



The California Solar Initiative – Triumph, or Train Wreck?

A Year to Date review of the California Public Utility Commissions' California Solar Initiative

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The California Solar Initiative (CSI) program has completed its first eight months in business – and the results are in. Some of the early achievements of the program are impressive, like the **140 MW** of non-residential reservations, the acceptance of performance based incentives by non-residential consumers and the rise of third party financial companies. However, some of the results are extremely disappointing with only **14 MW** of residential reservations issued and an ongoing, nightmarish transition for residential solar businesses to the CSI. Megawatts reserved don't tell the whole story and are not the best indicator of the overall performance, or of the short term or long term outlook for the CSI. Watch the tracks ahead because we believe that in this version of the "Little Engine That Could," the engine might just run out of steam.

First, a word about our data sources. The results from the former California Energy Commission (CEC) program come from publicly released information that has been posted to the web over the years, and from data supplied to SunCentric directly from the CEC. As has been our experience in the past, the CEC team responded within a few days to our requests for information. We appreciate their good work as record keepers and gratefully acknowledge their help.

The information from the CSI program is another matter. Despite repeated California Public Records Act Requests submitted to the CPUC, we received none of the data requested, all of which is available from CSI applications and the utility program managers. To develop the information presented we instead have used a combination of data released from the Self-Generation Incentive Program (SGIP) and CSI programs, much of which has been very poorly kept. We also collected information from the CSI trigger tracker data and the trigger tracker graphs, the utilities' online system to report their results. To our dismay, we found many discrepancies and inconsistencies. After hundreds of hours of numerical analysis, one certainty is that the data from the CSI published sources do not match. We look forward to a time when the record keeping is managed in a professional way and complete data is made available to the public on a timely basis.

A quick review of California's solar electric history

To set the stage, remember that California's solar electric incentive programs started in 1998, and the market delivered solid, but bumpy, growth. The Emerging Renewables Program (ERP) was developed primarily for residential consumers and was administered by the California Energy Commission. In 2001 the Self-Generation Incentive Program was launched for larger commercial-sized consumers and administered by the California Public Utility Commission.

The creation of SB1/The Million Solar Roofs legislation was a roller-coaster ride for the solar industry that spread out over a few years. It took its final form with much fanfare as the California Solar Initiative and was signed by Governor Schwarzenegger in August of last year. The ten year, \$3 billion, performance based CSI program was established to fund 3,000 MW of clean, renewable solar electric power for California and mandated the creation of a sustainable solar electric market. The legislative parents imagined that the CSI would: create new jobs, attract investment, build installation and manufacturing capacity and ultimately reduce the overall cost of solar so that it could stand on its own two feet, in its own free market and deliver the ‘Holy Grail’ of renewable energy – Grid-Parity.

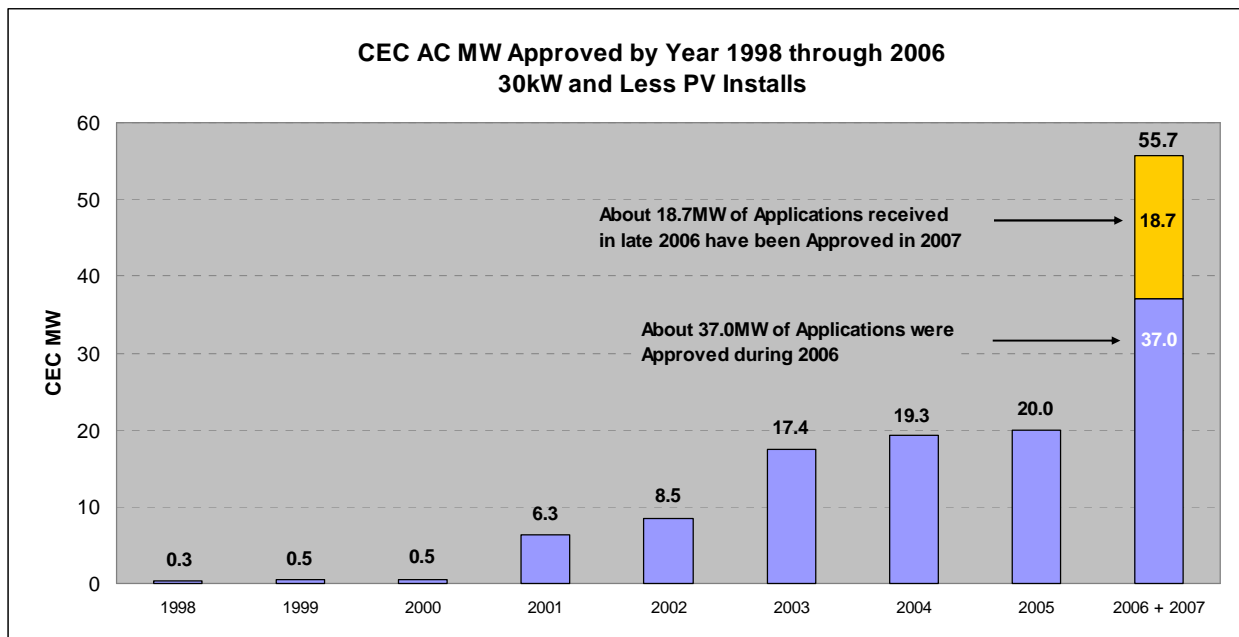
The CPUC was charged with creating a program for commercial, government, non-profit (non-residential), existing residential (residential) and affordable housing solar customers in the Pacific Gas and Electric (PG&E), Southern California Edison (SCE) and San Diego Gas and Electric (SDG&E) territories. The SDG&E portion of the program is now administered by the California Center for Sustainable Energy (CCSE), formerly the San Diego Regional Energy Office (SDREO). The CPUC’s part of the CSI has a budget of \$2.165 billion and a goal to install a total of 1,750 MW, 577.5 MW in residential and 1,172.5 MW in non-residential by the end of 2016. \$190 million of the budget has been set aside for program administration.

In our year to date review, we’ll show some of the early results for the CPUC’s CSI program and contrast these results to the previous programs. We’ll highlight the residential and non-residential programs, with an eye on not only the megawatts, but on the program’s achievement of some of these initial goals. We’ll also make a few predictions and some practical recommendations.

CSI Residential Segment - Stalled on the Tracks...

First let’s look at the historical results from the CEC program. Chart 1 shows the CEC AC MW approved by year. Notice that 37 MW were approved during the 2006 calendar year. The CEC administrators were swamped with applications at the end of 2006 and approved over 3,650 applications and an additional 18.7 MW for their program in 2007. We show these MWs combined so that it is clear that the CEC program ended on December 31, 2006.

Chart 1



If the program had continued, as shown in Chart 2, we forecast that in addition to the “carried over” 18.7 MW approved in 2007, that another 39.3 MW would have been approved during 2007, for a year end total of 58 MW.

Chart 2

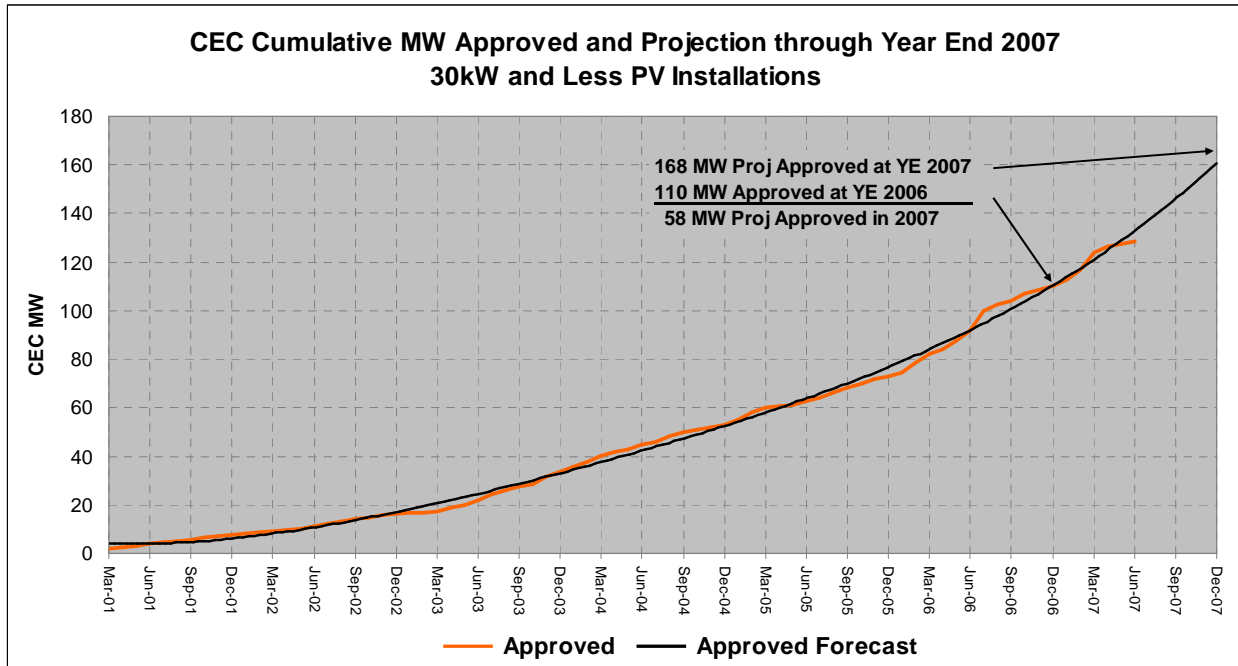
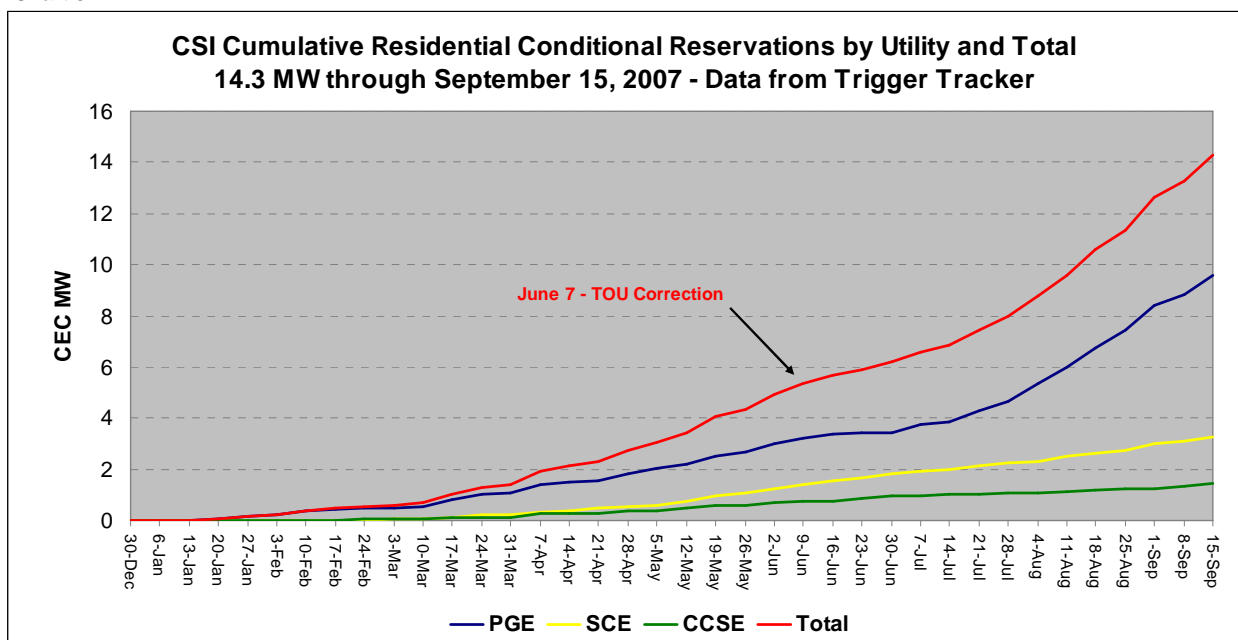


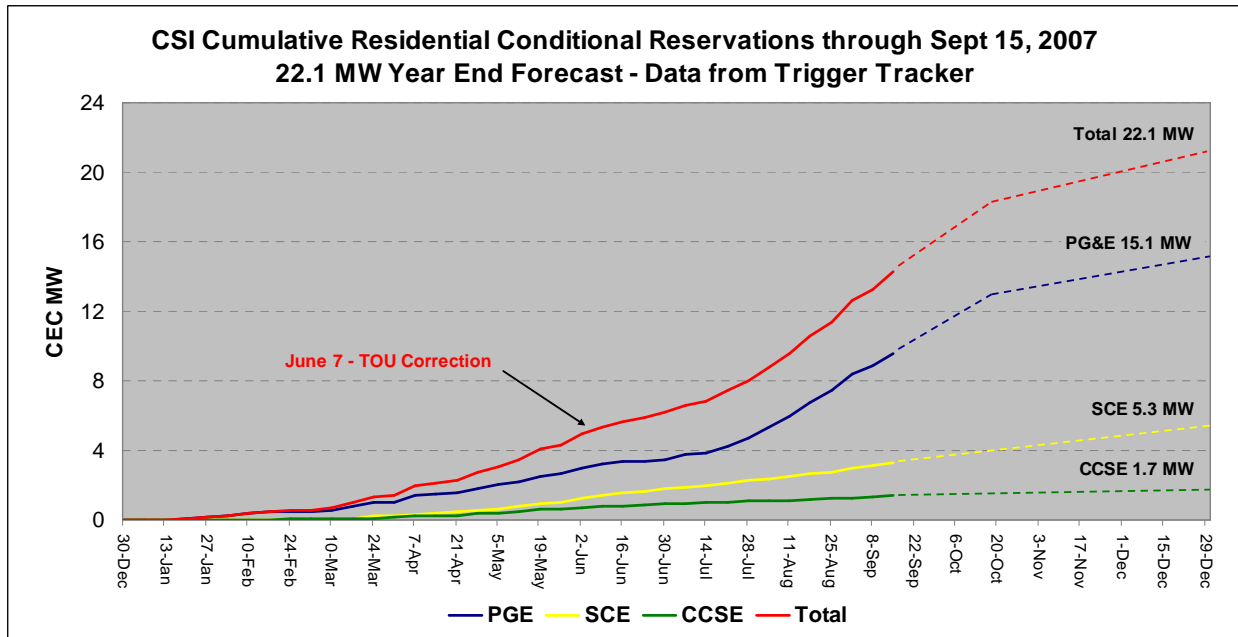
Chart 3 shows the anemic results of the CSI Residential program through September 15, 2007. Only 14.3 MW of Conditional Reservations have been issued in total by the three utilities program managers. We have not seen the hoped for increase in demand since the critical Time of Use (TOU) issue was corrected by the Governor - it is now in the hands of utilities, particularly SCE, to develop “solar friendly” tariffs that will stimulate residential demand in their service territories.

Chart 3



In Chart 4 you can see our projection for the CSI's residential program by utility and the combined total at the end of 2007. We are forecasting that the program will only issue a total of 22.1 MW of Conditional Reservations by year end.

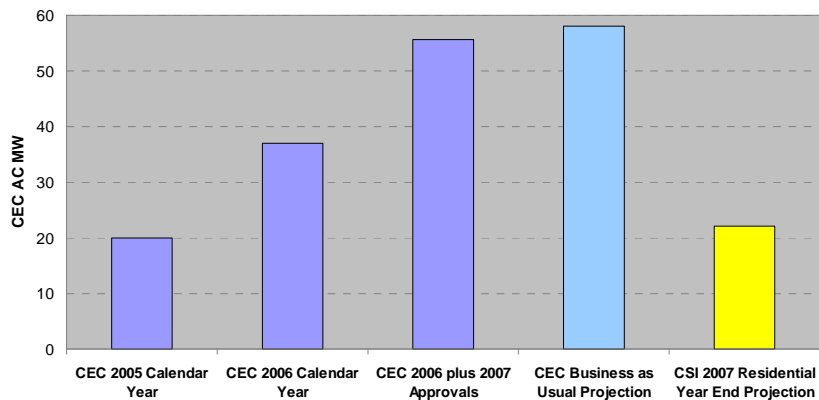
Chart 4



In summary, Table 1 shows that we believe the residential market will decline from what might have been 58.0 MW in 2007 to what we now believe will be 22.1 MW in 2007. This is a reduction in demand of more than 60% from 2006 to 2007.

Table 1 CEC Program Approvals and Projection and CSI Residential Conditional Reservation Projection

CEC 2005	CEC 2006	CEC 2006	CEC 2007	CSI 2007
Calendar Year	Calendar Year	Calendar '06 plus '07 Approvals	Business as Usual Projection	Year End Projection
20.0 MW	37.0 MW	55.7 MW	58.0 MW	22.1 MW



So what happened to the momentum in residential?

The quick answer is that the CSI's complexity, poor implementation and onerous requirements have increased costs and lengthened the time to complete a system. The initial CSI residential incentive was set

too low for market conditions and future Step declines will make matters worse. Add in other predictable industry cost increases and unfavorable residential electric tariffs and the result is *consumers have to pay more and now have a longer payback*. While solar awareness is clearly up, these impacts have reduced the number of willing solar customers.

Chart 5 shows installed cost, consumer cost and incentive level by quarter for CEC Approvals and CSI Conditional Reservations. The installation community, reacting to PV module and other real cost increases, have steadily increased the installed cost per watt. Despite the views of some industry pundits, there is no evidence of excessive profit taking. The fact is, that despite the vision of declining costs, consumers have seen ever increasing costs, since the first quarter of 2003.

Chart 5

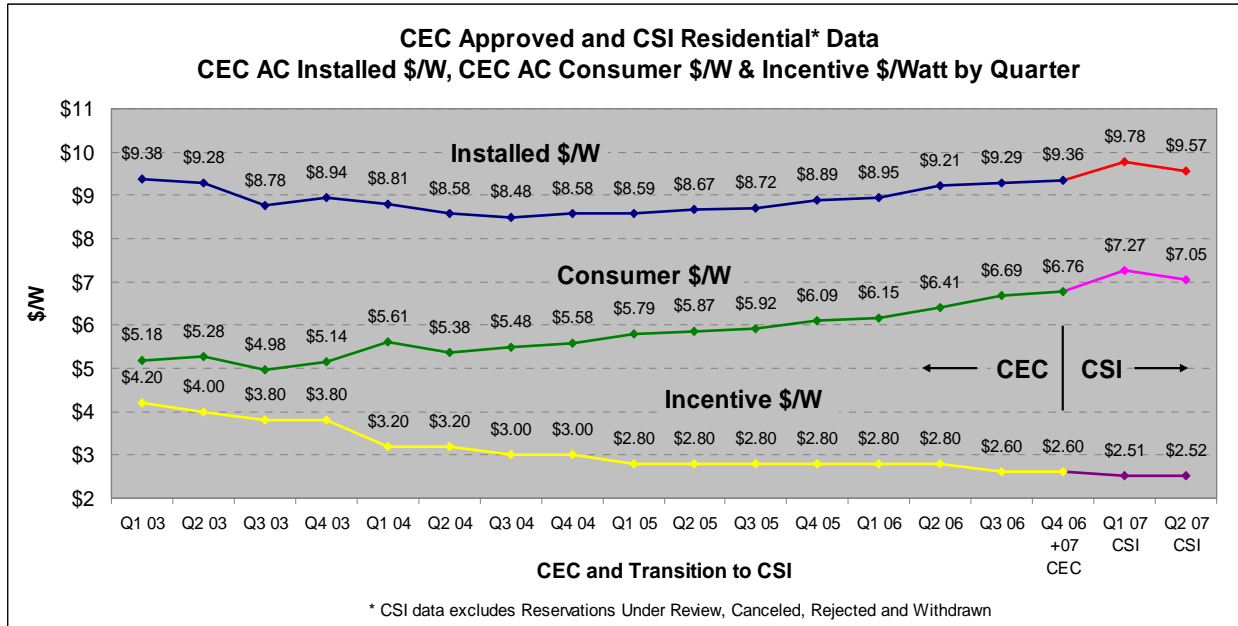
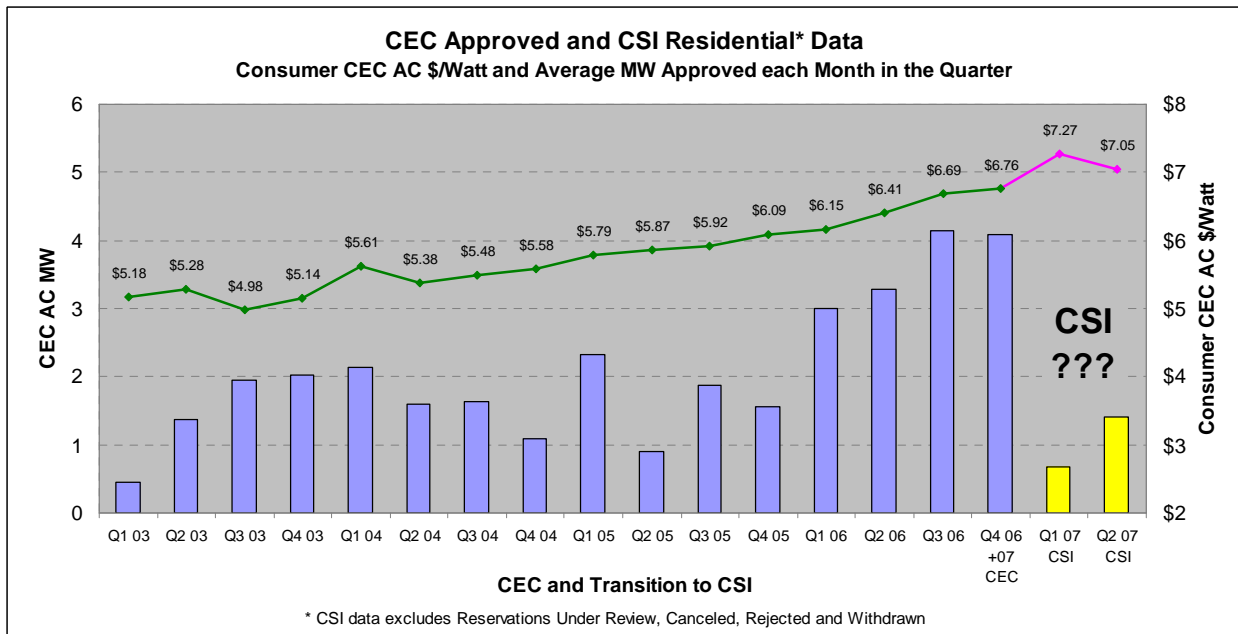


Chart 6 shows the consumer cost per watt and the MWs installed each month on average in each quarter. As shown in the area of the question marks, something has changed from the CEC program to the CSI program to so significantly impact demand.

Chart 6



Residential Impacts

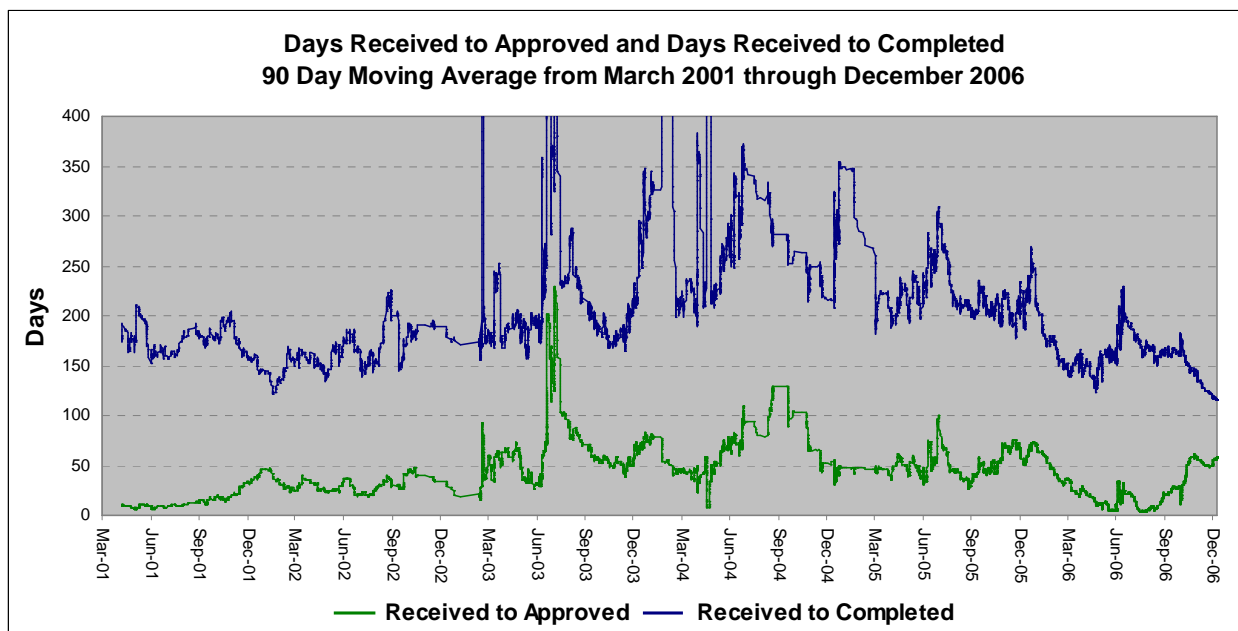
A number of impacts that reduced consumer willingness were identified early on. One was an incentive system based on the geographic reference location, the town of Orange, which financially penalizes homeowners in much of the state. Another was the requirement to switch to Time of Use rates that prevented homeowners from calculating the payback of a solar system. Other impacts, like disputes with under trained program inspectors about system design, fire department concerns about solar electric systems on roofs and more conflicts with homeowner associations, blindsided the industry unexpectedly.

Burdensome CSI administration requirements, program complexity, application processing time, interconnection delays, extended payment times, additional warranty expenses, metering/monitoring and energy efficiency requirements and a myriad of other changes have pushed up real costs and total project times. The time delays have resulted in cash flow issues that have required additional capital and generated expense. On top of these CSI issues, almost all surveyed solar businesses are reporting increased costs in materials, transportation, labor, insurance, and other operating expenses. Reduced profitability or increased losses are consistently being reported.

Expected PV module cost declines that could have offset some of these cost impacts have not materialized throughout the industry. And while more MWs will be produced worldwide this year, other international markets are expanding rapidly. Based on other countries' better program design and higher incentives, PV manufacturers have greater volume and profit opportunities outside the California market.

Looking back at the CEC program, the CEC became more efficient at handling applications and the industry learned how to do installations in less time. Together they dramatically reduced the time it took to do a job from start to finish. Chart 7 shows that in 2006 it took the CEC about 28 days to approve an application. The huge number of applications they received near the end the program caused approval times to drift up to around 50 days. In combination with the solar industry, it took about 115 days to complete a job, down from over 200 days a few years ago.

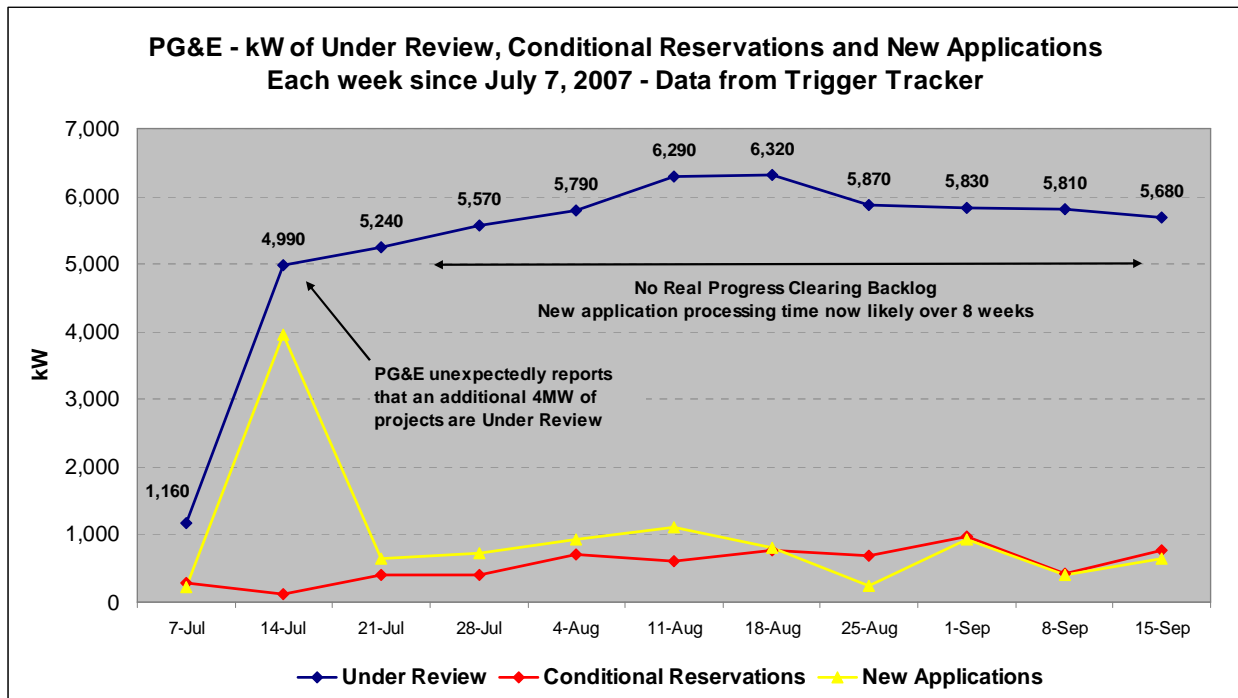
Chart 7



On a year to date basis, the CEC program was more than 2.5 times the size of the current CSI residential program. To “improve” the process we now have three utility Program Administrators (PAs) running the program and have forced residential installers to adapt to their very different “personalities.” The current PAs, managing about 65% less applications, should be able to do it better and faster than their counterparts at the CEC – especially as they are being paid for it. Yet, they are not doing it better or faster. Based on CSI data and discussions with the industry, we are reporting that the PAs now take *over twice as long to do their job*.

As an example of slow processing time, on July 11 PG&E unexpectedly announced that they were adding about 4 MW of unreported applications to the “Under Review” category. Where did they come from? In any case PG&E went to work approving this “new” backlog, but, as shown in Chart 8, has made no real progress reducing it. We estimate that for at least the next few months the average new application in PG&E will take over 8 weeks, or about 60 days, to receive a Conditional Reservation.

Chart 8

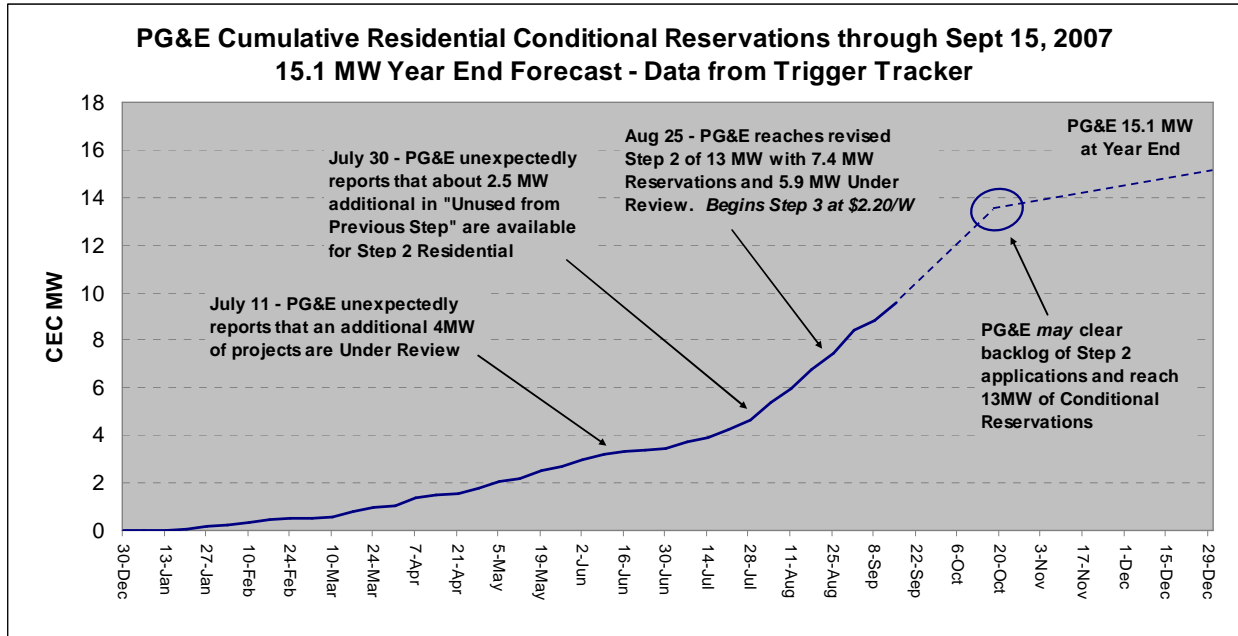


Also, the addition of 4 MW to Under Review does not equate to an acceleration of demand in the PG&E area as reported by some. Notice above, that the yellow line showing total kW of new applications received each week is not trending up.

In summary, the CEC’s improvement in processing times created a business platform that allowed manufacturers and installers to manage cash flow and other business operations with some certainty. The CSI’s increased processing time has been disruptive and has put the residential installation community at risk.

In Chart 9 you can see PG&E's activity and highlighted events since January 1. We expect PG&E to clear their Step 2 backlog by late October, but because they have now have more than 13 MW total Reserved and Under Review and have functionally hit Step 3, \$2.20/watt, we expect the number of new applications to slow down in the coming weeks.

Chart 9



As you can easily imagine the residential solar community is reeling. As shown in Table 2, The Top 25, California's most experienced residential solar businesses, are down over 60% in total kW, in sales and in installations compared to last year and some have left the California market or the industry. Sadly, 110 less companies, 35% fewer, are active this year.

Table 2

	The Top 25 Installers and the Rest in the CEC Program Approvals Jan thru June 2006			The Same 25 Installers and the Rest in the CSI Residential Program Conditional Reservations Jan thru June 2007			% Change		
	MW	Sales \$ Mil	Installs	MW	Sales \$ Mil	Installs	% kW	% \$ Sales	% Installs
The Top 25 CEC Installers	9.6	\$86.8	1,815	3.4	\$33.4	743	-64%	-62%	-59%
The Rest of the Installers	9.2	\$84.1	1,872	2.9	\$27.3	582	-69%	-68%	-69%
Total	18.8	\$170.9	3,687	6.3	\$60.7	1,325	-66%	-64%	-64%
Installers that Received an Approval / Conditional Reservation	More than 310			Less than 200			> -35%		

We have reported a number of impacts to the residential solar industry and how these have driven up cost and lengthened the payback on solar systems. In fact, a survey conducted of California residential installers showed that the new CSI program's requirements had increased each company's fixed cost and variable cost. We calculate the range of additional CSI program expenses, based on a

typical 2 kW to 4 kW residential system sizes to be between \$.50 and \$.75 per watt. In the survey other costs such as labor, insurance, shipping, fuel and materials were also all up in total from \$.10 to \$.15 per watt. Key solar components, PV modules and inverter costs were flat. In total, cost increases range from \$.60 to \$.90 per watt. Yet, we found that only some of the increased costs absorbed by the industry have been passed through to consumers.

Table 3 shows that from the first half of 2006 to the first half of 2007 installers passed on only \$.54 per watt of their total cost increases and that consumers saw a \$.30 per watt drop in incentive. Combined, consumers are now faced with significantly higher costs and as a result, longer paybacks. On top of this, they have their own set of CSI program burdens and as reported by the industry, *consumers are simply opting out.*

Table 3

	CEC Incentive at \$2.80 / Watt Jan thru June 2006	CSI EPBB Incentive at \$2.50 / Watt Jan thru June 2007	CSI EPBB Incentive at \$2.20 / Watt Next Change to Step 3
Residential Install Size in CEC AC Watts	3,500	3,500	3,500
Average Installed \$/Watt	\$9.10	\$9.64	\$9.64 **
Incentive \$/Watt	\$2.80	\$2.50	\$2.20
Installed Cost	\$31,850	\$33,740	\$33,740
California Incentive	\$9,800	\$8,750	\$7,700
Installed Cost after CA Incentive	\$22,050	\$24,990	\$26,040
Installed \$/W after CA Incentive	\$6.30	\$7.14	\$7.44
Federal Incentive this System	\$2,000	\$2,000	\$2,000
Installed Cost after CA and Fed Incentives	\$20,050	\$22,990	\$24,040
Installed \$/W after CA & Fed Incentives	\$5.73	\$6.57	\$6.87
Simple payback in years if the average \$/kW starts at \$.20 and escalates at 3% per year	14	15	16

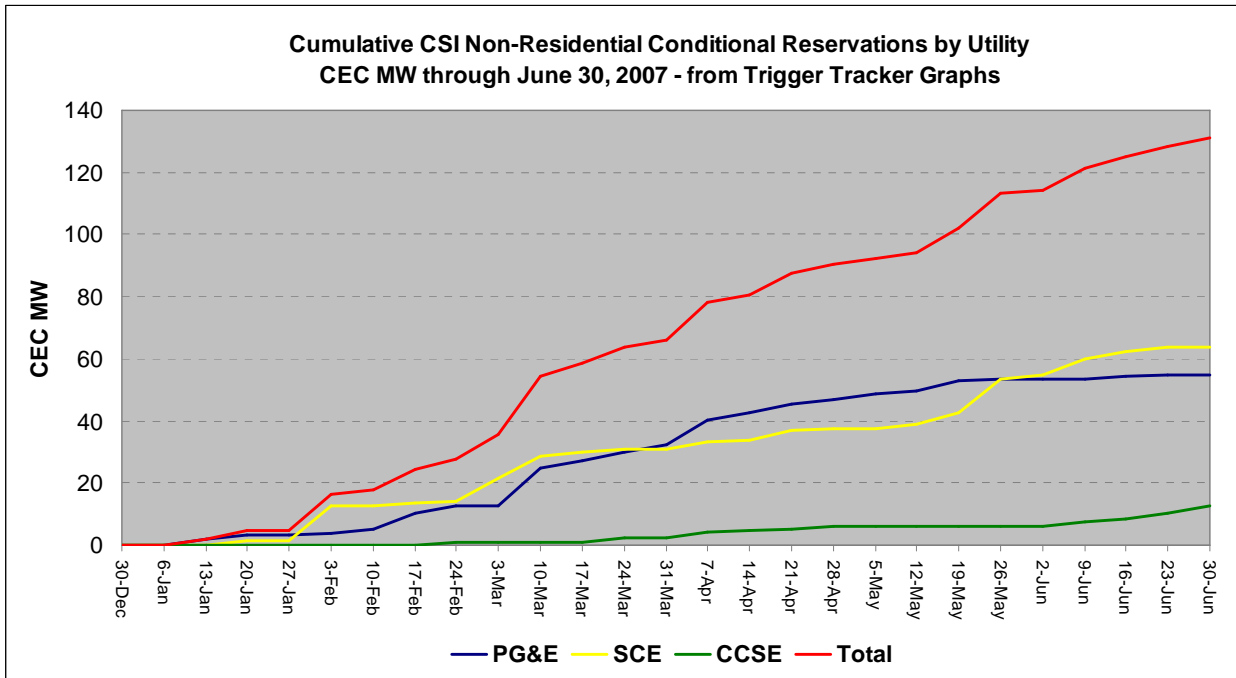
** SunCentric believes that the Installed \$/Watt will continue to increase and further impact consumers

Consumer net costs after incentives have escalated almost \$3,000 from the first half of 2006 to the first half of 2007 and in the orange column, with PG&E's looming transition to Step 3, \$2.20 per watt; consumer cost will increase another \$1,000. In our view this will bring sales in the only active residential program area to a grinding halt.

Non-Residential Segment (was) Roaring down the Track

In sharp contrast to the stalled residential program, the 'Non-Residential' segment of the business transitioned nicely from the older SGIP program. And based on the Trigger Tracker totals, Chart 10 shows that in the first six months of the new CSI the non-residential segment took off like a bullet train - reserving over 130 MW and over 11% of an imagined 10 year program in the first six months.

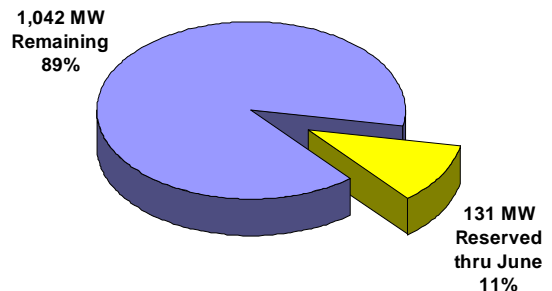
Chart 10



So why was the Non-Residential Segment initially so successful?

We believe that: the combination of correct incentive levels that delivered a fair return on investment, seasoned commercial integrators working with familiar administrators, the rapid acceptance of performance based incentives (PBI), a developing solar-finance industry that could make a reasonable profit, and the removal of the cap that limited the number of MWs per customer allowing large retail chains, and others to ‘Go Solar’ - were the catalyst for these impressive initial achievements.

**CSI Non-Residential Results through June 2007
1,172.5 MW Available Total**



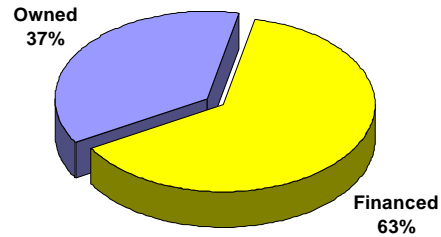
By watching the Trigger Tracker results each week we began to see that the non-residential segment was in ‘Hyper-Application’ mode - like a solar gold rush. Project developers and Power Purchase Agreement and Lease (PPA&L) providers scrambled for the most lucrative incentives, first in Step 2, \$2.50/Watt or \$0.39/kWh, then in Step 3, \$2.20/Watt or \$0.34/kWh, until each of these steps, in PG&E and SCE had been consumed.

This year’s program requires all systems 100kW and greater to use the PBI incentive. Solar systems of these sizes start at around \$800,000 and go up to many millions. Increasingly businesses want solar, but the vast majority do not have the ability to fully consume the 30% Federal tax credit and/or choose to preserve their capital for other uses. Third party financing delivered the solution. The PPA&Ls dominated the market because they could offer a reasonable return to their investors and offer businesses substantial electricity savings and price stability over term, *with no upfront costs*.

They became the key sales tool for project developers and the market would have been significantly smaller without them.

In the program data, we found that more than 60% of the non-residential solar projects were sold using PPA&L finance products. And because the finance method does not have to be disclosed at the time of application, we believe that ultimately 70% or more of completed projects will use Power Purchase Agreements and Leases.

**CSI Non-Residential Owned & Financed Projects
January through June 2007**

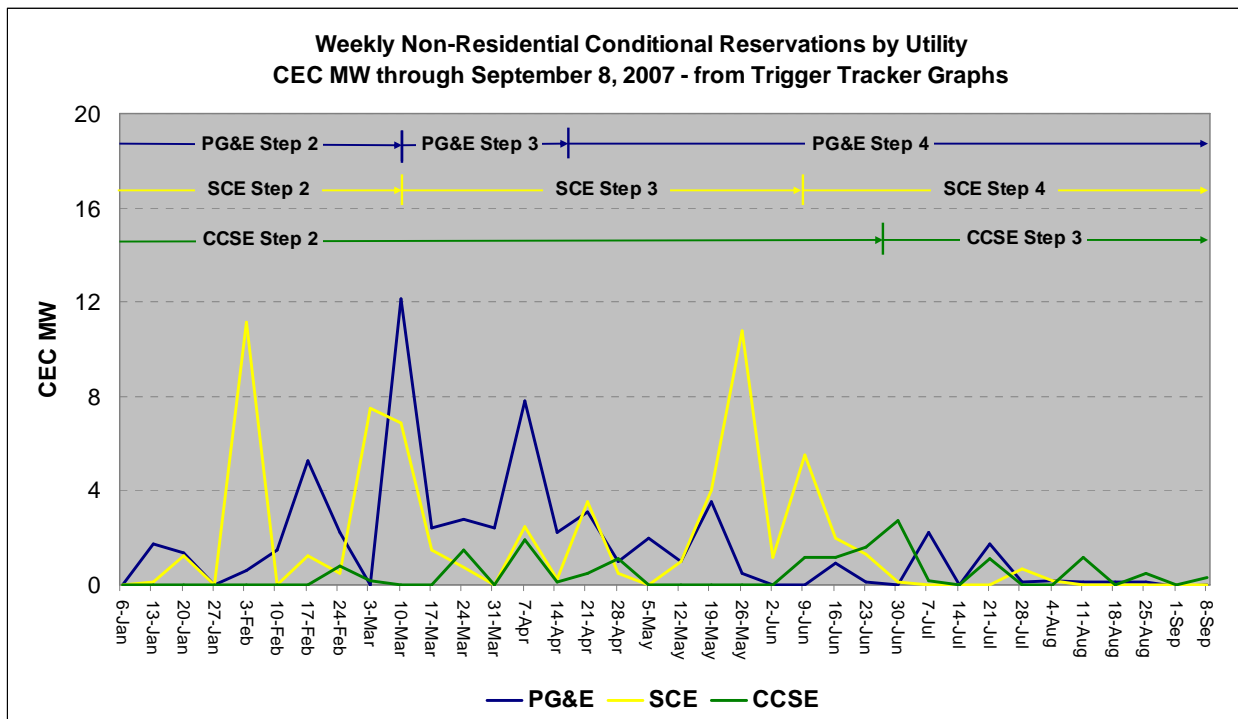


The initial success during the first six months proved definitively that at the *right* incentive level California's solar market can flourish! Conversely, the results also show that as incentives have dipped below the *right* level - the program *has* come to a halt.

Commercial Segment now out of steam...

Chart 11 shows how quickly the *right* incentive levels were consumed by solar customers – across each of the utilities' Steps since January. The first incentive levels drove the market, but now that PG&E and SCE have entered Step 4, demand has almost stopped. No one should be surprised considering the huge incentive decline in the first six months. Since there has been no increase in electricity prices and at best only small reductions in solar system costs during the year - key factors in solar system paybacks - it is now difficult for solar businesses to craft a reasonable financial offer for either a conventional purchaser or a PPA&L non-residential prospect.

Chart 11



There has been much discussion about the merits of time based and volume based incentive triggers. In the former SGIP and CEC programs, incentive changes were time based which gave solar customers, the industry and the PAs predictability and certainty. In the new CSI program, incentives change on a megawatt volume basis. In either system, when incentives are about to change, there is a surge in demand as customers take advantage of higher incentives. As anticipated with the CSI, there was significant anxiety at each Step transition because customers did not know what incentive they would receive, developers did not know if they had a real project and the PAs had a handful administratively. We feel that a time based program would make things easier for all the parties, but at Step 4 incentive levels, there will probably be plenty of time to discuss it.

Table 4 shows just how significantly the Commercial and Government/Non Profit incentives have declined since January 1, 2007. Notice the % change. This year, 100kW and greater systems have been especially impacted because they must use the \$/kWh incentive. Next year, systems greater than 50kW will be required to use the \$/kWh incentive.

Table 4

	Commercial Incentive Change Since January 1		Govt / Non Profit Incentive Change Since January 1	
	\$/Watt	\$/kWh	\$/Watt	\$/kWh
Step 2	\$2.50	\$0.39	\$3.25	\$0.50
Step 4	\$1.90	\$0.26	\$2.65	\$0.37
\$ Change	-\$0.60	-\$0.13	-\$0.60	-\$0.13
% Change	-24.0%	-33.3%	-18.5%	-26.0%

Chart 12 shows that the non-residential businesses reduced the installed cost since the first quarter of 2006. Using the \$/Watt incentive for simplicity, customers were seeing improved costs but with the incentive decline from Step 2 to Step 4 and a small bump in installed cost in the second quarter of 2007 customers have seen cost climb, especially commercial customers - the most active part of the non-residential segment. Using the \$/kWh incentive for this analysis introduces variability into the discussion; however, it is certain that potential customers have seen a dramatic reduction in the incentive payment, paid monthly over 5 years, since January 1.

Chart 12

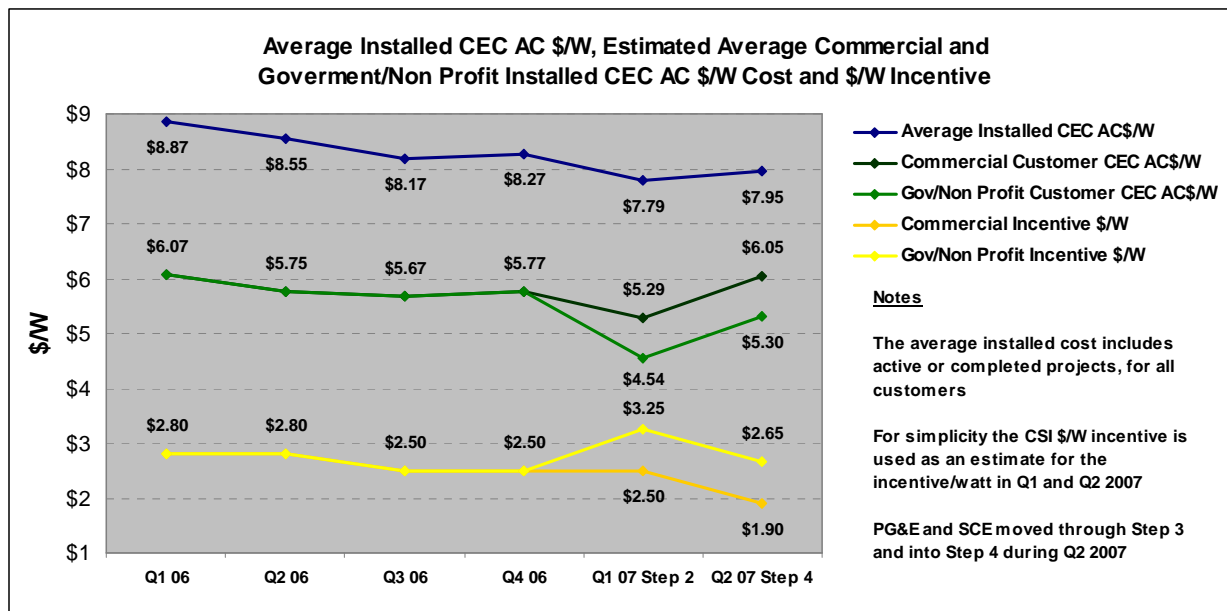
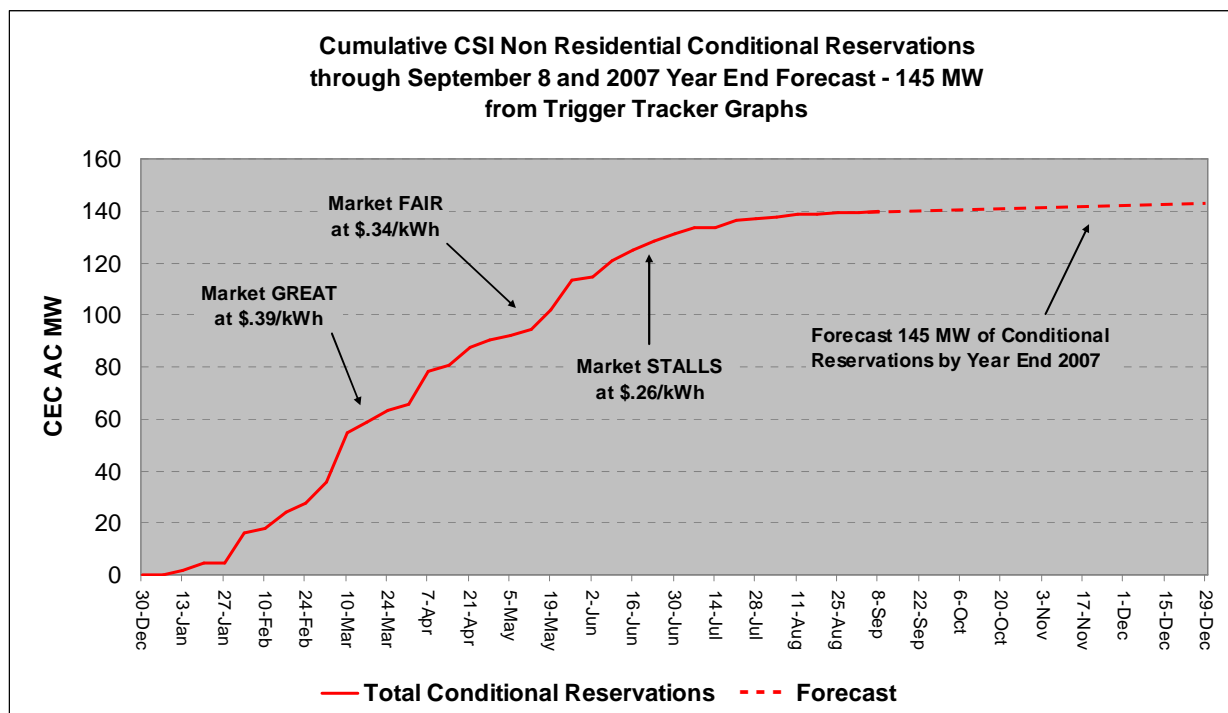


Chart 13 is a cumulative view of the year to date results for the three utilities and clearly shows how demand has fallen as incentives have declined. For this reason we are forecasting a basically flat and very discouraging finish for the year - about 145MW of Conditional Reservations.

Chart 13

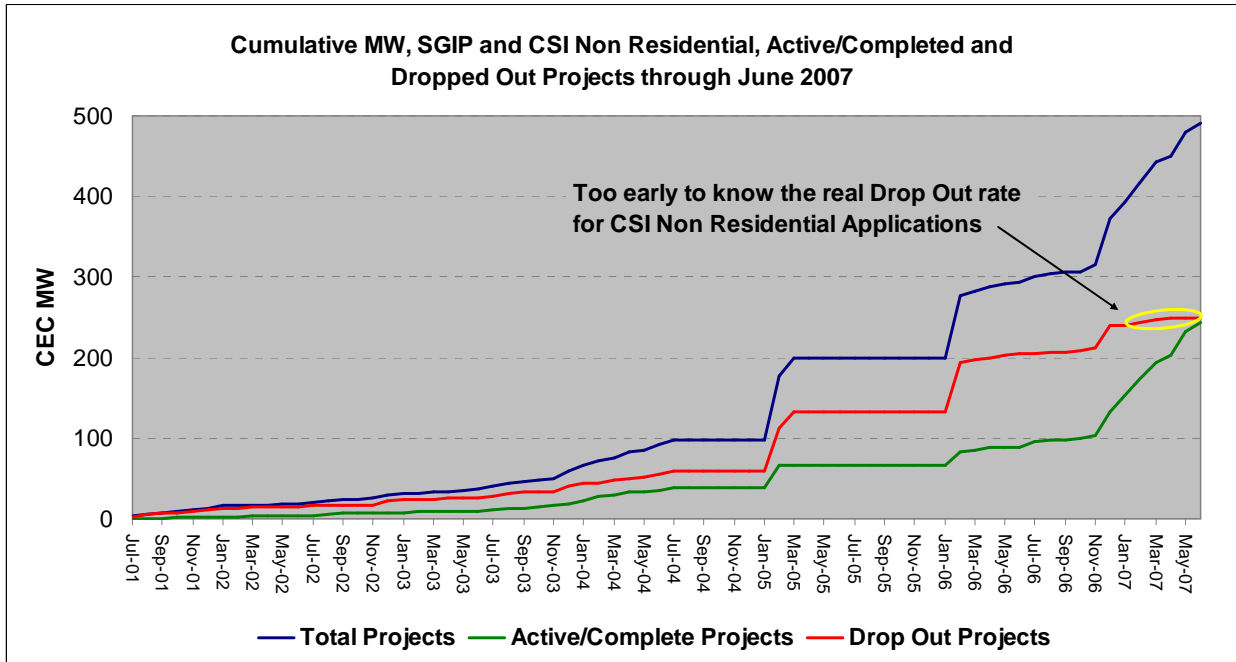


The question is what will happen now?

Luckily, the non-residential solar developers not only have carryover projects from the former SGIP program but will have a large ‘book’ of CSI projects to work through. Based on the 2006 U.S. commercial installation rate of about 60MW, this 140 plus MW backlog may keep them busy for a year or more. The size and number of projects, the industry’s ability to grow and potential issues with PV module and inverter supply may drive project completion times over the program limits. The PA’s alone can grant extensions of up to 180 days - let’s hope they do.

While a backlog of business can be great, another problem looms. Chart 14 shows that California’s historical non-residential project dropout rate - projects that will not be completed - is over 55%. Interestingly the data also showed that out of about 250 companies who participated in the program the Top 10 companies caused 137 MW or 55% of the dropouts. If the same cast of characters cause dropouts in the CSI program - *they hurt the whole industry* because based on new program rules these ‘dropped out’ project MWs will be placed into Step 4, not back in Step 1, Step 2 or Step 3 where they were issued. If the CSI dropout rate is similar to SGIP dropouts - and only time will tell - these dropouts could potentially cause Step 4 to grow from today’s 42 MW, to our estimate of over 90 MW - and stall the industry at Step 4 for the foreseeable future. A positive possibility is that the PPA&L companies with their very structured approach to business and strong agreements with their customers may reduce project dropouts.

Chart 14



We also see the possibility that non-residential system sizes will get smaller as integrators find they can ‘peak-load shave’ a customer’s top electrical tier and deliver reasonable payback. This strategy may allow the program to chug along at a reduced rate. This idea will not work in areas like San Diego, where demand charges penalize system payback.

Technologies such as lower cost thin film PV and higher energy harvesting systems that use single axis trackers may be able to reverse the trend in certain areas of the state, or for specific projects. It is unlikely that traditional silicon based PV module performance will increase enough or that module price will decline enough near term to return paybacks to reasonable levels statewide.

At the reduced Step 4 incentives, PPA&L companies are having a much more difficult time offering a sufficient savings to potential California customers while meeting their IRR and ROI requirements. This may cause a chilling effect on the influx of capital needed to support California’s financed solar projects.

A Triumph or a Train Wreck?

As you can tell, the data does not paint a very optimistic picture about the prospects for solar in California, especially if we stay on *this* track. However there are enough signals from the former programs and the current program to avoid a train wreck. The troublesome signs we’ve reported should lead to some constructive discussions about how to modify the CSI program, accelerate the business, create a sustainable industry and start to satisfy California’s obvious desire for solar electricity.

Before we make our recommendations, we need to tackle a few important issues that may have driven some assumptions during the design of the current CSI program.

First is California’s view that based on the size of the program, they can drive solar costs down. The reality is that other current and developing world markets offer substantially larger MW opportunities

and deliver more potential profit for solar equipment manufacturers. Yes, every MW helps, but even California's hoped for few *hundred* MWs of projects each year will not drive solar costs down significantly. Considering the rapidly growing worldwide multi-*gigawatt* market, it is much more likely that California will instead benefit from other country's investment in solar.

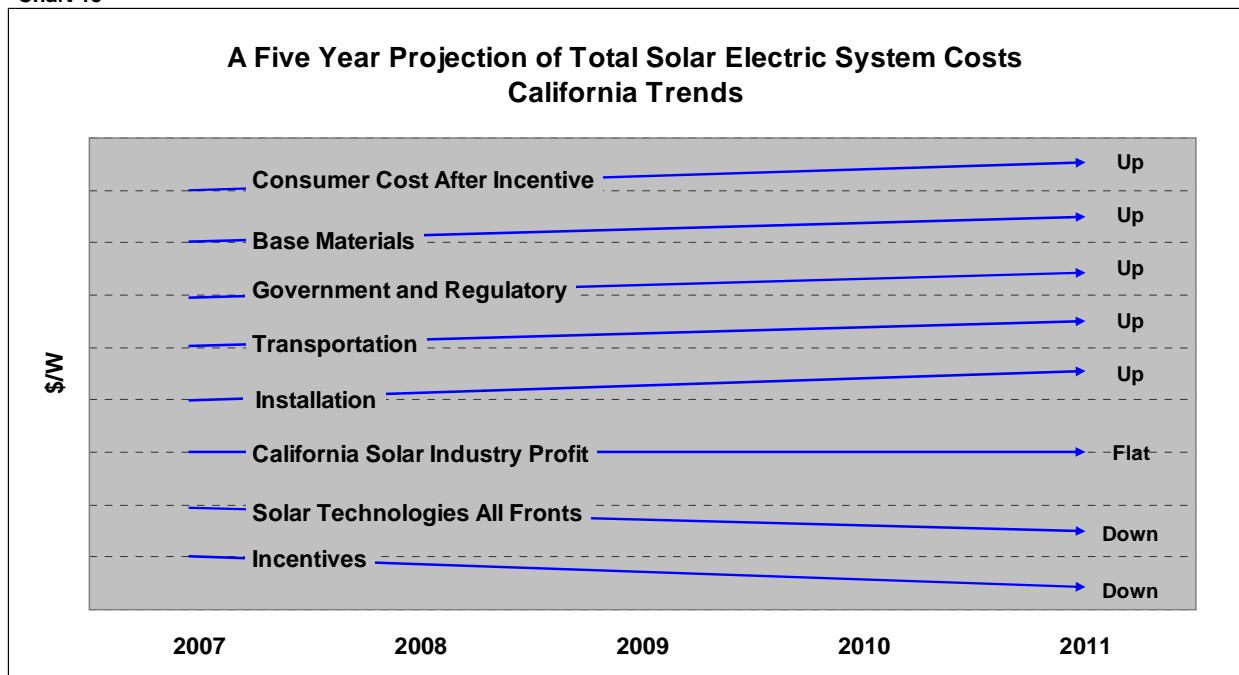
Secondly, it is important to understand that a solar electric *system* is made up of and impacted by:

1. Base materials – copper, iron, steel, aluminum, silver, glass, petro-chemicals and wood products
2. Government and regulatory requirements – federal, state and local laws and regulations, solar program requirements, National Electric Code rules and NRTL safety standards
3. Installation – labor, insurance, workmen's compensation, fuel, equipment and other business overhead
4. Transportation – international shipping to local delivery

And yes, *systems* include PV modules and the silicon required to make each cell. It is here - with PV technology improvements - that almost everyone wants to imagine dramatic *system* cost savings. Today this is not realistic. Based on current worldwide manufacturing costs, only about \$.85 per watt of silicon is now embedded in the total *system* cost per watt. So, even if the silicon was now FREE this might just offset the other cost increases that we report have impacted solar *system* cost this year.

Chart 15 shows our view of the elements that comprise total system cost. While we have intentionally avoided quantifying the cost changes, the arrows represent our view of the trends. As a real world example, base materials, fuel, transportation and CSI related expenses have pushed costs up as incentives went down. This happened faster than any solar industry cost improvement could possibly be delivered.

Chart 15



Our immediate questions are: *Can the industry reduce the costs that **they control** quickly enough to offset the higher future costs that **they don't control**? Can they get customers to buy in the face of decreasing incentives? Can they still make a profit?*

We think that the answers to these questions are not very good at the moment, and that the CSI program is in trouble. But, it can be fixed. Throughout this project we continually asked ourselves what we would do to correct the current CSI situation. The following recommendations summarize our solutions.

Residential Recommendations

1. **Installers not administrators.** We believe that we do not need 45 pages of paperwork to do a 3,500 watt solar system, but if it is necessary, then please compensate the installers for their time as administrators. We suggest that the installers be reimbursed \$1,200 per completed job from the PA's for their CSI administrative costs, retroactive to January 1, 2007.
2. **Simplify the paperwork.** The CPUC should expedite a change to "CSI EZ", a simplified CSI residential paperwork package that is no longer than 5 pages, including interconnection documents. Use the former CEC program as your guide. Please continue to reimburse the installers as described in Point 1 above until CSI EZ is ready for prime time.
3. **Eliminate the EPBB calculator.** Change the residential incentive calculation back to the ERP CEC program calculation. Only allow systems that have zero shading and are oriented from Southeast to West to receive an incentive. Forget about tilt - the houses are already built and homeowners prefer modules mounted flush to the roof. If you set a % for shading there will always be disputes - and trees grow over time and increase shading. We think this simplification will result in about the same amount of MWh for the program. Compared to the complicated process and inaccurate estimates from the EPBB calculator, this will ease program administration and reduce confrontation.

If a homeowners elects to use the PBI \$/kWh incentive, then take the total incentive amount as calculated above and multiply it by a factor of 1.1, for example, to reserve the funds for their monthly PBI payment.

4. **Eliminate geography as an incentive criterion.** This decision and its implementation, unfairly penalizes many favorable solar locations. As an example some locations receive 15% less incentive for only 10% less summer kWh production. California has great solar resources. Why reduce the residential market size so severely and penalize ratepayers?
5. **Set PA application processing time limits and penalties.** The program administrators should be required to complete all their work, approvals, inspections, interconnection and incentive check writing, within set time periods. If their total time for an application is greater than the total time allowed, they should pay interest to the installer on the eligible cost of the project. We suggest that the entire PA time be capped at 30 days.
6. **Reset the incentives.** Remember a "one size fits all" incentive level does not work when electric rates vary so widely among the utilities. However, after extensive analysis we think \$3.20 a watt will get the market going in many areas. So, reset the Step 2 incentive level to

\$3.20 per watt and reduce the incentive 7% for Step 3 to \$2.98 and 7% for Step 4 to \$2.77. In this scenario, SCE and CCSE would go to the new Step 2 incentive of \$3.20 per watt and PG&E would go to the new Step 3 incentive of \$2.98 per watt. Re-evaluate market conditions well before Step 4 is fully reserved. Make the change now - don't wait for potential new Federal incentives.

7. **Develop residential solar tariffs.** Learn from the solar friendly tariffs in PG&E and see if a similar tariff can be applied to other utilities. If a utility currently has no solar friendly tariff, create temporary tariffs until the next general rate case. Based on climate differences within the service territory it may take several temporary tariffs to stimulate market demand for solar. This highlights the need for publicly available, comprehensive analysis of rate effects on customers who choose solar electricity.

Non-Residential Recommendations

1. **Allow the *time it takes to complete projects*.** The industry needs to grow and backlogs of business create a reason to staff up, train up and invest. Managing the constraints (i.e. supply disruptions, construction delays, permitting issues) will be tough enough without being on absolute time lines. Require reasonable proof of project advancements.
2. **Reset the incentive.** There was solid commercial demand at Step 3, \$2.20/watt or \$0.34/kWh. So, reset Step 4 to \$2.20/watt or \$0.34/kWh. PG&E and SCE have had little demand at the current Step 4, so give any solar customer who received the current Step 4 amount this new Step 4 incentive. CCSE would stay at \$2.20/watt or \$0.34/kWh through their current Step 4 MWs. Make the Step 5 incentive \$2.05/watt or \$0.31/kWh. Make similar adjustments for the Government and Non-Profit customers. This should help get another 290 MWs (the Step 4 plus Step 5 total) into the pipeline. Re-evaluate market conditions well before Step 5 is fully reserved.

Other Recommendations

1. **Delay energy efficiency requirements.** Any implementation of energy efficiency requirements should be postponed until the current trends are reversed. Solar businesses are not licensed to do energy efficiency work and any attempt to implement even minor energy efficiency requirements will further slow the industry. Customers who are required to do both energy efficiency and solar to participate in the CSI may choose to do neither, based on higher cost, budget constraints or project management issues.
2. **Accuracy, transparency and open process.** Make the program data available to the public through Power Clerk. Get the data, starting with CSI Step 1, in good order and put in *all* the application information and the PA milestones. Identify which data sets are reported in the daily program statistics and graphs. Require public notice for Program Administrator and Subcommittees meeting and publish the meeting notes.
3. **Put the drop outs back into the Step they came from.** The MW and dollars allocated to each Step were expected to be available for the ratepayers to use and the industry to install. The program was budgeted to deliver this plan. For these reasons, when watts and dollars fall out they need to be put back into the Step where the reservation was approved. Then use a

simple FIFO system to reassign the watts and dollars to all projects on a chronological basis. We think this is logistically interesting, but doable - and fair.

4. **Establish a Solar Task Force.** This small group, reporting directly to the Governor, and made up of people from industry and government, would have a mission to identify the problems that impact the growth of solar throughout the state, develop practical solutions, clear the barriers and create a sustainable solar industry.

Let's get the train moving again...

Glenn Harris, CEO/President and Shannon Moynahan, Vice President of SunCentric Incorporated are solar industry veterans. They advise an international client base of current industry participants and others considering the solar industry. SunCentric offers a focused group of services that include:

- U.S. market entry issues, information and guidance
- Business development, planning and implementation
- Financial modeling and real world evaluations
- Product selection, qualification and procurement
- Key contact introduction
- Government programs and their commercial impacts

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