales. These allocated percentages are:

Program Administrator	Allocated Percent (%)
PG&E	43.7
SCE	46.0
SDG&E	10.3

Pursuant to Senate Bill 585 an additional $200 million was allocated to PG&E, SCE, and SDG&E using the allocation percentages as adopted by the Commission through the Decision (D.) 11-12-019. Moreover, Table 1 shows the CSI general market M&O budget of $15 million is equally split ($5 million each) among three PAs.

Table 1. CSI General Market Budget and Allocation by Utility

		Allocation by Utility		
Program Component	Total Budget	PG&E	SCE	SDG&E
D.06-08-028 allocation	100.00%	43.70%	46.00%	10.30%
General Market Program Incentives	$1,747,810,000	$763,792,970	$803,992,600	$180,024,430
SB 585 Budget Increase*	$200,000,000	$114,000,000	$64,000,000	$22,000,000
Total Incentives	**$1,947,810,000**	**$877,792,970**	**$867,992,600**	**$202,024,430**
Program Administration	**$94,860,000**	**$41,453,820**	**$43,635,600**	**$9,770,580**
Total Measurement & Evaluation (M&E)	**$26,700,000**	**$11,667,900**	**$12,282,000**	**$2,750,100**
M&O, general market CSI**	$15,000,000	$5,000,000	$5,000,000	$5,000,000
M&O, CSI-Thermal Electric Only	$6,250,000	$2,731,250	$2,875,000	$643,750
Total Marketing and Outreach (M&O)	**$21,250,000**	**$7,731,250**	**$7,875,000**	**$5,643,750**
Unallocated	**$6,900,000**	**$3,015,300**	**$3,174,000**	**$710,700**
Total General Market Program	***$2,097,520,000***	***$941,661,240***	***$934,959,200***	***$220,899,560***

Source: CPUC Decision (D.) 11-12-019 issued December 12, 2011.
Notes: *The original allocation percentages are not applicable to the SB 585 budget increase.
**The CSI General Market M&O budget was adopted in D.11-07-031.

2 Administrative Performance

The CPUC tracks a number of administrative metrics in order to monitor potential program administration issues. In particular, the CPUC is interested in application and payment processing times, including the amount of time needed to move projects from: application to project completion, application to reservation, reservation to installation, incentive claim request to payment approval, and from payment approval to payment issued. Additionally, the CPUC monitors the average number of days for interconnection applications to be completed.

2.1 CSI Program and Interconnection Metrics

Reported metrics are described in the section below. For more detail definitions, please visit http://csi.powerclerk.com/ProgramDocs/CSI/PowerClerk_Status_Info.pdf.

2.1.1 Project Completion Time

Project Completion is measured from time between "First Reservation Request Review Date" to either "First Completed Date" or "First PBI-In Payment Date" in calendar days for all projects completed through December 31, 2013. These times reflect both the PA processing times and host customer responsiveness to inquiries, requests for additional data and inspection scheduling. The data in the figures below is divided by residential and non-residential customer projects completed in each given month, for each PA.

2.1.2 Application to Reservation Time

The PAs strive to process reservation requests in 30 days or less for both residential and non-residential customer applications. Application to Reservation includes the application processing time, from the date the application is electronically received through PowerClerk and time-stamped to the date that a reservation is granted (either “first reservation reserved” status or “first pending RFP” for non-residential applications or “first confirmed reservation” status for residential applications). This time period includes both PA application processing time and the time that the host customer takes to respond to requests for more information or application corrections.

2.1.3 Installation Time

The average installation time is determined by the applicant and not the PA. Residential applicants have 12 months and non-residential applicants have 18 months from the date of the confirmed reservation to submit an Incentive Claim Form (ICF). In certain cases applicants request and may be granted extensions. Installation times also vary according to residential and non-residential projects. The average number of calendar days is measured between the customer’s confirmed reservation date and the date that the ICF was received by the PA, for all applications for which an ICF was received.

2.1.4 ICF Processing Time (without Inspection)

For CSI Program participants, incentive claim processing is an extremely important part of the project timeline. Incentive Claim Processing (without Inspection) measures how quickly incentive claims are processed for different types of projects, from the date that

the ICF is electronically received and time-stamped, through PowerClerk by the PA, to the date that the application is changed to "pending payment" status.

2.1.5 ICF Processing Time (with Inspection)

Incentive Claim Processing (with Inspection) measures how quickly incentive claims are processed for different types of projects, from the date that the ICF is electronically received and time-stamped, through PowerClerk by the PA, to the date that the application is changed to "pending payment" status. After the ICF is submitted, the PA selects a random sampling of projects for on-site field inspection, during which inspectors verify that the installed system matches the system identified in the paperwork. As scheduling and inspection times often vary, projects identified for inspection are sorted into groups that were or were not inspected.

2.1.6 Payment Time

Payment time is measured from the time a project enters "Pending Payment" status to when it reaches either "Completed" or "PBI-In Payment" status. This reflects the amount of time it takes to issue payment to the applicant.

2.1.7 Interconnection Time

Interconnection is measured from the date the utility's interconnection department deems the interconnection application to be complete (e.g., final single line diagram, final building permit, etc.) to the date the "permission to operate" letter is issued. This time is generally under the utility's control and does not depend on additional inputs from other entities, such as cities, counties, etc. However, exogenous factors such as customer availability, adverse weather conditions, or unexpectedly high volume of applications may impact this process.

2.2 Standards of Performance

Decision (D.) 11-07-031 requires PAs to process 95% of applications within a specified number of calendar days, depending on whether the application was for a residential or non-residential system, and whether an inspection was required. Please refer to Table 2 below.

Table 2. Application Processing Guidelines

PA Action	Residential Systems	Non-Residential Systems
Reservation Issued	30 days	60 days
ICF Claim Processed (no inspection)	30 days	60 days
ICF Claim Processed (with inspection)	60 days	90 days
Incentive Paid after ICF claim approval	30 days	30 days

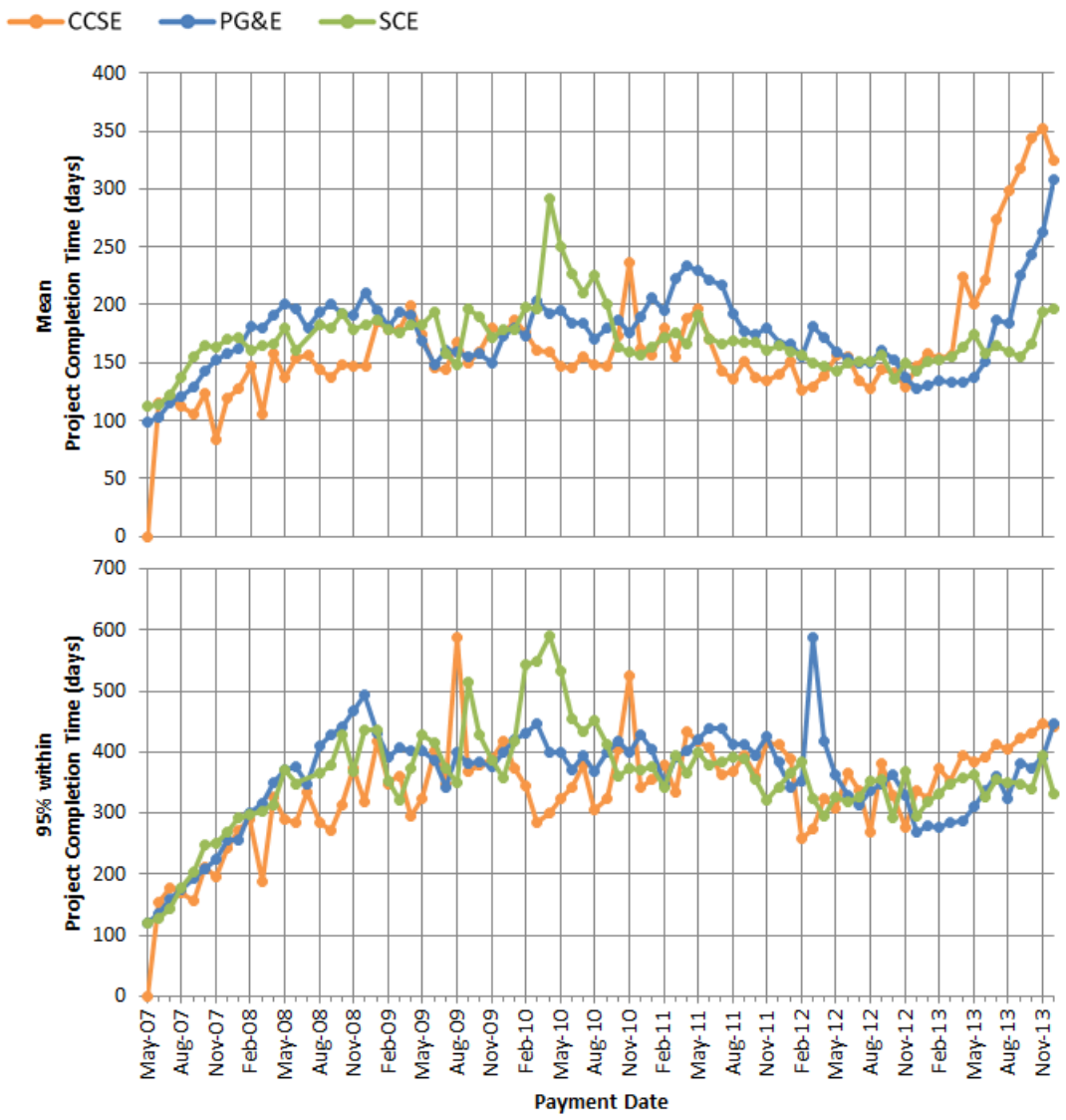
Source: CPUC Decision (D.) 11-07-031 issued July 20, 2011.

2.3 Real-time Tabular Data

The six metrics described in section 2.1 are available and updated every Wednesday on California Solar Statistics at www.californiasolarstaticstics.ca.gov

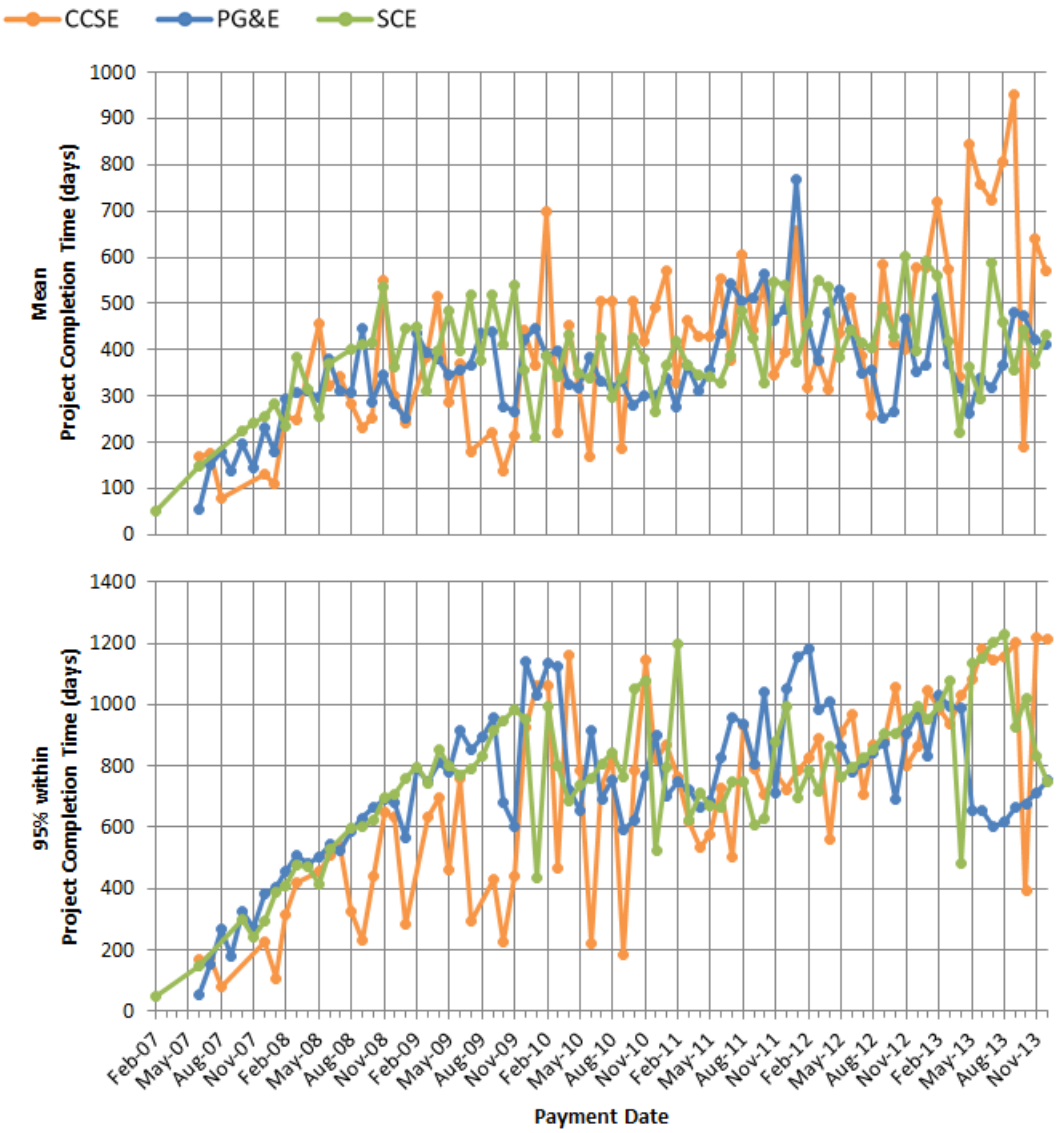
2.4 Graphics for CSI Residential and Non-Residential Program Metrics

Figure 1. Residential Project Completion Time



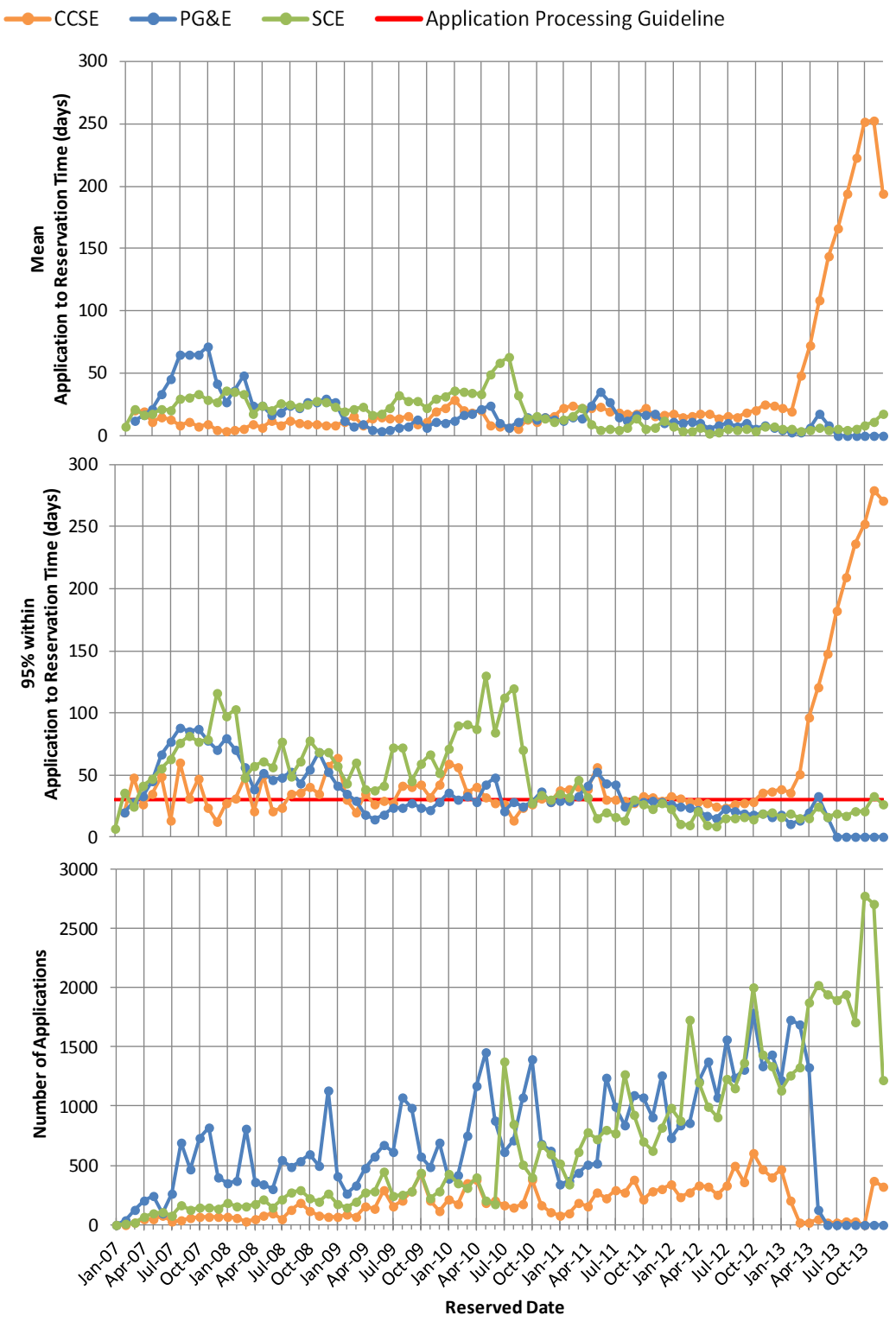
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 2. Non-Residential Project Completion Time



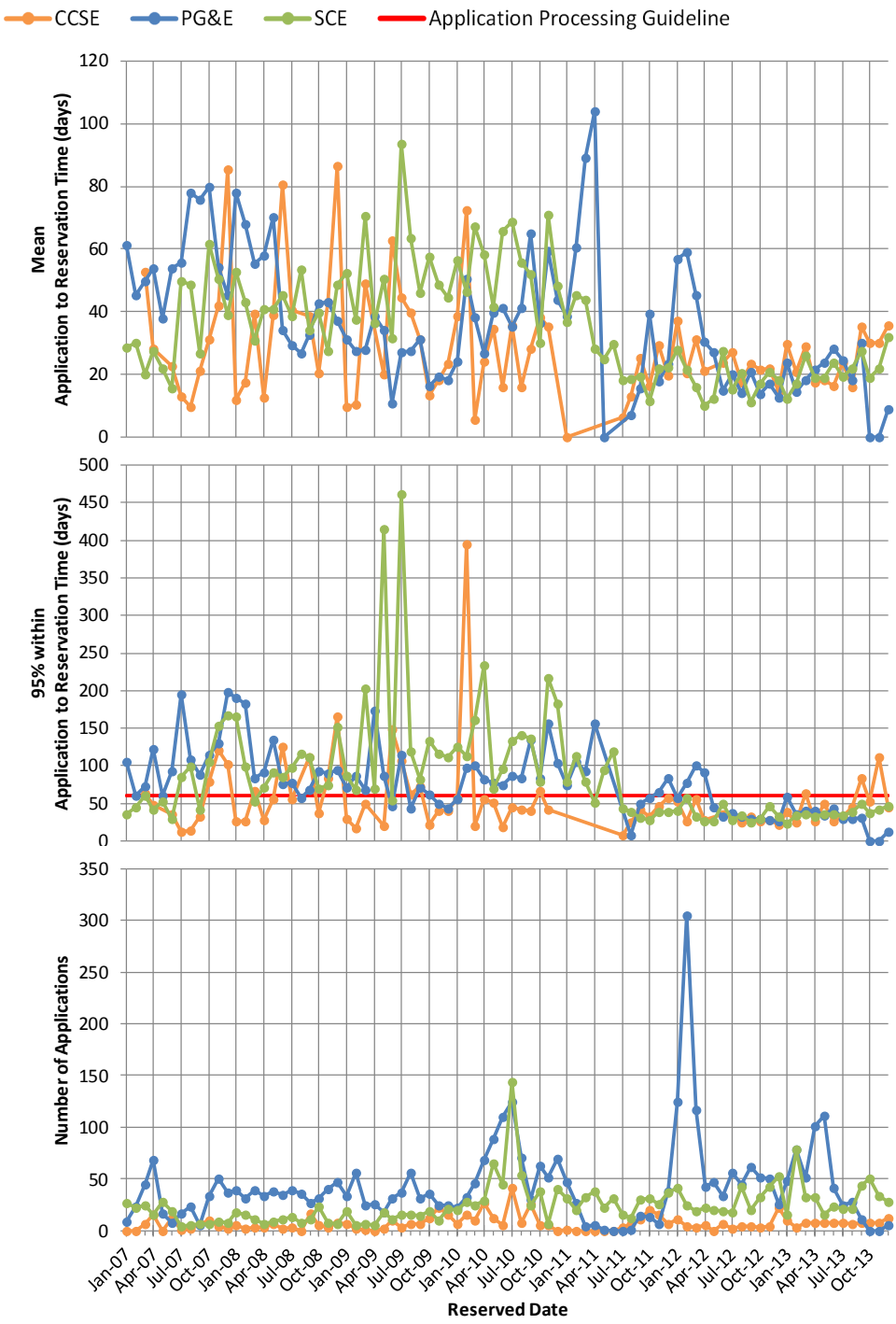
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 3. Residential Application to Reservation Time



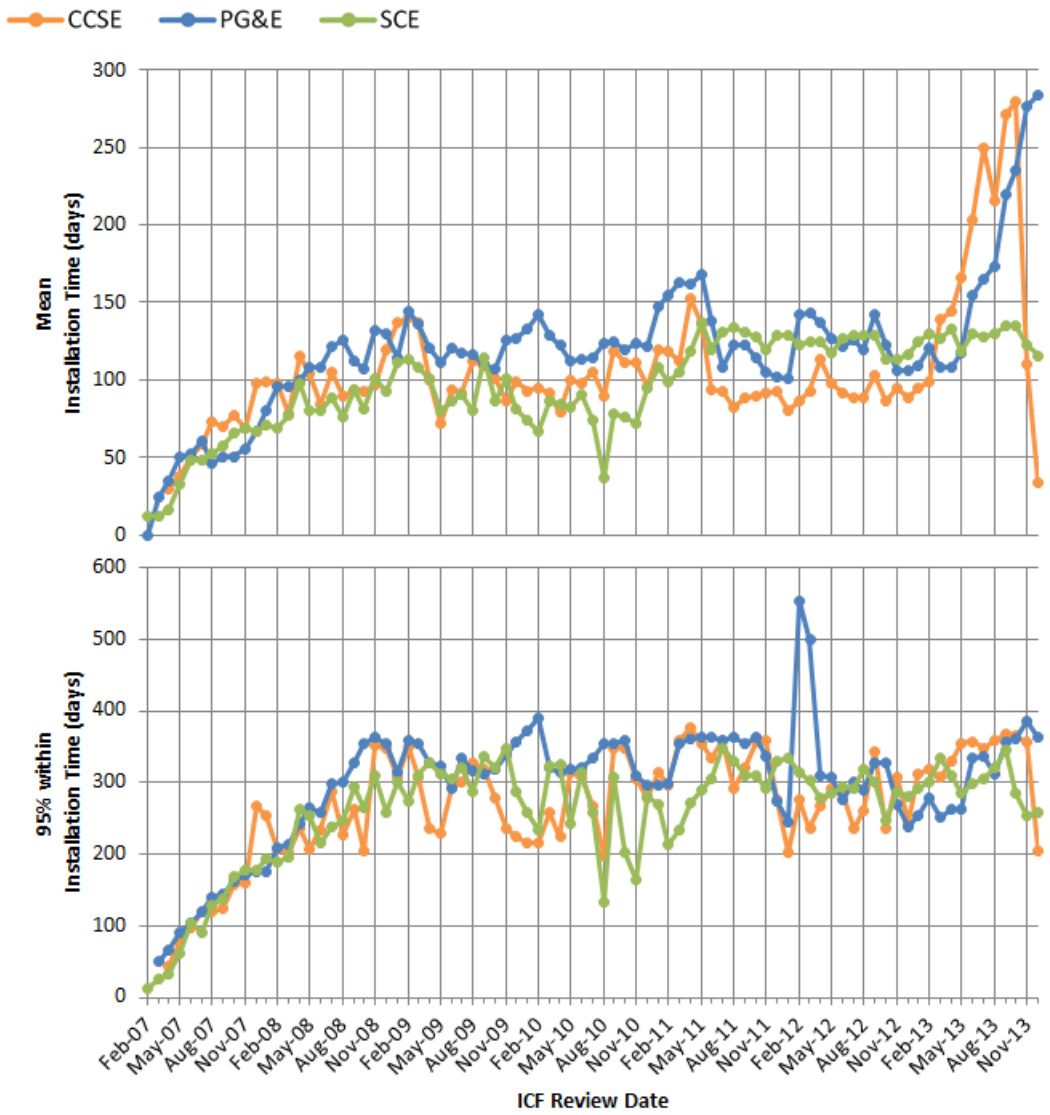
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric. Number of applications represents total number of applications reserved in a given month.

Figure 4. Non-Residential Application to Reservation Time



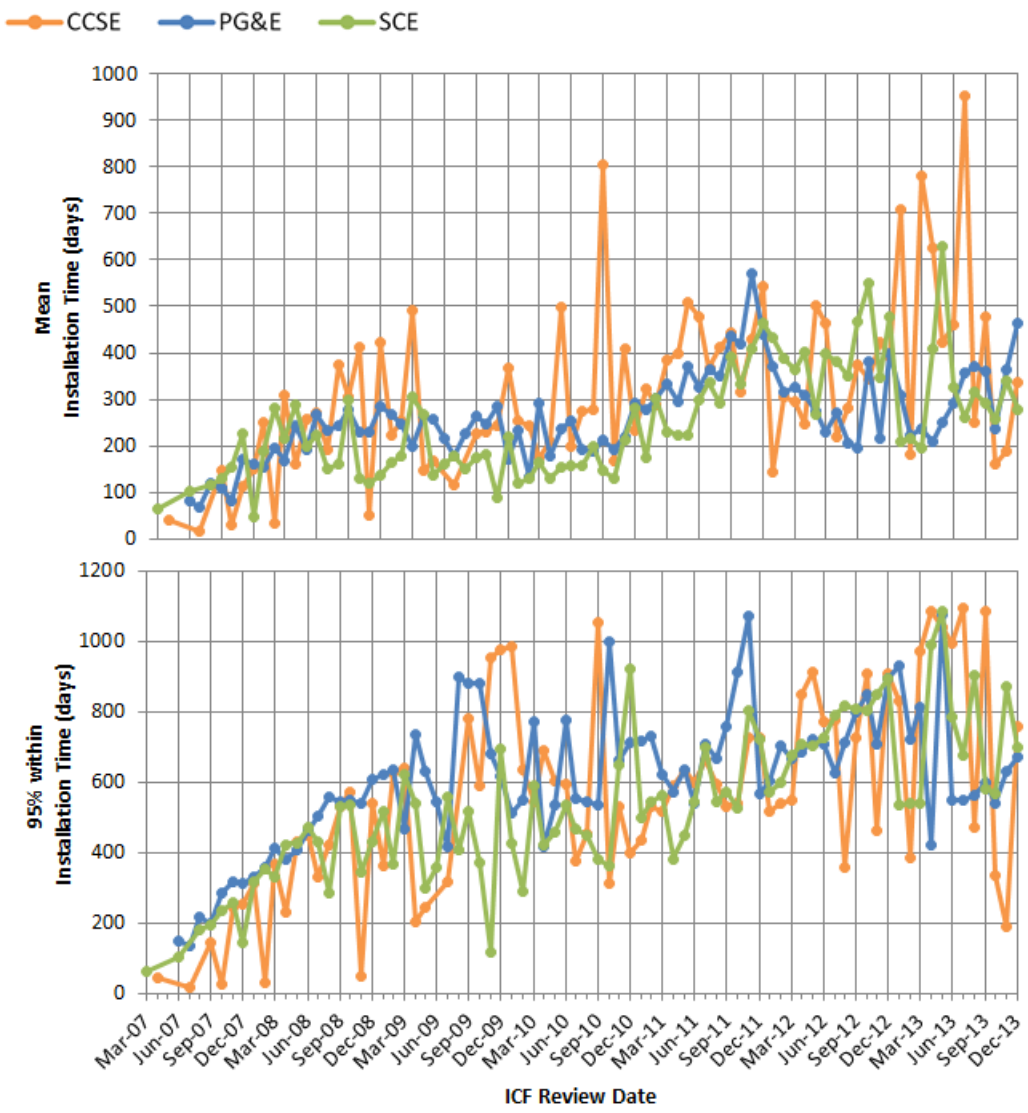
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 5. Residential Installation Time



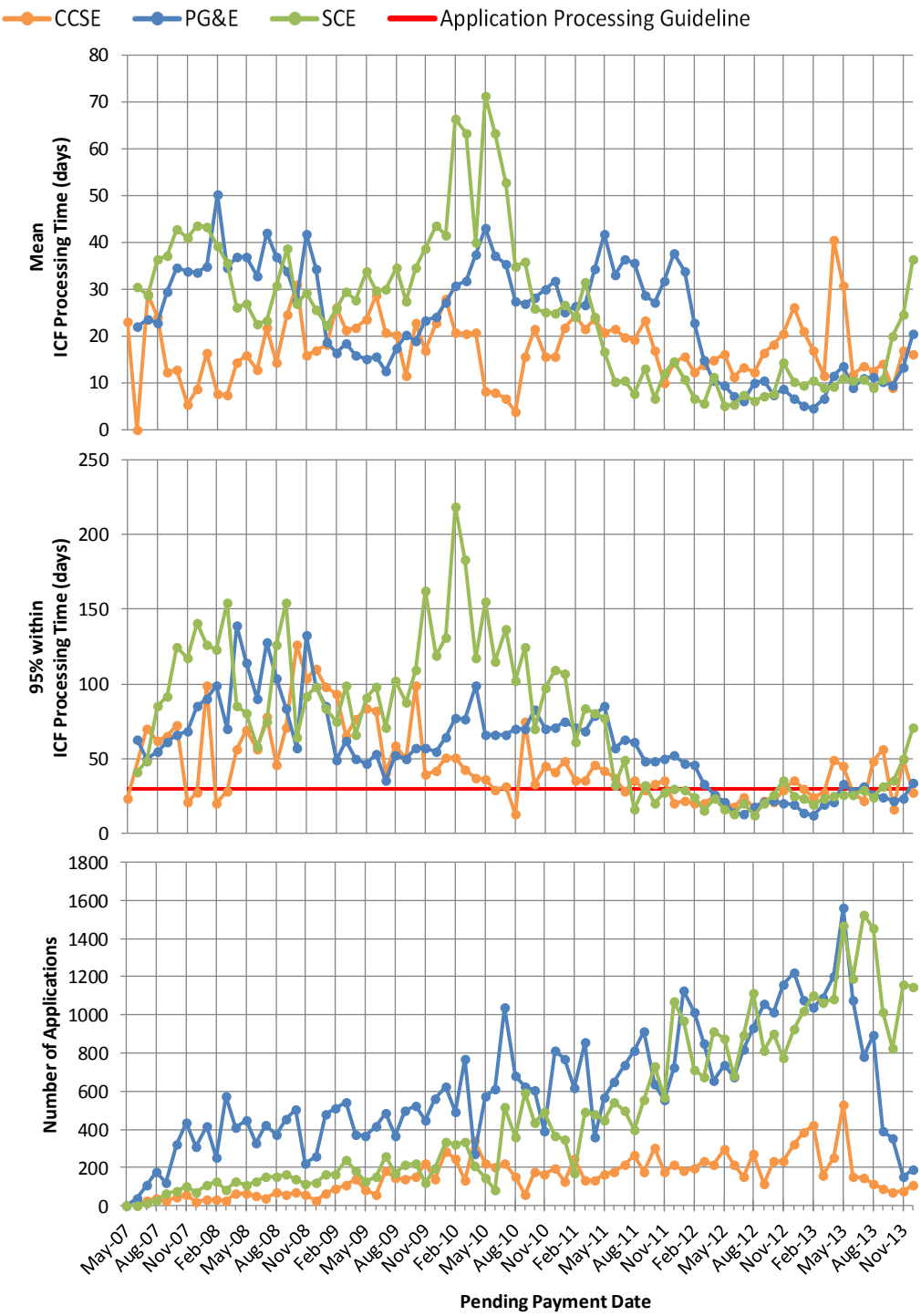
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 6. Non-Residential Installation Time



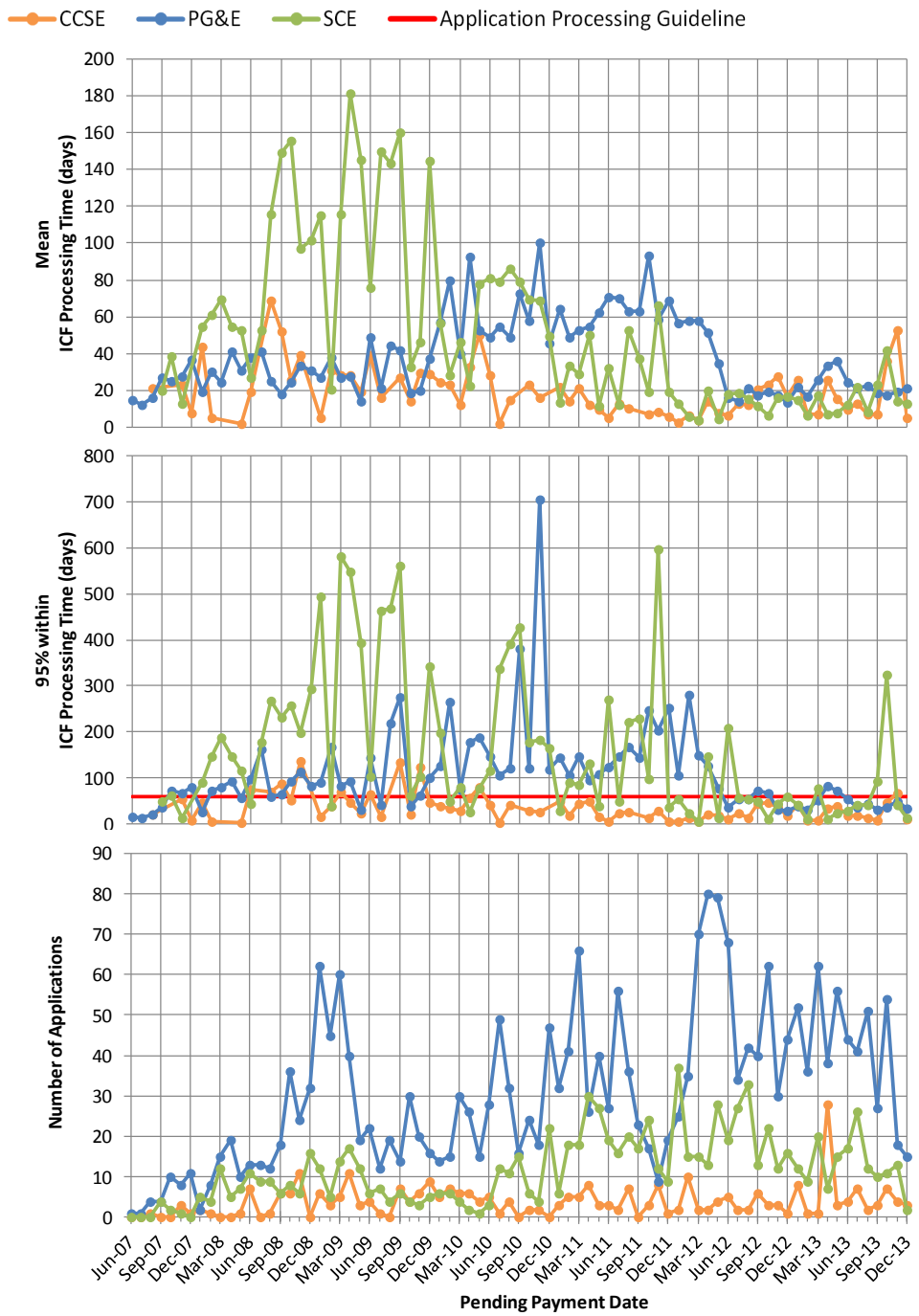
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 7. Residential ICF Processing Time without Inspection



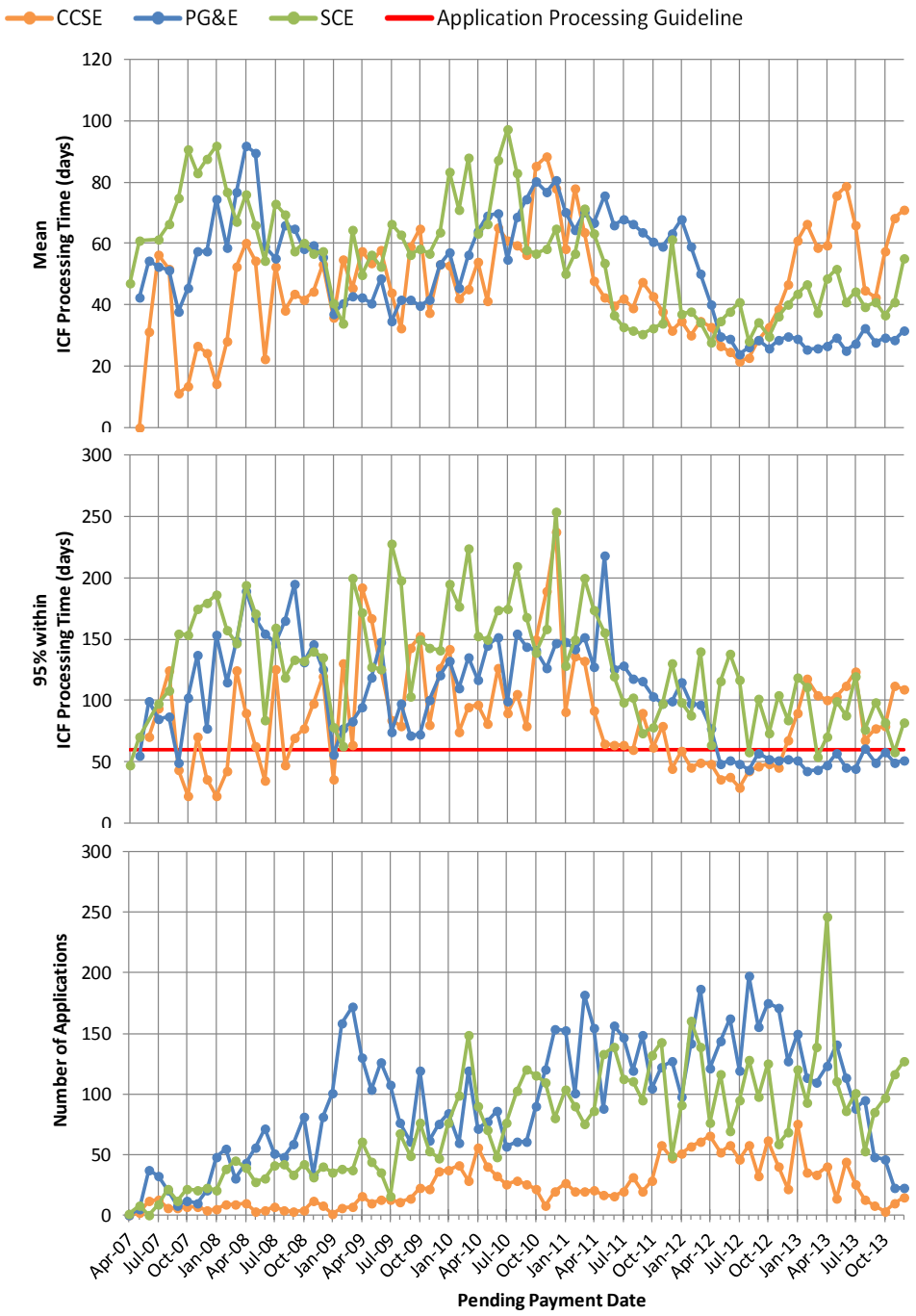
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric. Number of applications represents total ICF applications processed to pending payment in a given month.

Figure 8. Non-Residential ICF Processing Time without Inspection



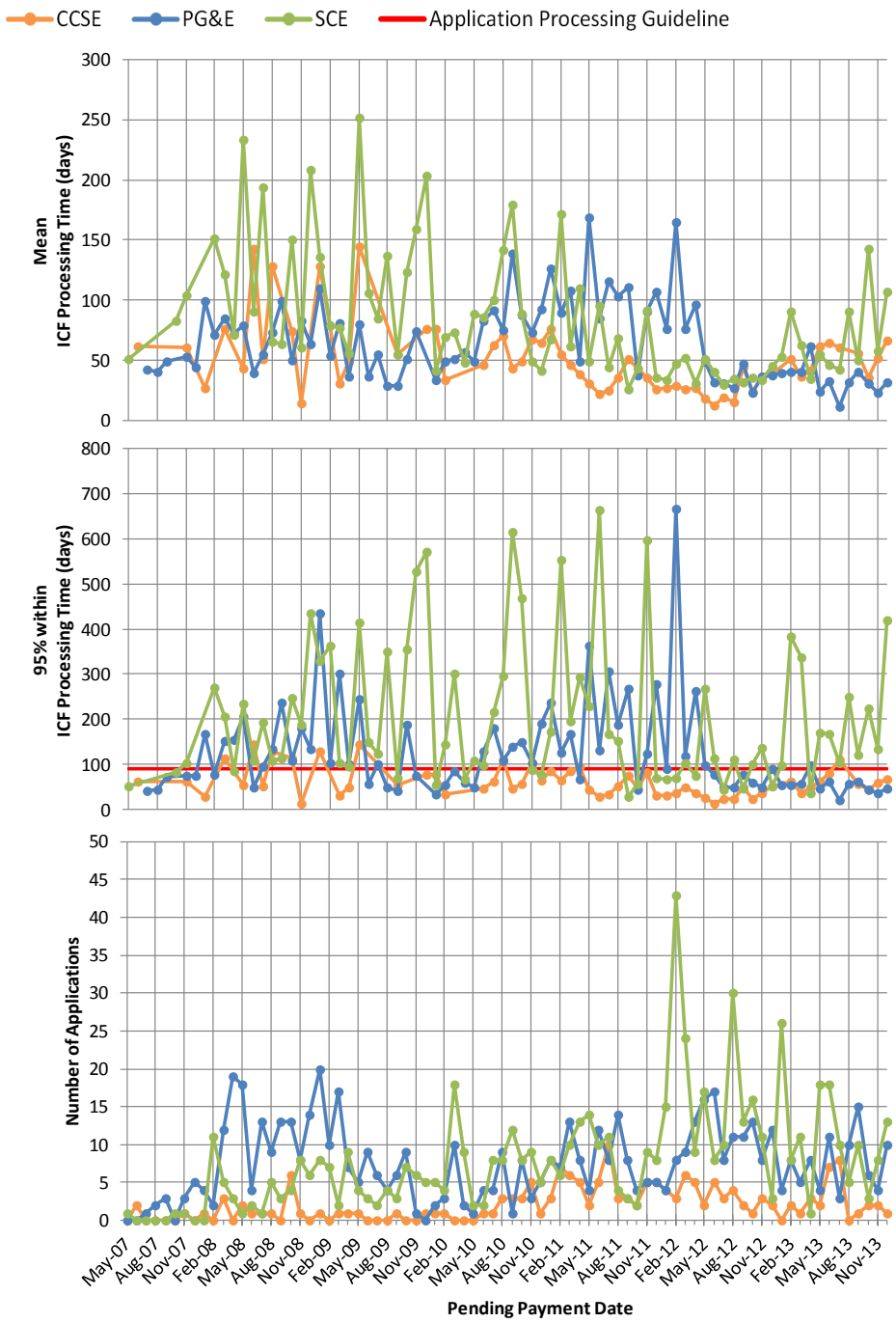
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 9. Residential ICF Processing Time with Inspection



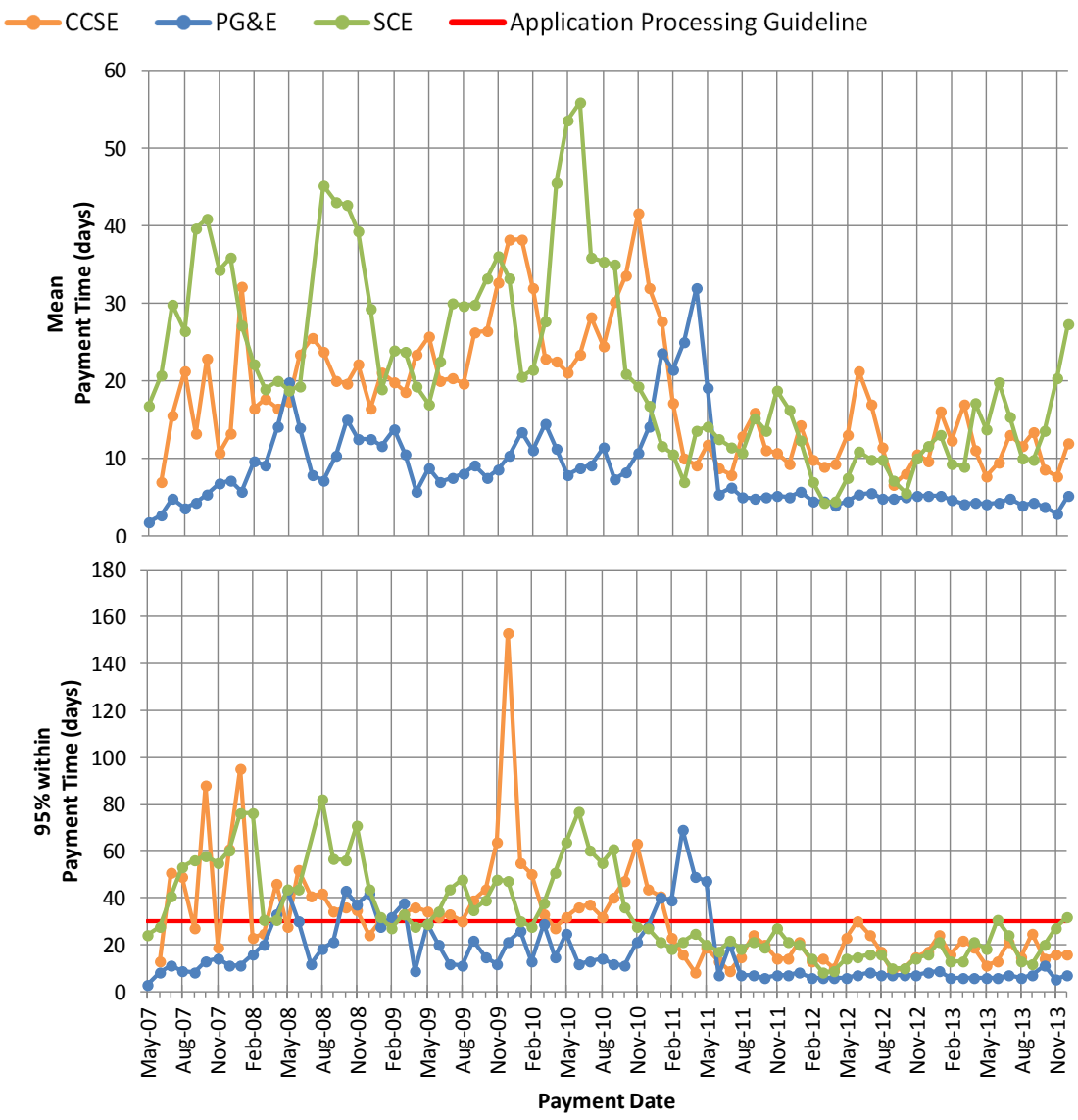
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 10. Non-Residential ICF Processing Time with Inspection



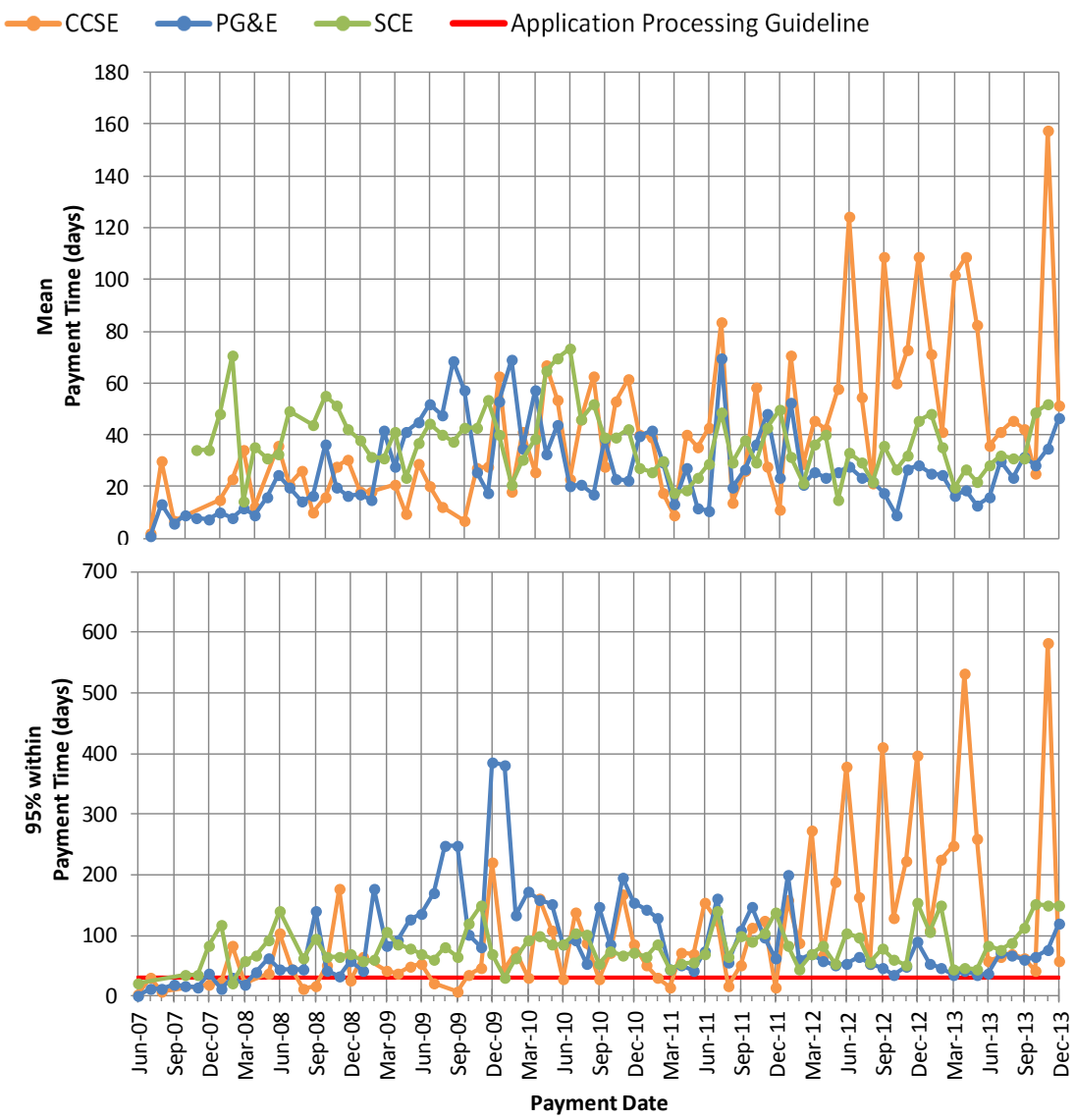
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 11. Residential Payment Time



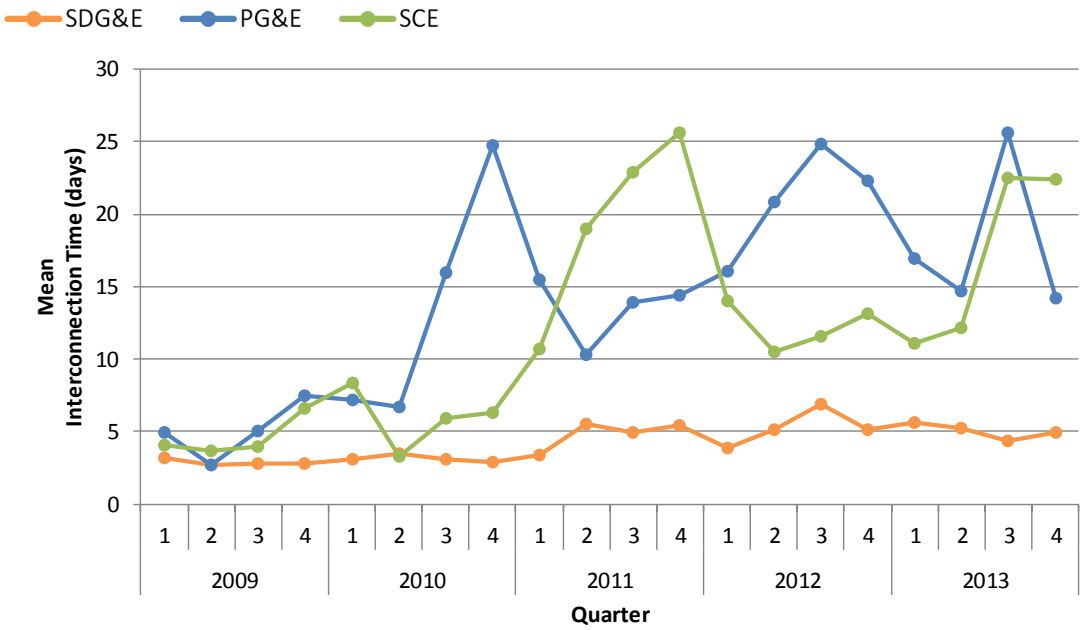
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 12. Non-Residential Payment Time



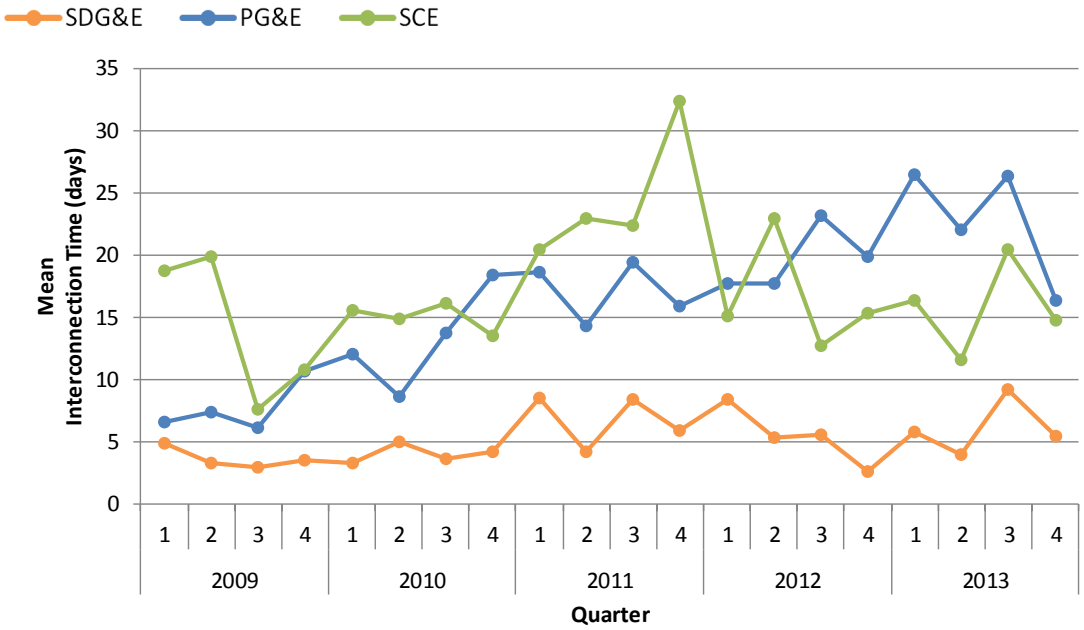
Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 13. Residential Interconnection Time



Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

Figure 14. Non-Residential Interconnection Time



Source: Data from California Solar Statistics at www.californiasolarstatistics.ca.gov
Notes: Data markers are displayed only for months in which at least one application was processed for a given administrative metric.

2.5 Factors Affecting Administrative Performance

The first list describes the factors affecting administrative performance from application to reservation. Applications for which the PA takes more than 60 days to grant a reservation typically have a problem. Problems encountered in these applications include, but are not limited to:

- Mailing address is different from the project site address
- Missing signatures
- Missing or incomplete documentation
- Slow customer responsiveness

The next list describes the factors affecting administrative performance during incentive claim processing. Applications for which the PA takes more than 90 days to process the incentive claim typically have a problem. Problems encountered with applications at the ICF stage include, but are not limited to:

- Mailing address is different from the project site address
- Missing signatures
- Missing or incomplete documentation
- Slow customer responsiveness
- Staffing short-fall
- Increase in residential application volume
- Approaching the end of incentive funding for residential systems
-

Factors influencing CCSE's Administrative Performance:
Since 2012, CCSE faced a precarious situation with residential incentive processing for a number of reasons. First, in August of that year, CCSE filed to the CPUC a Petition to Modify (PTM) that asked the Commission to, among other things, allow CCSE to reallocate 25.2 MWs and the corresponding incentives from the non-residential sector goals over to the residential sector. CCSE felt this was necessary due to a higher than anticipated inflow of government/non-profit projects, that are paid at a higher incentive rate compared to commercial projects, CCSE calculated that if the trend continued it would fall significantly short in reaching its non-residential MW goal of 120 MWs. With the burgeoning residential market, CCSE felt it could supplement the lack of MWs received from the non-residential sector with increased MWs from the residential sector. In the process of waiting for a decision on the PTM, CCSE exhausted its residential incentive funds in January 2013. At that time a waitlist was started in hope that CCSE's PTM would be approved quickly by the CPUC. CCSE accrued nearly 5 MWs of waitlisted projects which equated to nearly 900 projects by the time the PTM was approved in September 2013. To further compound the backlog, the growth of the residential solar market in San Diego essentially outpaced the 25.2 MWs re-allocated over from the non-residential sector. CCSE began processing wait listed applications on October 21, 2013 and the queue was subsequently closed on February 14, 2014, thus CCSE's residential program was open for only three months and 25 days while 25.2 MWs of incentive reservations were issued. This confluence of events explains why CCSE's average processing times increased drastically since Q1 of 2013.

Factors influencing PG&E's Administrative Performance:
Due to the declining PG&E incentives budget, PG&E began a waitlist for residential customers before closing the program on Thursday, May 2, 2013. The non-residential waitlist subsequently closed later in the year on Thursday, December 12, 2013. Therefore, in 2013 PG&E had higher than normal completion times for their residential projects due to projects being waitlisted after their initial submittal as well as various extension requests.

2.6 Issues CSI Administrators and Interconnection Departments Faced

The CSI administrators and Interconnection departments experienced a record number of applications during the past year. The application volume was higher than forecast, despite the slow economy, and declining CSI incentive levels.

Additionally, over the past year, SCE's interconnection department was faced with 1) Higher volume of applications, 2) Transition to a new software platform over the summer that led to a slower turnaround time through the fall, and 3) ongoing efforts to convince installers to submit interconnection paperwork prior to system installation.

3 Program Dropouts

The report shows, by quarter for 2007-2013, by each PA's Res and Non-Res program, the MW and percentage of projects dropped out. Dropouts are presented using two different definitions: MW dropped out divided by MW reserved in that quarter (where the MW dropped out and the MW reserved are assigned to quarters based on when they were reserved) AND MW dropped out divided by the sum of MW dropped out and completed (where the MW are assigned to quarters based on when they dropped out). Note that for the first method the values will change, as more projects which were reserved in that quarter drop out over time, whereas for the second method no subsequent change to the statistics should occur.

Table 3. MW Dropped Out Divided by MW Reserved

(Bucketed by Quarter Reserved)

%drop by quarter reserved uses the Working Data Set from 3/31/2014

Year/ Quarter	CCSE				SCE				PG&E			
	Residential		Non-Residential		Residential		Non-Residential		Residential		Non-Residential	
	MWd[1]	%drop by quarter reserved	MWd[1]	%drop by quarter reserved	MWd[1]	%drop by quarter reserved	MWd[1]	%drop by quarter reserved	MWd[1]	%drop by quarter reserved	MWd[1]	%drop by quarter reserved
2007 Q1	0.04	28%	0.00	0%	0.01	8%	4.12	16%	0.04	5%	3.27	14%
2007 Q2	0.04	6%	0.51	6%	0.24	15%	8.11	28%	0.11	5%	4.48	18%
2007 Q3	0.02	3%	0.76	28%	0.22	11%	8.13	88%	0.52	7%	1.22	37%
2007 Q4	0.07	9%	1.41	71%	0.24	11%	3.66	54%	0.98	11%	9.50	47%
2008 Q1	0.13	16%	1.47	68%	0.24	9%	13.18	50%	0.72	10%	9.36	42%
2008 Q2	0.01	1%	0.45	42%	0.35	12%	0.57	26%	0.54	11%	3.11	20%
2008 Q3	0.08	5%	2.40	45%	0.45	11%	1.52	31%	0.60	9%	1.23	10%
2008 Q4	0.06	5%	1.01	38%	0.52	14%	0.04	3%	1.52	14%	8.22	42%
2009 Q1	0.10	10%	0.00	4%	0.36	13%	0.63	20%	0.65	13%	7.10	23%
2009 Q2	0.11	4%	0.00	0%	0.76	14%	0.03	0%	0.45	6%	1.29	21%
2009 Q3	0.21	7%	0.13	5%	0.28	7%	0.11	2%	1.41	10%	2.79	31%
2009 Q4	0.41	10%	2.40	15%	0.35	8%	3.39	28%	0.72	8%	0.28	3%
2010 Q1	0.19	6%	2.41	48%	0.37	7%	3.80	29%	0.67	9%	3.63	33%
2010 Q2	0.75	18%	4.07	43%	0.39	10%	9.01	18%	3.50	17%	6.73	9%
2010 Q3	0.27	11%	0.84	7%	1.62	11%	22.96	31%	1.48	12%	8.70	19%
2010 Q4	0.48	15%	0.98	36%	1.06	12%	5.84	26%	2.23	16%	2.75	14%
2011 Q1	0.15	9%	0.00	0%	2.14	24%	5.89	18%	1.09	18%	0.54	5%
2011 Q2	0.15	5%	0.00		1.22	11%	5.42	27%	0.79	8%	0.00	0%
2011 Q3	0.41	9%	0.16	12%	2.24	14%	0.72	9%	1.33	10%	0.02	2%
2011 Q4	0.23	6%	0.82	15%	1.64	14%	3.51	43%	1.88	12%	0.43	7%
2012 Q1	0.34	7%	0.09	5%	3.43	17%	0.21	2%	1.21	11%	9.24	10%
2012 Q2	0.27	6%	0.00	0%	2.40	15%	1.20	11%	1.26	7%	3.28	10%
2012 Q3	0.31	5%	0.03	6%	2.35	12%	0.72	6%	1.49	7%	1.42	8%
2012 Q4	0.32	4%	1.11	19%	3.62	14%	3.07	14%	1.67	8%	0.00	0%
2013 Q1	0.12	3%	0.51	36%	2.19	10%	0.13	1%	0.15	1%	0.03	0%
2013 Q2	0.01	2%	0.22	7%	0.86	3%	0.83	8%	0.02	0%	0.55	1%
2013 Q3	0.00	0%	0.00	0%	1.68	5%	0.00	0%	0.01	60%	0.00	0%
2013 Q4	0.02	0%	0.00	0%	0.27	1%	0.00	0%				
Total	5.30	7%	21.78	21%	31.53	10%	106.82	22%	27.04	9%	89.16	15%

1 MWd defined as MW dropped by reserved date

Table 4. MW Dropped Out Divided by the Sum of MW Dropped Out and Completed

(Bucketed by Quarter Dropped Out)

%drop by quarter dropped out uses the Working Data Set from 1/1/2014

Year/ Quarter	CCSE				SCE				PG&E			
	Residential		Non-Residential		Residential		Non-Residential		Residential		Non-Residential	
	MWd[1]	%drop by quarter dropped out	MWd[1]	%drop by quarter dropped out	MWd[1]	%drop by quarter dropped out	MWd[1]	%drop by quarter dropped out	MWd[1]	%drop by quarter dropped out	MWd[1]	%drop by quarter dropped out
2007 Q1							0.15	83%				
2007 Q2		0%	0.00	0%	0.00	11%	2.56	100%		0%	0.43	98%
2007 Q3	0.00	1%	0.13	93%	0.01	4%	1.45	100%	0.02	1%	2.08	89%
2007 Q4	0.00	0%	0.09	62%	0.01	1%	0.77	63%	0.04	1%	0.88	34%
2008 Q1	0.02	3%	0.28	50%	0.02	1%	1.26	29%	0.10	2%	4.38	60%
2008 Q2	0.01	1%	0.83	50%	0.02	1%	4.58	31%	0.19	3%	8.85	59%
2008 Q3	0.01	2%	0.35	53%	0.12	7%	8.63	59%	0.17	3%	2.69	27%
2008 Q4	0.06	8%	0.16	4%	0.14	4%	5.15	38%	0.99	16%	2.90	41%
2009 Q1	0.06	6%	0.54	22%	0.06	2%	0.92	10%	0.07	1%	8.93	36%
2009 Q2	0.11	7%	0.61	14%	0.71	21%	7.81	45%	0.83	11%	2.13	8%
2009 Q3	0.04	3%	0.59	43%	0.53	14%	3.74	36%	1.40	16%	9.89	47%
2009 Q4	0.11	4%	2.28	77%	0.50	11%	0.50	7%	0.27	3%	0.93	15%
2010 Q1	0.13	4%	0.77	27%	0.20	4%	2.47	57%	0.95	9%	2.45	21%
2010 Q2	0.11	3%	2.90	75%	0.12	3%	0.68	11%	1.01	10%	5.65	40%
2010 Q3	0.07	3%	2.08	49%	0.32	4%	0.70	23%	0.30	3%	1.88	19%
2010 Q4	0.24	9%	1.23	27%	0.57	6%	14.57	53%	1.65	15%	1.85	22%
2011 Q1	0.36	10%	0.22	27%	1.49	23%	10.19	66%	0.57	5%	4.52	27%
2011 Q2	0.68	23%	0.79	10%	0.51	6%	9.52	41%	2.83	19%	2.35	41%
2011 Q3	0.31	11%	2.22	50%	1.45	17%	4.01	21%	2.88	19%	1.44	3%
2011 Q4	0.59	13%	0.10	4%	0.96	8%	6.12	32%	1.84	16%	0.87	6%
2012 Q1	0.21	5%	0.17	3%	2.90	16%	5.35	16%	1.27	8%	6.67	24%
2012 Q2	0.22	5%	0.11	3%	1.10	9%	2.96	11%	0.84	7%	2.60	5%
2012 Q3	0.38	9%	0.47	22%	2.10	11%	2.75	16%	0.69	5%	0.01	0%
2012 Q4	0.26	16%	0.07	9%	3.11	19%	0.56	2%	1.50	8%	4.55	16%
2013 Q1	0.31	5%	1.02	16%	1.83	8%	0.77	3%	2.21	11%	1.81	7%
2013 Q2	0.29	5%	2.75	45%	2.48	11%	4.14	45%	1.37	6%	1.73	7%
2013 Q3	0.30	11%	0.77	20%	4.45	15%	2.31	13%	1.32	10%	5.28	22%
2013 Q4	0.31	26%	0.04	1%	1.82	11%	1.78	20%	0.95	19%	0.53	3%
Total	5.18	8%	21.57	26%	27.55	11%	106.40	28%	26.23	9%	88.29	18%

1 MWd defined as MW dropped by drop date

4. CSI Program Trainings

Each of the PAs regularly offers training for both customers and solar installers in the CSI Program regarding the benefits and technical details of solar in general. In 2013, the CSI PAs held 169 trainings and trained almost 4,408 attendees.

Figure 15. Number of Trainings by Program Administrator

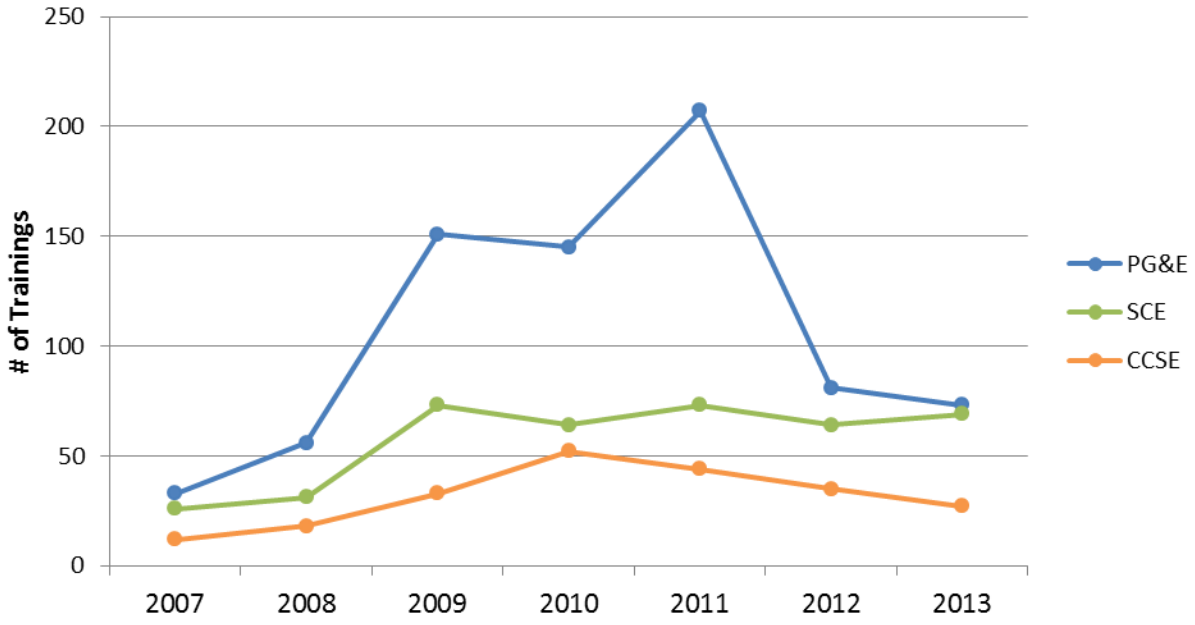
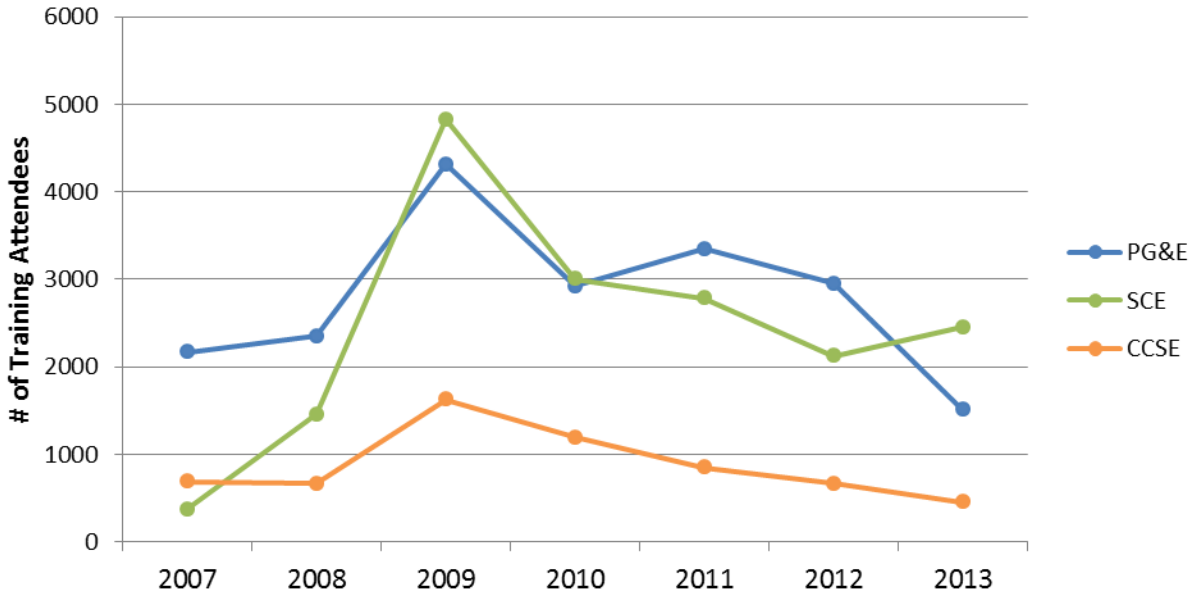


Figure 16. Number of Training Attendees by Program Administrator



Source: CSI Program Administrators.

4.1 PG&E Training Offerings

The PG&E CSI Group, in collaboration with the Energy Centers, offered an extensive array of solar classes to both contractors and the general public. These included full-day live classes, many of which were simulcast, as well as one-hour webinars. The bulk of the live classes were in the Pacific Energy Center in San Francisco or the Energy Training Center in Stockton, but there were also classes offered in the following places: Eureka, Tulare, San Luis Obispo, San Mateo, Fresno, Santa Cruz, Santa Rosa, Napa, Berkeley, San Leandro, Auburn, Clear Lake, and other communities.

The attendance in 2013 leveled off a bit from 2012 as the contractor community and general public became more educated in the target areas. PG&E shifted its focus to Solar Thermal classes as well as Net Energy Metering and Billing. Below is a list of the classes and webinars that PG&E offers.

For Contractors and the General Public

Basics of Photovoltaic (PV) Systems for Grid-Tied Applications: An introduction to PV systems basics and overview of technical, economic and project evaluation of grid-connected PV projects.

Photovoltaic (PV) Site Analysis and System Sizing: an intermediate class that was for anyone interested in understanding the specific issues associated with PV site analysis and system sizing. Introduction to Photovoltaic (PV) System Financing: provided overview of solar electric (PV) system costs and approximate savings for residential systems as well as information on available incentives.

Inspecting PV Systems for Code Compliance: an advanced class that covered all issues pertaining to inspecting and permitting of photovoltaic grid-tied systems in all sectors, including commercial, industrial, small business, multifamily, and residential.

Solar Water Heating Systems Basics: provided an overview of the design, specification, and installation aspects of Solar Water Heating systems for both commercial and residential applications.

CSI-Thermal Workshop: As a core part of PG&E's ongoing efforts, PG&E continued to offer monthly CSI-Thermal Program Workshops for contractors and self-installers throughout the service territory. The workshops are vital in conveying program requirements and ultimately help ensure contractors are better prepared to submit CSI-Thermal Program paperwork. This workshop is required for anyone looking to become an eligible installer within the CSI-Thermal Program.

Solar Water Heating Systems for Homeowners: a basic class that provided an overview of the design, specification, and installation aspects of SWH systems for residential applications.

Integrating Energy Efficiency and Renewables in Home Retrofits: provided a whole-system approach to homes or buildings, performance and how it ties into energy efficiency.

Solar Water Heating - Advanced Commercial Systems: an advanced class that focused on key aspects of large-scale SWH systems for commercial applications.

Solar Cooling: A discussion of the basic physics behind this emerging technology and the various different types of solar cooling systems, along with case studies of existing systems from several vendors.

Solar Sales: Techniques for Salespeople and Companies: Andy Black shares his knowledge about creating and closing business in this intensive workshop for both solar salespeople and sales management/owners. First covered, a look at Sales Organizations, and the benefits, costs, and issues of sales staff including sales structures, & compensation. Next, an in depth look at the sales process cycle with interactive examples of the processes, interactions and systems Andy has developed and successfully used for several years. This section will include discussion and interactive examples of lead screening, site visits, proposal preparation and presentation, closing, documentation and writing up the sale. Finally, the class will close with a discussion of the skills required to be a successful salesperson in the industry, and what hiring managers look for, as well as some of the tools and new sales strategies that may be emerging. Interactive discussions will be an active part of the adult learning principals incorporated and questions are encouraged.

Preparation for NABCEP PV Entry Level Exam (2 Non-Consecutive Day Class): This course will go over all material relevant to the NABCEP PV Entry Level Exam, using the preparation guides on the NABCEP website and sample questions. Part 2 of a two-part class.

NABCEP PV Entry Level Exam : The instructor will administer the NABCEP PV Entry Level examination. The allotted time is a maximum of two hours to take the test. The test is graded and evaluated by NABCEP and it will take several weeks to get results.

Economics of Solar: Making the Financial Case for Residential and Commercial Photovoltaics (PV): An overview of solar electric (PV) system costs and savings for commercial & residential systems in an interactive environment. Andy Black will provide detailed information on state & federal incentives available (tailored to the local market) and how to use them. These include rebates, Feed-In-Tariffs, SRECs, performance based incentives, the Federal ITC, state tax credits, and MACRS depreciation. An explanation of the electric rate structures and how to choose the best alternative given the advantages of each relative to building load profile, system design, and site specifics.

Heat Pumps: Residential Applications and Integration with Solar Energy Systems: The class will cover all aspects of heat pumps including the fundamentals of technology,

site analysis, system design, cost factors, and combining heat pumps with renewable energy systems.

Introduction to Photovoltaic (PV) System Financing: The class will cover the various forms and formats of financing systems, including PACE, Leases, PPAs, and traditional lending. The class will conclude with an overview of several important PV analysis tools and an interactive demonstration using one of the leading economic analysis tools.

Webinars Open to the General Public

Consumer Protection - Before and After Purchasing a Solar PV System: provided information on how to locate a solar contractor, compare prices that are offered by different contractors and how to protect against fraud.

How Net Energy Metering (NEM) Works: provided an overview of PG&E's NEM Tariffs. The webinar also covered how NEM works.

Making your Solar Net Energy Metering Interconnection Application and Process Easier: provided an overview of PG&E's Standard Net Energy Metering (NEM) interconnection process, included helpful resources and tips to ensure quick turnaround times.

Making your Rule 21 Interconnection Application and Process Easier: provided an overview of PG&E's Rule 21 Interconnection process for technologies such as combined heat and power systems and fuel cells. It included helpful resources and tips to ensure quick turnaround times.

Understanding Your Residential Net Energy Metering Bill: an overview of the billing process for solar Net Energy Metered customers, included what customers can expect each month, when payment is due, and how to read the solar bill and statement.

New Solar Homes Partnership Program Application Process: provided an overview of the New Solar Homes Partnership (NSHP) program, including incentives offered and the requirements.

California Solar Initiative (CSI) Application – How to Efficiently Apply for CSI Incentives: a walkthrough of PowerClerk detailing the application process for the CSI program. It included tips to ensure that applications were always in good order and how to avoid the common mistakes that would delay a reservation and/or payment.

NEMV Eligibility and Application Process – An overview of the eligibility and metering requirements as well as a walkthrough of the application process.

Net Energy Metering (NEM) Application - Pending Changes : This webinar went over the pending changes to the NEM application. It will include an overview of the changes and when it is expected to take place.

New Construction Opportunities - Energy Efficiency and Solar Incentives: This webinar will provide information on available PG&E energy efficiency rebates for new construction. Complementing these energy efficiency measures with the installation of solar photovoltaics (PV) and solar water heating will maximize your investments on a new construction property.

4.2 SCE Training Offerings

SCE continues to offer classes geared toward contractors as well as non-residential and residential customers. During 2013, SCE reached 194 contractors through 6 "CSI Contractor Solar Classes", including participates who joined via video conference; 185 commercial customers through 12 "CSI Commercial Solar Workshops", including participants who joined via video conference and Webinar; 766 residential customers through 27 Homeowner Solar Webinars; 1,251 residential customers through 19 Solar Connection Events; and six CSI Thermal training classes with a total of 52 attendees.

The subject matter SCE presents in its classes is updated as program changes dictate. SCE also makes adjustments based on feedback received from attendees.

Intro to CSI Classes
The "Contractor Solar Class" is a course designed for solar contractors, self-installers, managers and PV owners, and features new and updated information on the CSI Program. During the course discussion, information is given to attendees on the following topics: (i) how to participate in the program; (ii) system basics, including the different types of solar systems, metering, monitoring, site and equipment requirements; and (iii) PowerClerk and Net Energy Metering application process. Contractors can register online at www.sce.com/ctac.

Homeowner Solar Classes Webinars
SCE's HSC webinars are 90-minute, easy-to-understand sessions that provide the basics of how residential customers can "go solar" without the "techy" jargon so often used and confusing to potential solar customers. For more information, go to www.sce.com/solartraining

Commercial Solar Workshop and Webinars
The Commercial Workshop curriculum was specifically geared toward Energy and Facility Managers in SCE's non-residential customer segment, and the course content included a CSI Program Overview, How Solar Systems Work, Application and Reservation Process, CSI Eligibility Requirements, Incentive Amounts and Structure, EPBB Calculator, Interconnection and Online Databases. Energy Managers also learned how solar energy systems can help lower their operating costs, which helps to add more "green" to their business' bottom-line cost and improves their company's reputation for environmental stewardship. This year we added webinars to provide our

customers with an additional option for attending a class. Customers can register online at www.sce.com/ctac.

Solar Connection Events
The goals of these unique events remains unchanged: to present solar basics and to bring interested residential customers together with solar contractors to determine their home's potential for solar electric generating systems. For more information, go to www.sce.com/solartraining.

CSI Thermal Contractor & Self-Installer Training
SCE's Thermal Workshop is a required introductory course for contractors, self-installers and applicants interested in participating in the CSI Thermal program. The class is designed to provide a thorough understanding of the program, its requirements and the application process. An overview of solar water heating technologies is also provided. For more information, go to www.sce.com/csithermal.

4.3 CCSE Training Offerings

CCSE continues to offer classes geared toward contractors as well as non-residential and residential customers. In 2013 CCSE reached over 453 homeowners and contractor through 27 in person workshops in addition to offering the CSI Application Process workshop via WebEx to reach more contractors. Trainings are performed by CCSE staff and or outside speakers when necessary. Trainings were marketed in CCSE and CSI newsletters, through the online calendar as well as in email blasts and other events. For more information please visit: www.energycenter.org/outreach-a-education

Homeowner Targeted Workshops:

Solar for Homeowners 1: Getting Started

Tailored to homeowners interested in going solar This workshop explains the fundamentals of solar electricity, how to apply for available incentives and share valuable consumer awareness tips to help customers feel more confident when evaluating solar for their home.

Solar for Homeowners 2: Be a Smart Solar Customer
Informed consumers can save themselves time and money by doing their homework before picking a solar contractor. After learning the fundamentals of residential installations in Solar for Homeowners 1, they can attend this follow-up workshop to learn the ins and outs of choosing a solar company that operates in an ethical and trustworthy fashion.

Contractor Targeted Workshops:

CSI Application Process Made Easy

This workshop outlines the entire CSI application process – from the reservation request to the incentive award – and provides an explanation of all required documentation as well as a demonstration of the online application.

Passing the CSI Inspection Protocol

This workshop is designed for contractors and self-installers who would like to learn about the CSI inspection protocol.

5 Net Energy Metering

The Public Utilities Code (PUC) Section 2827 establishes net energy metering (NEM) for solar and small wind customer-generators. NEM information for each IOU's service territory is included in this section of the report. The NEM data is updated monthly and available at http://www.californiasolarstatistics.com/reports/data_annex/

Table 5. NEM Capacity, Customers and Percentage of Aggregate Customer Peak Demand as of December 31, 2013

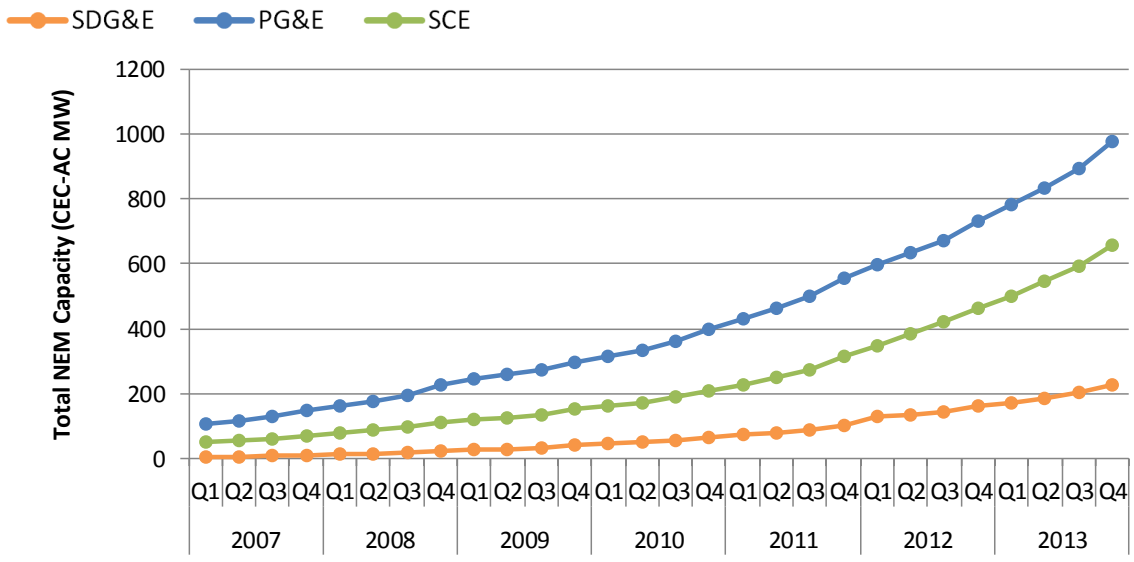
Section	Question[2]	PG&E	SCE	SDG&E
5.b.1	Number of NEM customers in the service territory.	106,421	69,984	31,916
5.b.2	Number of those NEM customers which are solar generators.	106,182	69,525	31,871
5.b.3	Number of those NEM solar generators who are participants in the CSI program.[1]	59,334	45,620	15,096
5.b.4	Total generating capacity of NEM customer-generators.	980.3	655.7	226.1
5.b.5	Total generating capacity of solar NEM customer-generators.	975.1	616.8	225.9
5.b.6	Total generating capacity of solar NEM customer-generators who are participants in the CSI program. [1]	701.1	515.1	142.8
5.b.7	Percentage of aggregate customer peak demand (Non-Coincident) represented by all NEM.	2.03%	1.46%	1.86%
5.b.8	Percentage of aggregate customer peak demand (Non-Coincident) represented by solar NEM.	2.02%	1.38%	1.86%
5.b.9	Percentage of aggregate customer peak demand (Non-Coincident) represented by CSI-participating solar NEM. [1]	1.46%	1.15%	1.18%

Source:
[1]Inteconnection data were provided by each IOU's Interconnection departments except data for questions 4.b.3, 4.b.6 and 4.b.9 which were compiled and calculated from CSI's PowerClerk database and are only an estimate of CSI's interconnection contribution to the NEM program. CSI projects were deemed as interconnected if their status had reached at least Pending Payment in PowerClerk.
[2]Hybrid technologies are excluded from Solar numbers.

Table 6. NEM Capacity in MW and in Percent of Aggregate Customer Peak Demand by Quarter

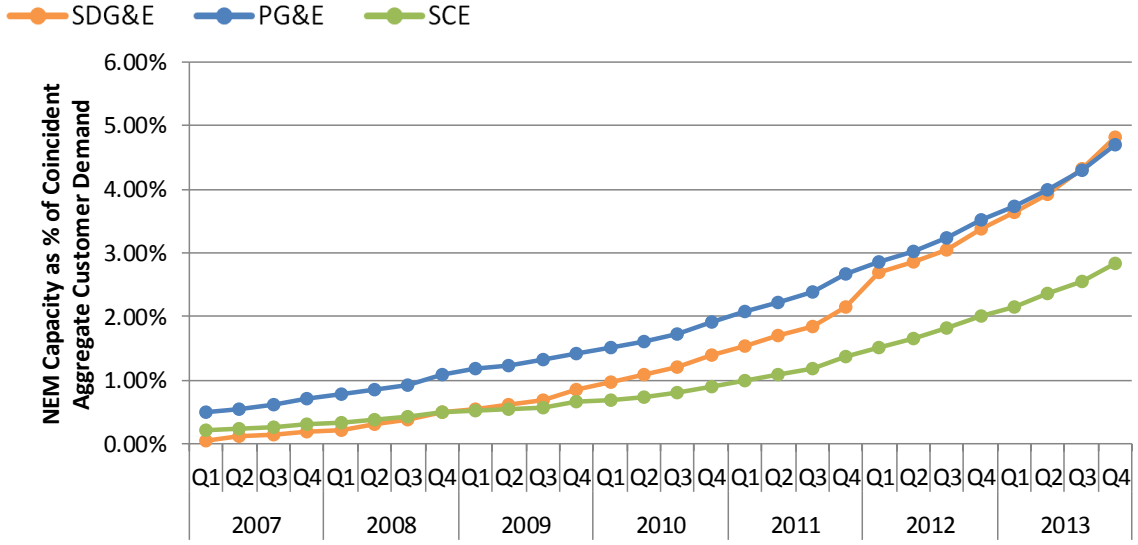
		SDG&E			PG&E			SCE		
Year	Quarter	Cumulative Capacity Interconnected (CEC-AC MW)	NEM Capacity % (Coincident)	NEM Capacity % (Non-Coincident)	Cumulative Capacity Interconnected (CEC-AC MW)	NEM Capacity % (Coincident)	NEM Capacity % (Non-Coincident)	Cumulative Capacity Interconnected (CEC-AC MW)	NEM Capacity % (Coincident)	NEM Capacity % (Non-Coincident)
2007	Q1	2.5	0.05%	0.02%	103.1	0.49%	0.21%	48.0	0.21%	0.11%
	Q2	5.1	0.11%	0.04%	114.6	0.55%	0.24%	52.0	0.22%	0.12%
	Q3	6.5	0.14%	0.05%	127.9	0.61%	0.27%	59.0	0.25%	0.13%
	Q4	8.5	0.18%	0.07%	147.4	0.71%	0.31%	70.4	0.30%	0.16%
2008	Q1	10.1	0.22%	0.08%	160.4	0.77%	0.33%	76.3	0.33%	0.17%
	Q2	14.2	0.30%	0.12%	176.3	0.84%	0.37%	84.7	0.37%	0.19%
	Q3	17.3	0.37%	0.14%	192.1	0.92%	0.40%	95.0	0.41%	0.21%
	Q4	23.6	0.50%	0.19%	226.0	1.08%	0.47%	111.9	0.48%	0.25%
2009	Q1	25.8	0.55%	0.21%	243.5	1.17%	0.51%	120.0	0.52%	0.27%
	Q2	28.3	0.60%	0.23%	256.6	1.23%	0.53%	126.0	0.54%	0.28%
	Q3	31.8	0.68%	0.26%	273.9	1.31%	0.57%	132.0	0.57%	0.29%
	Q4	40.1	0.86%	0.33%	296.3	1.42%	0.62%	150.9	0.65%	0.34%
2010	Q1	45.3	0.97%	0.37%	312.8	1.50%	0.65%	160.5	0.69%	0.36%
	Q2	51.3	1.09%	0.42%	333.4	1.60%	0.69%	170.2	0.73%	0.38%
	Q3	56.0	1.19%	0.46%	359.0	1.72%	0.75%	187.3	0.81%	0.42%
	Q4	65.7	1.40%	0.54%	400.1	1.92%	0.83%	207.5	0.90%	0.46%
2011	Q1	71.4	1.52%	0.59%	432.6	2.07%	0.90%	227.4	0.98%	0.51%
	Q2	79.1	1.69%	0.65%	463.1	2.22%	0.96%	249.9	1.08%	0.56%
	Q3	86.3	1.84%	0.71%	498.6	2.39%	1.03%	274.3	1.18%	0.61%
	Q4	100.4	2.14%	0.83%	555.9	2.66%	1.15%	315.9	1.36%	0.70%
2012	Q1	126.4	2.70%	1.04%	595.6	2.85%	1.24%	348.7	1.51%	0.78%
	Q2	133.7	2.85%	1.10%	633.2	3.03%	1.31%	382.9	1.65%	0.85%
	Q3	142.8	3.05%	1.18%	673.4	3.22%	1.40%	421.9	1.82%	0.94%
	Q4	158.7	3.39%	1.31%	733.9	3.51%	1.52%	465.1	2.01%	1.04%
2013	Q1	170.7	3.64%	1.41%	781.5	3.74%	1.62%	497.8	2.15%	1.11%
	Q2	184.1	3.93%	1.52%	832.3	3.99%	1.73%	546.4	2.36%	1.22%
	Q3	202.3	4.32%	1.67%	895.8	4.29%	1.86%	591.4	2.55%	1.32%
	Q4	226.1	4.82%	1.86%	980.3	4.69%	2.03%	655.7	2.83%	1.46%

Figure 17. Total NEM Capacity



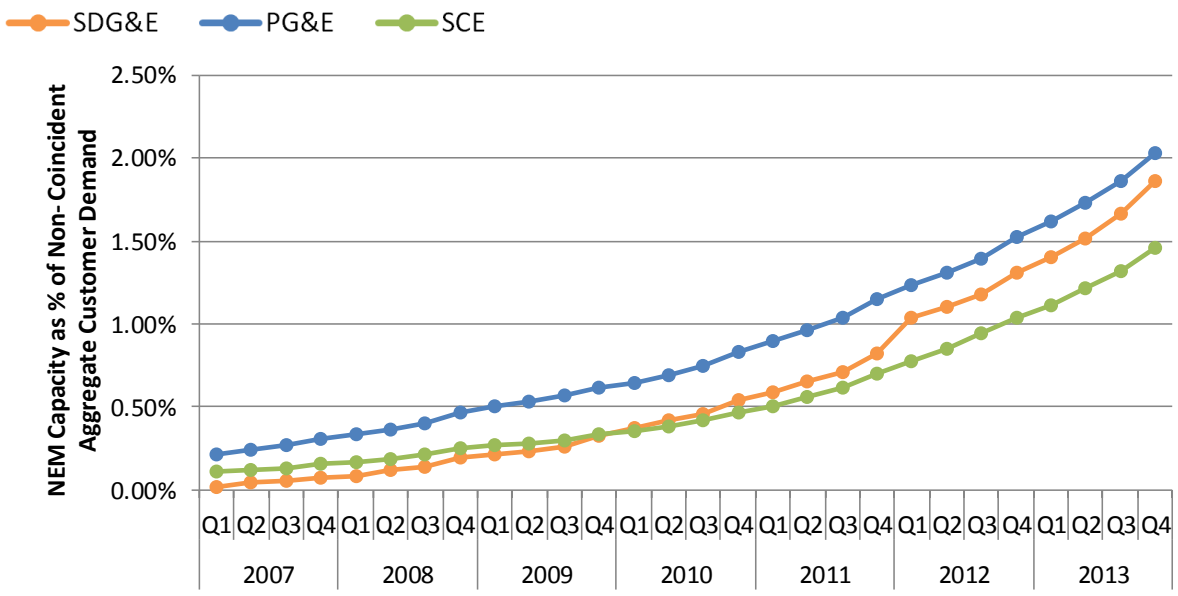
Source: Data from IOU Interconnection Departments

Figure 18. NEM Capacity as a Percentage of Aggregate Customer Peak Demand (Coincident)



Source: Data from IOU Interconnection Departments

Figure 19. NEM Capacity as a Percentage of Aggregate Customer Peak Demand (Non-Coincident)



Source: Data from IOU Interconnection Departments