ENVIRONMENTAL LAW & POLICY CENTER
Protecting the Midwest's Environment and Natural Heritage

July 5, 2012

Procurement Policy Board
511 W. Capitol Avenue, Suite 102
Springfield, IL 62704
Re:Report of Communications with the IPA

Hello,

Attached, please find a report of communication with the Illinois Power Agency on behalf of Bradley Klein of the Environmental Law and Policy Center (ELPC). Should you have any questions or require additional information please don't hesitate to contact me using the information listed below.

Sincerely,

Colleen Belak
Environmental Law and Policy Center
Legal Assistant
35 East Wacker, Suite 1600
Chicago, IL 60601-2110
(312) 795-3718
www.elpc.org

REPORT OF COMMUNICATIONS WITH THE ILLINOIS POWER AGENCY

This form must be completed and submitted to the Illinois Procurement Policy Board within 30 days for each communication report required by 30 ILCS 500/50-39. Submit reports to:

PROCUREMENT POLICY BOARD
511 W. CAPITOL AVENUE, SUITE 102
SPRINGFIELD, IL 62704

Or you may send a signed, scanned copy via email *with "IPA Communication Report" in the Subject line* to: ppb@illinois.gov

Date of Communication: 6/28/2012 Time of Communication: 10:00 am

Type of Communication:

- ☐ Telephone
- ☒ In Person
- ☐ Electronic (Email, Fax, Etc.) – Attach A Complete Copy of the Entire Communication String
- ☒ Written – Attach Copy
- ☐ Other

Initiator:

Initiator of Communication: Bradley Klein
Representing: ELPC
Location: 35 E Wacker Drive, suite 1600, Chicago, IL 60601
Email Address (if communication was via email)
Telephone Number (if telephonic):
Duration of Call or In-Person Communication: 1.5 hours
Is this person a Lobbyist required to register under the Lobbyist Registration Act ☐ Yes ☒ No

Recipient(s): *(If there are additional persons involved in the communication, attach an additional sheet that lists the other participants' names, job titles, which entity they represent, email address and/or telephone number, if applicable)*

Recipient One Name: Arlene Juracek
Recipient Title: Director
Representing: Illinois Power Agency
Location:
Email Address (if communication was via email)
Telephone Number (if telephonic):

Recipient Two Name: Michael Strong
Recipient Title: General Counsel
Representing: Illinois Power Agency
Location:
Email Address (if communication was via email)
Telephone Number (if telephonic):

Recipient Three Name:
Recipient Title:
Representing:
Location:
Email Address (if communication was via email)
Telephone Number (if telephonic):

If any of these additional participants are lobbyists required to register under the Lobbyist Registration Act, *they* must submit a written report to be submitted with this communications report to the Procurement Policy Board that memorializes the communication that includes, but is not limited to (i) the date and time of each communication; (ii) the identity of each person from whom the written or oral communication was received, the individual or entity represented by that person, and any action the person requested or recommended; (iii) the identity and job title of the person to whom each communication was made; (iv) if a response is made, the identity and job title of the person making each response; (v) a detailed summary of the points made by each person involved in the communication; (vi) the duration of the communication; (vii) the location or locations of all persons involved in the communication and, if the communication occurred by telephone, the telephone numbers for the callers and recipients of the communication; and (viii) any other pertinent information.

Communication Details:

Provide a detailed summary of the points made by each person involved in the communication:
Representatives of ELPC (Brad Klein, Sarah Wochos, Barry Matchett) attended an in-person meeting with Arlene Juracek and Michael Strong of the IPA and John Sagone, John Feeley, and Jessica Cardoni of the ICC Staff. Tom Kennedy, Richard Zuraski, and Eric Schlaf of the ICC Staff attended the meeting by videoconference from Springfield. The purpose of the meeting was to discuss options for the IPA to consider as it develops a strategy for

complying with the Illinois Distributed Generation (DG) "Carve-Out" in its 2013 Procurement Plan. ELPC shared some preliminary calculations regarding the size of the program necessary to meet the DG targets in Illinois law and followed-up on some program design considerations that were discussed at length in the public workshops hosted by the IPA. These program design recommendations and calculations are listed on a "Meeting Notes" document that was shared with the parties and attached to this Communications Report. Special attention was focused on the Connecticut "ZREC" program as a potential model for the IPA to consider. ELPC also provided Michael Strong with a copy of a report from the Solar Energy Industries Association entitled U.S. Solar Market Insight Report, 2011 Year-In-Review (attached).

Was a response made? If so, complete the following for each person making the response *(attach an additional sheet that lists the other respondents' names, job titles, which entity they represent, email address and/or telephone number, if applicable)*:
Respondent Name:
Respondent Title:
Location:
Telephone Number (if telephonic):

Provide a detailed summary of the response:
There have been no responses.

Other pertinent information:
This in-person meeting was a follow-up to the July 14th email correspondence previously reported to the Illinois Procurement Policy Board.

Brad Klen
SIGNATURE

7/5/12
DATE

Distributed Solar Procurement Program
Meeting Notes
6/28/12

Goal → Help design a program to meet the Illinois solar and distributed generation carve-outs in the most inclusive, cost-effective and efficient manner possible.

Estimated DG Carve-Out Targets:

	Total Illinois DG Carve Out Target MWh	Cumulative Installed DG MW	Annual Incremental MW	Large Systems (Annual MW)	Small Systems (Annual MW)
PY 2012	-	-	-		
PY 2013	49,382	41	41	20.5	20.5
PY 2014	83,332	69	28	14	14
PY 2015	123,454	103	33	16.5	16.5
PY 2016	141,972	118	15	7.5	7.5

	Annual Incremental MW	Number of systems installed per year	
		Large Systems (high case 26kW / mid case 350 kW / low case 2MW)	Small Systems (high case 3 kW / mid case 10 kW / low case 25 kW)
PY 2012	0	0	0
PY 2013	41	791 / 59 / 10	6,859 / 2,058 / 823
PY 2014	28	544 / 40 / 7	4,715 / 1,415 / 566
PY 2015	33	643 / 48 / 8	5,573 / 1,672 / 669
PY 2016	15	297 / 22 / 4	2,572 / 772 / 309
5 Year Cumulative	**118**	**2,275 / 169 / 30**	**19,718 / 5,916 / 2,366**

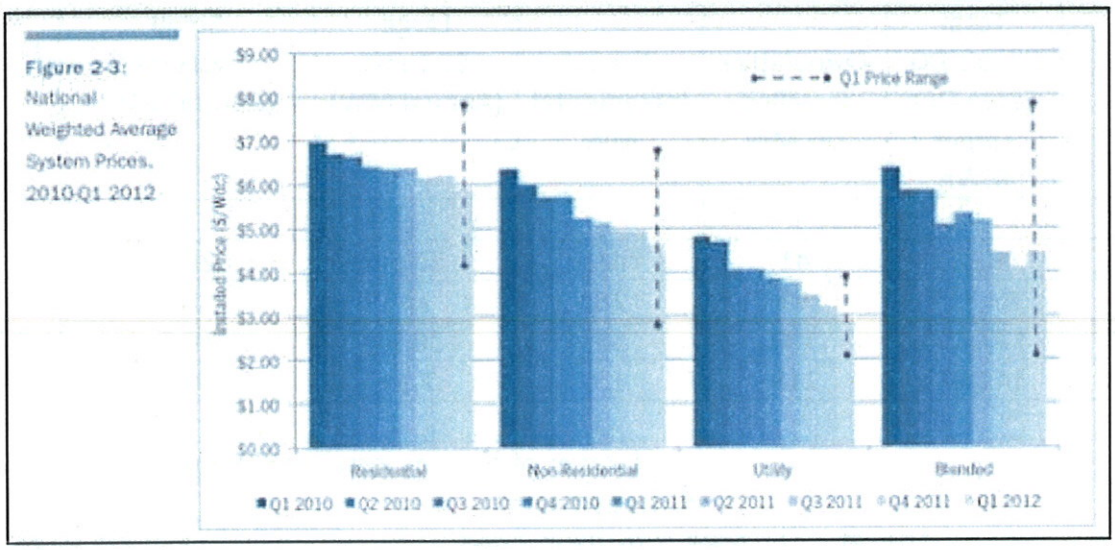
Program design considerations:

- Budget and program design transparency are critical for competitive market participation
- Developers agnostic to contract length, but shorter contracts require higher SREC price
- More frequent solicitations are preferred
- Credit of counterparty and assignability will affect financing and therefore price.
- 3rd party ownership (ppa, lease, etc) is important.
- Strive for simple program design.
- Scaled security deposits are appropriate
- Standard offer can help solve barriers to small DG market
    - Consider "gross-up" of auction clearing price to set price
    - Consider automatic price adjustment to respond to market conditions
    - Consider program administrator to "aggregate" contracts

US National Weighted Average System Prices (Installed Costs, 1Q 2012)

Residential:	$5.89/Watt
Commercial (Non-residential):	$4.63/Watt
Utility:	$2.90/Watt
Blended:	$4.44/Watt

Source: http://www.slideshare.net/SEIA/us-solar-market-insight-report-q1-2012



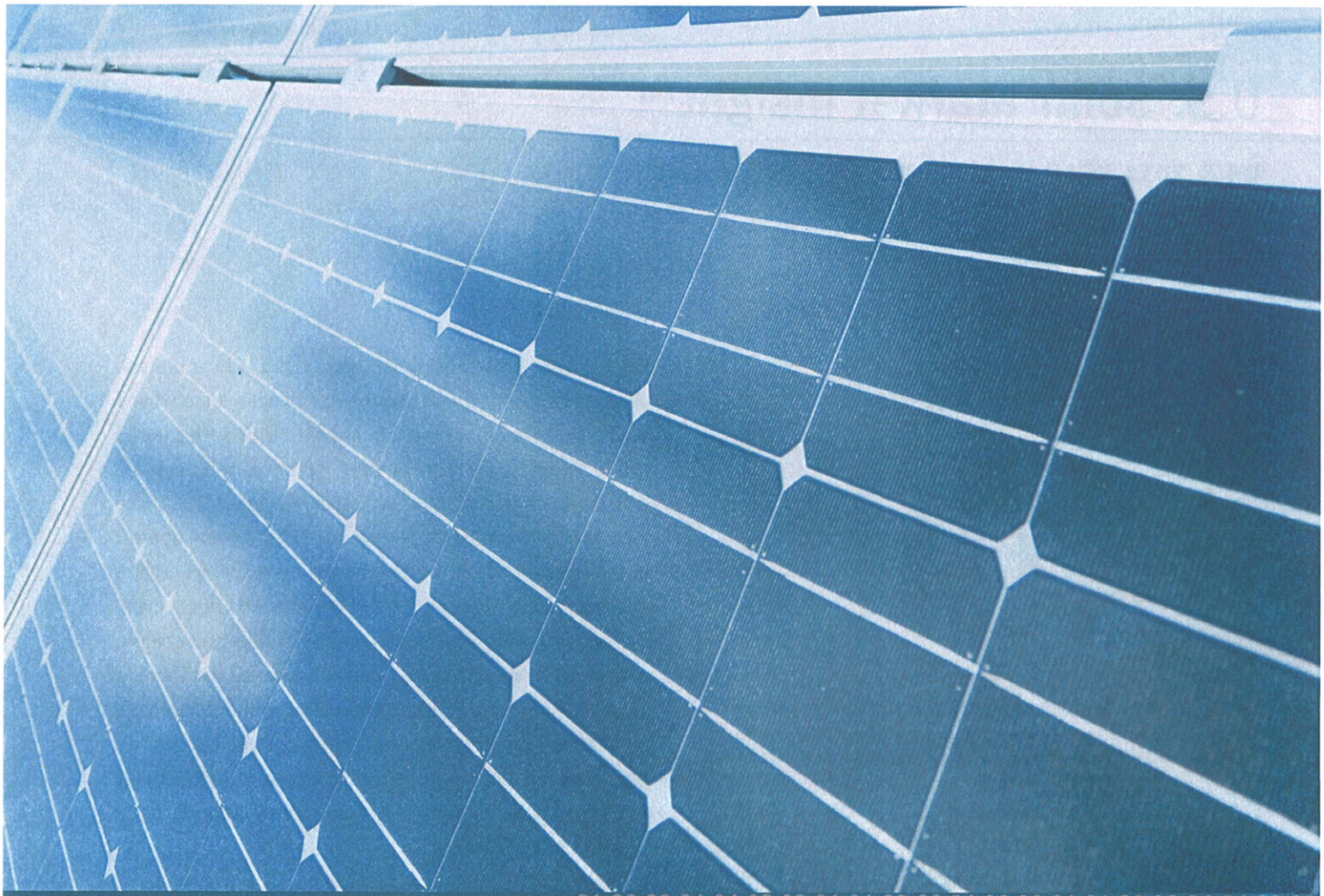
For sake of comparison:

Figure 1-2: 2010-2011 PV Installations by State

RANK ('10)	RANK ('11)	STATE	2010 (MW)	2011 (MW)
1	1	California	259	542
2	2	New Jersey	132	313
3	3	Arizona	63	273
7	4	New Mexico	43	116
5	5	Colorado	54	91
6	6	Pennsylvania	47	88
11	7	New York	23	60
9	8	North Carolina	31	55
10	9	Texas	23	47
4	10	Nevada	61	44

Connecticut ZREC program:

- $8M a year worth of 15-year contracts (meaning a funding commitment of $120M) each year for the next 6 years ($720M total commitment)
- 3 system-size tiers:
  - 250kW-1000kW systems → competitive RFP
  - 100kW-250kW systems → competitive RFP
  - < 100 kW systems (standard offer set by 100kW-250kW clearing price + 10%)



Q1 Q2 Q3 Q4 Q4 Q3 Q2 Q1 Q1 Q2 Q3 Q4 Q3 Q2 Q1 Q1 Q2 Q3 Q4 Q4 Q3 Q2
Q4 Q3 Q2 Q1 Q1 Q2 Q3 Q4 Q4 Q3 Q2 Q1 Q2 Q3 Q4 Q4 Q3 Q2 Q1 Q1 Q2 Q3

U.S. SOLAR MARKET INSIGHT

REPORT | 2011 YEAR-IN-REVIEW | EXECUTIVE SUMMARY

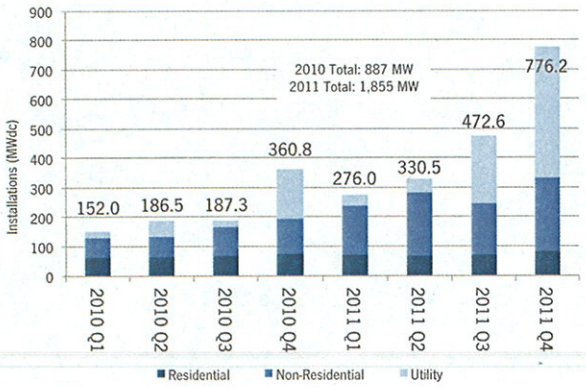
SEIA Solar Energy Industries Association®

GTM RESEARCH
A Greentech Media Company

U.S. Solar Market Insight™

Q4 & 2011 YEAR IN REVIEW: EXECUTIVE SUMMARY

Figure 1-1: **U.S. PV Installations, 2010-2011**



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10	9	Texas	23	47
4	10	Nevada	61	44
15	11	Hawaii	Complete Dataset by Market Segment Available in Full Report	
12	12	Massachusetts		
18	13	Maryland		
23	14	Delaware		
20	15	Tennessee		
16	16	Oregon		
8	17	Florida		
13	18	Ohio		
24	19	Vermont		
22	20	Washington		
21	21	Wisconsin		
19	22	Connecticut		
17	23	Illinois		
Total			**887**	**1,855**

INTRODUCTION

For the U.S. solar energy industry, 2011 was a historic year. On the positive side, the market for solar installations continued to boom, as the U.S. installed 1,855 megawatts (MW) of photovoltaic (PV) solar systems, representing 109% growth over 2010. The fourth quarter of 2011 saw 776 MW of PV installed, by far the most of any quarter in U.S. market history (473 MW was the previous record, set in the third quarter of 2011). Growth occurred in every market segment—residential, non-residential and utility—and in 18 of the 23 states that are tracked individually. The dollar amount of project finance investments reached an all-time high and traditional energy companies such as MidAmerican Energy Holdings, Exelon and NRG Energy became equity investors in the largest planned solar projects in the country.

Not all developments in 2011 were positive. With regard to installations, the highly valued 1603 Treasury Program expired at the end of the year, subsequently complicating the financing of many new solar projects. As for manufacturing, though global PV module capacity grew more than 50% in 2011, throughout most of the year global demand remained slow as a result of regulatory changes in Italy and tepid growth in Germany. Solar panel prices went into free-fall in the second quarter and refused to stabilize until the last weeks of 2011, ultimately falling more than 50% during the year. This squeezed profit margins for every manufacturer, but it was particularly damaging for two types of companies: those that were less cost-competitive and those that were in the process of commercializing new technologies. As a result, multiple U.S. module manufacturing plants closed over the course of 2011. Despite these closures, U.S. module manufacturing capacity expanded 28% and production remained flat for the year when compared to 2010.

Introduction continued on page 4.

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KEY FINDINGS

Photovoltaics (PV):

- **PV installations grew 109% in 2011** to reach 1,855 MW, which represents 7.0% of all PV globally, up from 887 MW and 5.0% of global installations in 2010.
- Cumulative PV capacity operating in the U.S. now stands at 3,954 MW.
- There were **28 individual PV projects over 10 MW** each completed in 2011, up from only two in 2009.
- **Eight states installed over 50 MW** each in 2011.
- Installation totals in 2011 increased in 18 of the 23 states we cover in detail.
- Weighted average **PV system prices fell 20%** in 2011 as a combined result of lower component prices, improved installation efficiency, and a shift toward larger systems.
- There were over 61,000 individual PV systems installed in the U.S. in 2011, bringing the total number of operating systems in the U.S. to more than 214,000.
- In total, the U.S. produced 40,658 metric tons (MT) of polysilicon, 384 MW of wafers, 969 MW of cells, and 1,219 MW of modules in 2011; in sharp contrast to 2010, which saw 100% growth in production across the PV value chain, 2011 saw production stay mostly flat for polysilicon and modules, and shrink significantly in the case of wafers and cells.
- Blended average Q4 2011 prices for polysilicon stood at $43/kg, while blended prices for wafers, cells, and modules were $0.40/W, $0.65/W, and $1.15/W, respectively. Prices for polysilicon and modules experienced drops of 37% and 40%, respectively, from Q4 2010 to Q4 2011. Price drops for wafers and cells over the same period were even steeper, at 62% and 60%, respectively.
- **Overall, the value of systems installed in the U.S. in 2011** climbed to $8.4 billion, up from $5 billion in 2010.

U.S. Solar Market Insight™ is a quarterly publication of the Solar Energy Industries Association (SEIA)® and GTM Research. Each quarter, we survey nearly 200 installers, manufacturers, utilities, and state agencies to collect granular data on photovoltaic (PV) and concentrating solar. These data serve as the backbone of this Solar Market Insight® report, in which we identify and analyze trends in U.S. solar demand, manufacturing, and pricing by state and market segment. We also use this analysis to look forward and forecast demand over the next five years. As the domestic solar industry expands, U.S. Solar Market Insight® will provide an invaluable decision-making tool for installers, suppliers, investors, policymakers and advocates alike. See the back cover of this report for more information.

Concentrating Solar Power (CSP and CPV):

- Construction on the 30 MW Alamosa CPV plant began in the first half of 2011.
- Financing was secured in Q3 for four concentrating solar projects representing over 600 MW of capacity.
- PPAs were approved in Q4 for over 400 MW of concentrating solar projects.
- **Over 1,000 MW of concentrating solar projects are under construction** as of December 31st, 2011.
- As of December 31st, 2011, there was a total of 516 MW of concentrating solar capacity operating in the U.S.

Solar Energy Industries Association:

Tom Kimbis, Vice President, Strategy & External Affairs
Scott Fenn, Director of Research
Justin Baca, Senior Research Manager
Will Lent, Research & Policy Analyst
Shawn Rumery, Research Analyst
Mari Hernandez, Research Analyst
research@seia.org

GTM Research Solar Analysts:

Shayle Kann, Managing Director
Shyam Mehta, Senior Analyst
MJ Shiao, Solar Analyst
Andrew Krulewitz, Research Associate
Carolyn Campbell, Research Associate
solaranalysts@gtmresearch.com

In the wake of precipitously falling module prices, SolarWorld, along with six unnamed partners, filed an anti-dumping/countervailing duty petition against Chinese crystalline silicon cell and module manufacturers with the Department of Commerce and the International Trade Commission in October 2011. The petition alleges that Chinese suppliers benefitted from illegal subsidies and dumped product into the U.S. market. The outcome of the petition remains to be seen. However, it has already begun to impact procurement patterns and complicate the overall supply picture in the U.S.

In September 2011, Solyndra, a CIGS module manufacturer, filed for bankruptcy and brought with it a storm of negative attention to the solar industry. While Solyndra was never a significant player in the global solar industry, its default on a federal loan guarantee brought a high-profile political element that was absent for the other two U.S. solar bankruptcies in 2011 (Spectrawatt and Evergreen Solar). As a result, an industry blessed with overwhelming public support suddenly became a target for those who sought to admonish the loan guarantee program or clean energy policy in general.

While it is easy to brush aside the more outlandish claims made in response to Solyndra's failure regarding solar technology in general, the Solyndra story has brought a number of valuable questions to the forefront. First, has the support that has been given to the solar industry, both at the state and federal level, been successful? The market's impressive recent growth points to yes. Installations are booming, jobs are being added, and solar has proven itself as a reliable technology to meet growing energy demand. Second, is there a role for U.S. solar manufacturing? Here, there is reasonable debate on both sides. We continue to believe that the U.S. can maintain a presence in manufacturing innovative, proprietary technologies, particularly those in their early stages of commercialization. Apart from this, the U.S. can remain home to the bulk of innovations that drive down the cost of solar power for years to come. That being said, it would be unreasonable to expect all (or even most) solar manufacturing to come from the U.S. The solar industry is global, and consequently subject to the same economic forces as manufacturing in other sectors. Undoubtedly, some portions of the value chain will find domestic manufacturing attractive while others will not. The U.S. certainly has a role to play, but it will be over the next decade that the nature of that role will be determined. As the industry continues to mature, successful and sustainable companies will be separated from hopeful but ultimately unsuccessful ventures.

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Figure 1-3: U.S. Solar 2011 Year-In-Review

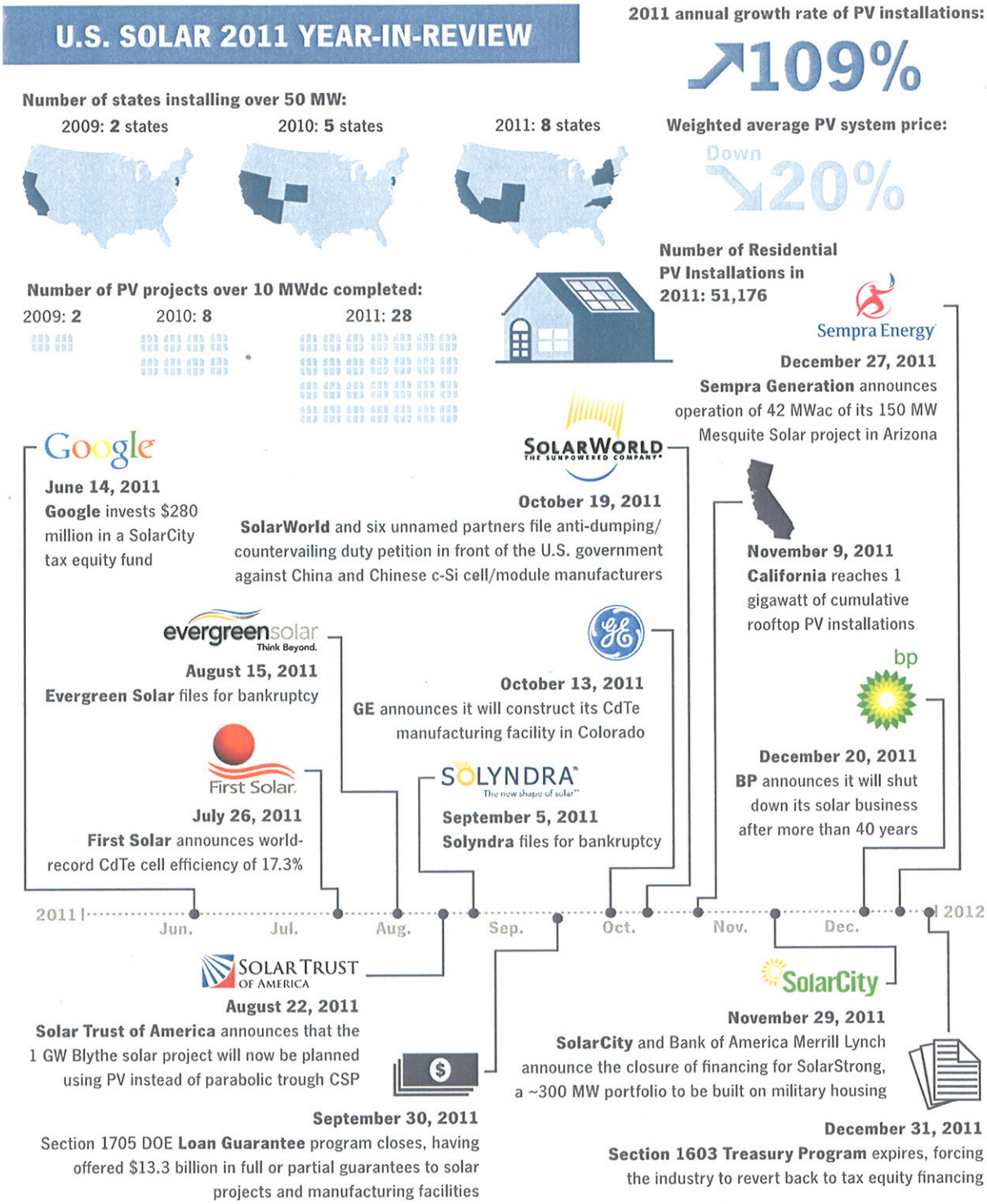

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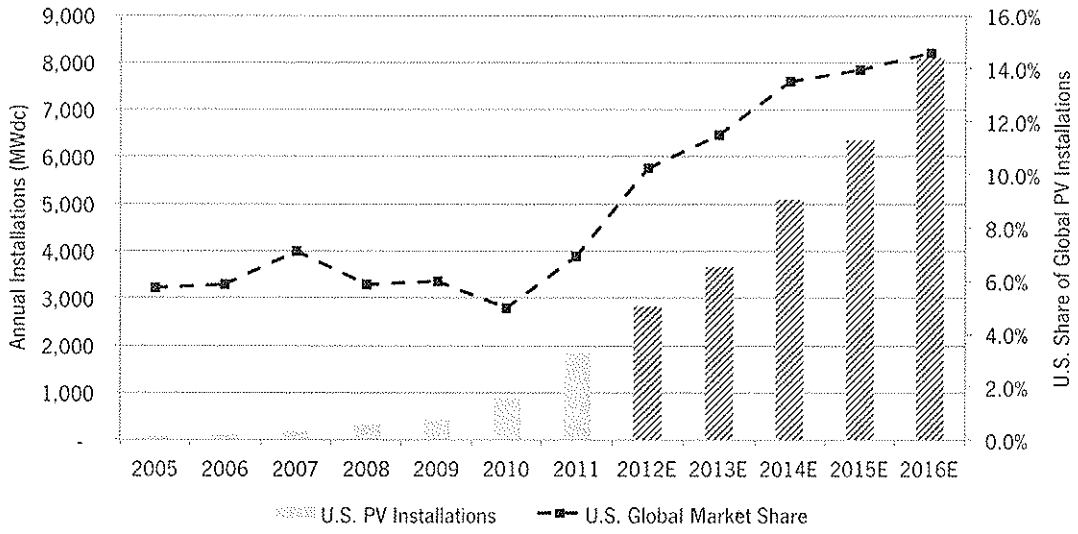
Figure 1-4: U.S. PV Installations and Global Market Share, 2005-2016E



Note: Installation forecasts by state available in full report

After a recording-breaking 2011, the U.S. has proved itself as a viable market for solar on a global scale. In 2011, the U.S. market's share of global PV installations rose from 5% to 7% and should continue to grow. We forecast U.S. market share to increase steadily over the next five years, ultimately reaching nearly 15% in 2016 – at which point we anticipate the U.S. and China to be the leading markets in the world as European markets slow down. Given that solar installations in the U.S. have more than doubled in each of the past two years, and that the current project pipeline far exceeds current installation levels, this is a highly probable outcome.

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2 PHOTOVOLTAICS

Photovoltaics (PV), which convert sunlight directly to electricity, continue to be the largest component of solar market growth in the U.S.

2.1 INSTALLATIONS

The U.S. installed 776 MW in Q4 2011, up 64% over Q3 2011 and up 115% over Q4 2010. Every market segment had a record quarter, as did ten individual states. Three factors were primary contributors to the quarter's impressive growth figures:

1. **Seasonality** – The fourth quarter is usually the strongest in the U.S. as developers rush to finish projects for tax accounting purposes and to qualify for incentives that function on a calendar year.
2. **Looming Expiration of the Section 1603 Treasury Program** – As was true in 2010, most installers were working under the assumption that Section 1603 would not be extended. Although we expect that more developers elected to safe-harbor product in 2011 (which enabled projects completed after the December 31st, 2011 deadline to qualify for the program), many projects were still completed in Q4 in order to eliminate the risk and transaction costs of safe harboring.
3. **Utility Project Completions** – There were over 400 MW of utility PV completed in Q4 2011, by far the highest of any quarter for this market segment.

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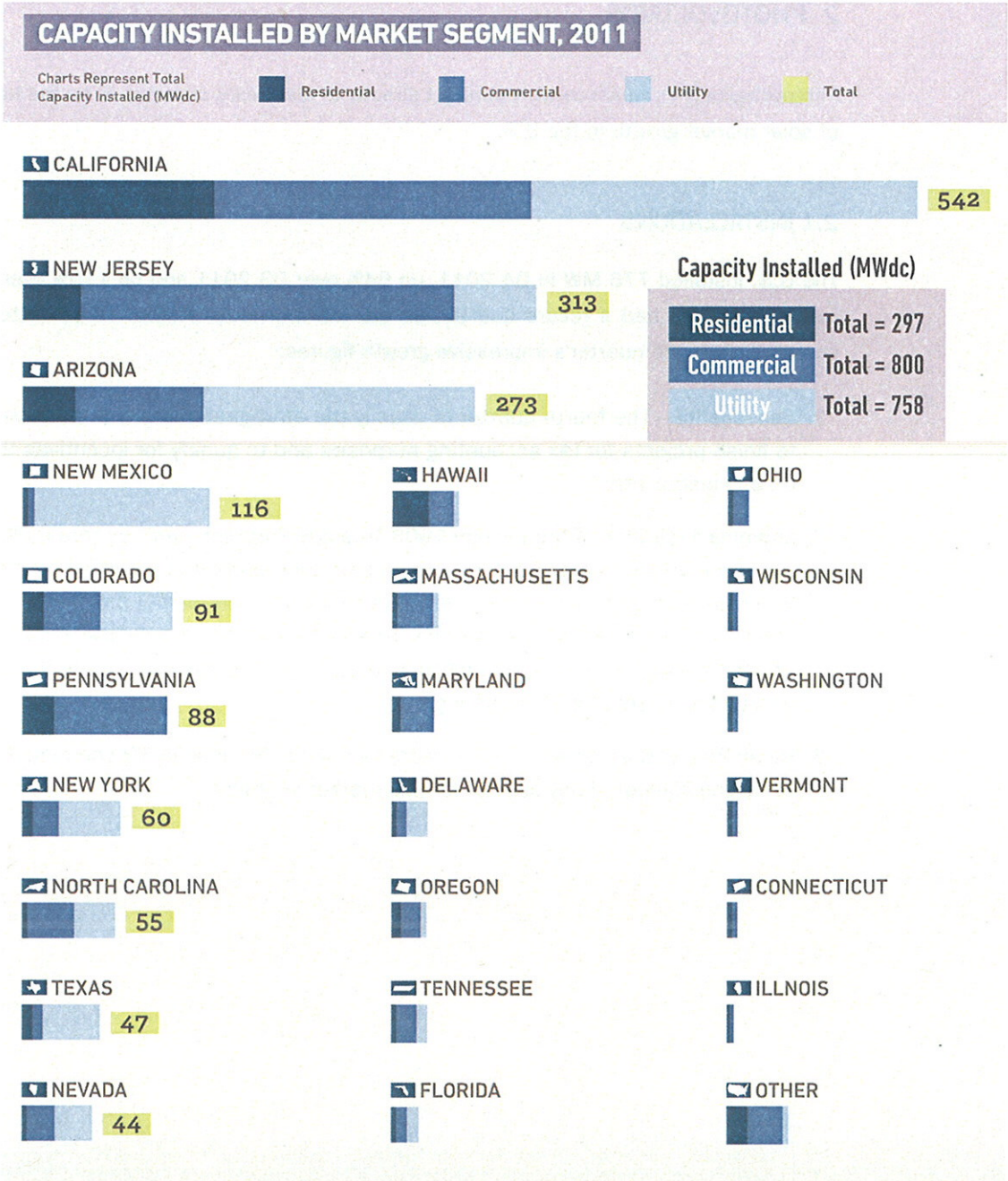
Figure 2-1: State-Level Installations



Note: Additional state details are available in the full version of this report.

For the last several years, the U.S. market has been driven primarily by the non-residential sector, which accounted for more than 50% of installations through 2008. However, the utility sector has been gaining ground, while the residential market has remained relatively steady. In 2011, the dynamic amongst market segments shifted substantially throughout the year, but the overall trend has been toward the growth of the

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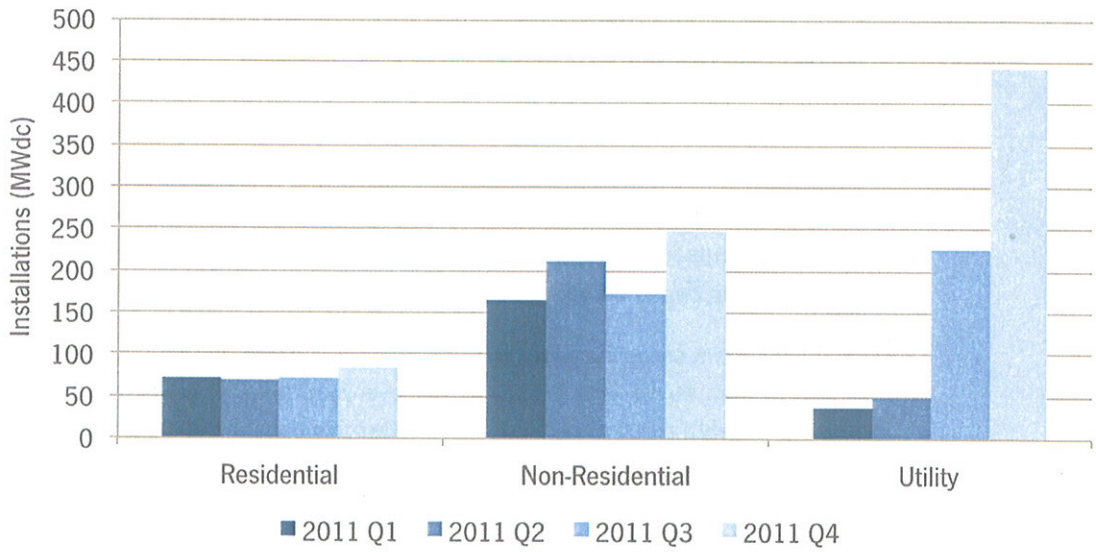
utility market. Meanwhile, the residential market showed marginal overall growth. The largest of the three, the non-residential market, which is dominated by commercial installations, was heavily dependent on state-level dynamics in California and New Jersey. The utility market, however, showed sustained growth for the first time, with 28 projects over 10 MW installed in 2011 – up from just two in 2009.

- **Residential** installations grew 11% in 2011 over 2010 to reach 297 MW. California was the primary driver of this growth, particularly in the fourth quarter. Within California and in an increasing number of other states, residential growth has been driven primarily through third-party ownership. In Q4 2011, for the first time, more third-party-owned systems were installed in California Solar Initiative territory than customer-owned systems. And over the past two years, while customer-owned systems have largely stagnated, third-party ownership sales continue to grow.
- **Non-residential** installations grew 127% in 2011 to reach 800 MW. In large part, this growth was due to two states, California and New Jersey, which contributed 56% of the national non-residential installed capacity in the fourth quarter. Both of these states should also show strong installations numbers early in 2012, but could taper off somewhat in Q2/Q3. While a number of other markets should see growth (Massachusetts, Maryland, North Carolina, Arizona), national figures will still be heavily dependent on the two largest states.
- **Utility** installations grew 185% in 2011 to reach 758 MW, by far the largest growth of any segment. Growth prospects for the utility market remain strong. There are over 9 GW of projects with signed utility power purchase agreements (PPAs) awaiting completion over the next five years. Over 3 GW of these projects have already been financed and are in construction. Beyond this, there are at least 30 GW of earlier-stage projects actively seeking permits, interconnection agreements, PPAs, and financing.

Figure 2-2: U.S. PV Installations by Market Segment, Q1 2011 – Q4 2011



Note: State-by-state market segment data is available in the full report.

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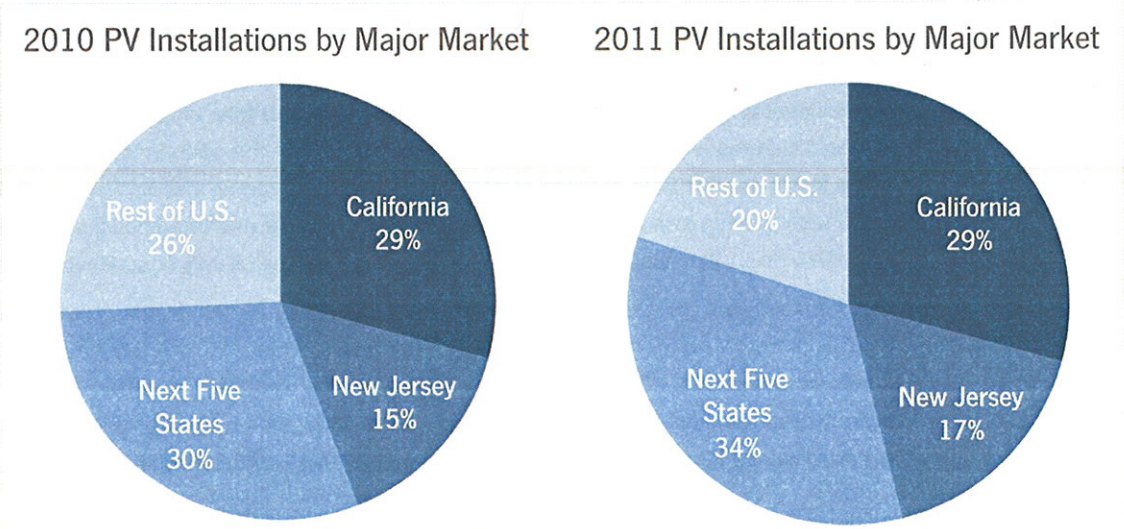
The U.S. PV market remains relatively concentrated in a few key states, although the market has been experiencing rapid geographic expansion over the past few years. Whereas California accounted for around 80% of total installations in 2004-2005, by 2010 it made up less than 30% of the national market. In 2011, California's market share remained remarkably steady at 29%. The next six states, however, grew to encompass 51% of the national market, up from 45% in 2010. In other words, while the market is shifting away from California alone, it is still concentrated in a relatively small set of secondary markets as opposed to full diversification across the U.S. In 2012, given the potential difficulties in major markets such as New Jersey and Colorado, the "Rest of U.S." category may have an opportunity to quickly increase its market share.

Figure 2-3: PV Installations Breakdown by Major Market, 2010 vs. 2011



2.2 INSTALLED PRICE

Quarter-over-quarter, the national weighted-average installed system price in the U.S. fell by 7.5% between Q3 2011 and Q4 2011, from $4.41/W to $4.08/W. Year-over-year, average installed costs declined by 20%. This average number is heavily impacted by the large volume of utility-scale and megawatt-plus commercial systems installed in Q4 2011. It should be noted that prices reported in this section are weighted averages based on all systems that were completed in Q4 in many locations.

- **Residential** system prices increased by 0.7% from Q3 2011 to Q4 2011, as the national average installed rose slightly from $6.14/W to $6.18/W. Year-over-year, installed costs declined by 3.6%. This quarterly increase is largely a result of relatively small price reductions in the major state markets of California and New Jersey while many secondary, high-cost markets grew in the fourth quarter. With a glut of cheap panels still flooding the market, it was not uncommon to find direct-owned residential systems being installed for less than $5.00/W in larger markets. However, low module prices were counteracted by an uptick in third-party-owned systems as these installations are reported as costing more than direct-owned systems.
- **Non-Residential** system prices fell by just 0.4% quarter-over-quarter, moving from $4.94/W to $4.92/W. Year-over-year, installed costs declined by 13.9%. Higher average prices in Arizona, which had a large amount of non-residential capacity installed in Q4, negated lower costs in New Jersey and Hawaii, which also had

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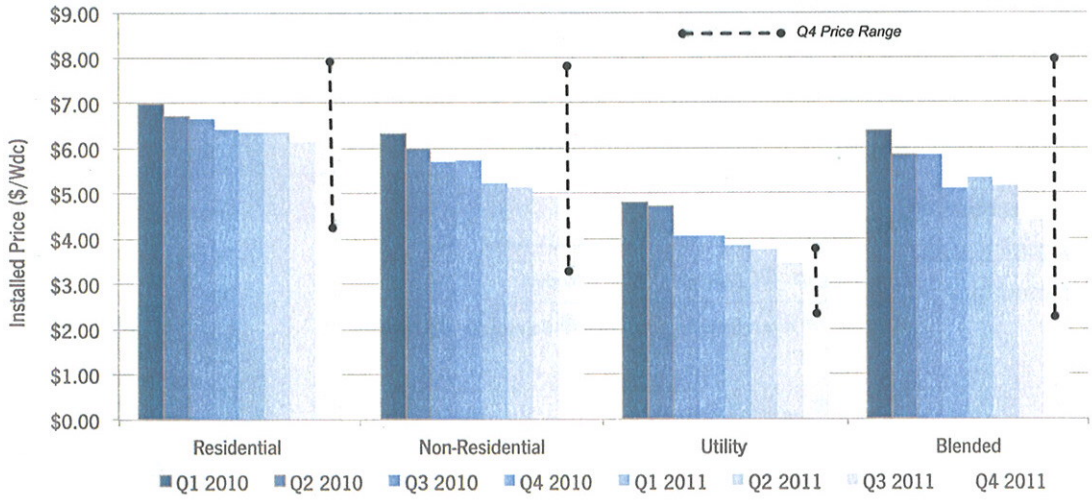
impressive quarters. California saw almost no change. As in Q3, aggressive bidding was a major factor in lower prices in the East Coast markets. With SREC prices continuing to fall, developers are constantly bidding lower to keep projects attractive to investors. For larger, well-established installers and integrators, buying significant quantities of modules on the spot market or via short-term supply agreements helped them leverage low prices during the Q4 installation rush.

- **Utility** system prices declined for the seventh consecutive quarter in a row, dropping from $3.45/W in Q3 2011 to $3.20/W in Q4 2011. Year-over-year, installed costs declined by 21%. This 7.2% reduction in costs is a direct result of a historic free-fall in the global price of solar modules, especially when purchased in large quantities. A number of large projects, including a few 20 MW-plus installations, came on-line in Q4, which further emphasized economies of scale and drove the average installed price to its lowest point in the history of the U.S. Solar Market Insight reports.

Figure 2-4: National Weighted Average System Prices, 2010-2011



2.3 MANUFACTURING

In total, the U.S. produced 40,658 MT of polysilicon, 384 MW of wafers, 969 MW of cells, 1,219 MW of modules and 1,653 MW of inverters in 2011. In sharp contrast to 2010, which saw 100% growth in production across the PV value chain, 2011 saw production stay mostly flat for polysilicon and modules, and shrink significantly in the case of wafers and cells. As shown in Figure 2-5, these relatively disappointing results come after a sustained period of robust growth for the domestic manufacturing industry.

In terms of technology trends, the dominant majority of modules produced in the U.S. in 2011 were crystalline silicon (68%) and cadmium telluride (23%), with small amounts of CIGS (7%) and amorphous Si (1%). Overall U.S. thin film production share stood at 32%, but this is expected to increase over the course of 2012 and 2013 as numerous thin film facilities come on-line and ramp up production. Thin film facilities tend to be located in close proximity to R&D resources, given their technology-intensive nature. This explains the high concentration of thin film plants in California (Silicon Valley) and Colorado (NREL), and is part of the reason why the concentration of thin film of production in the U.S. greatly exceeds its share globally.

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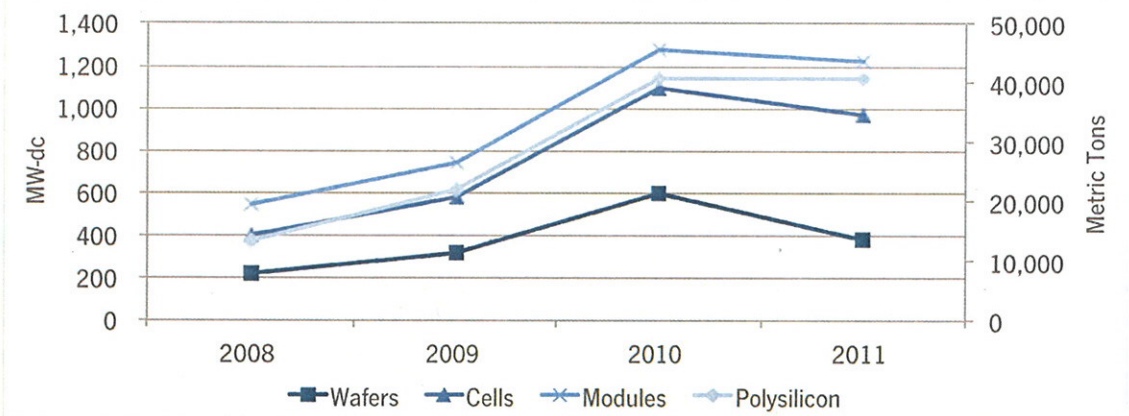
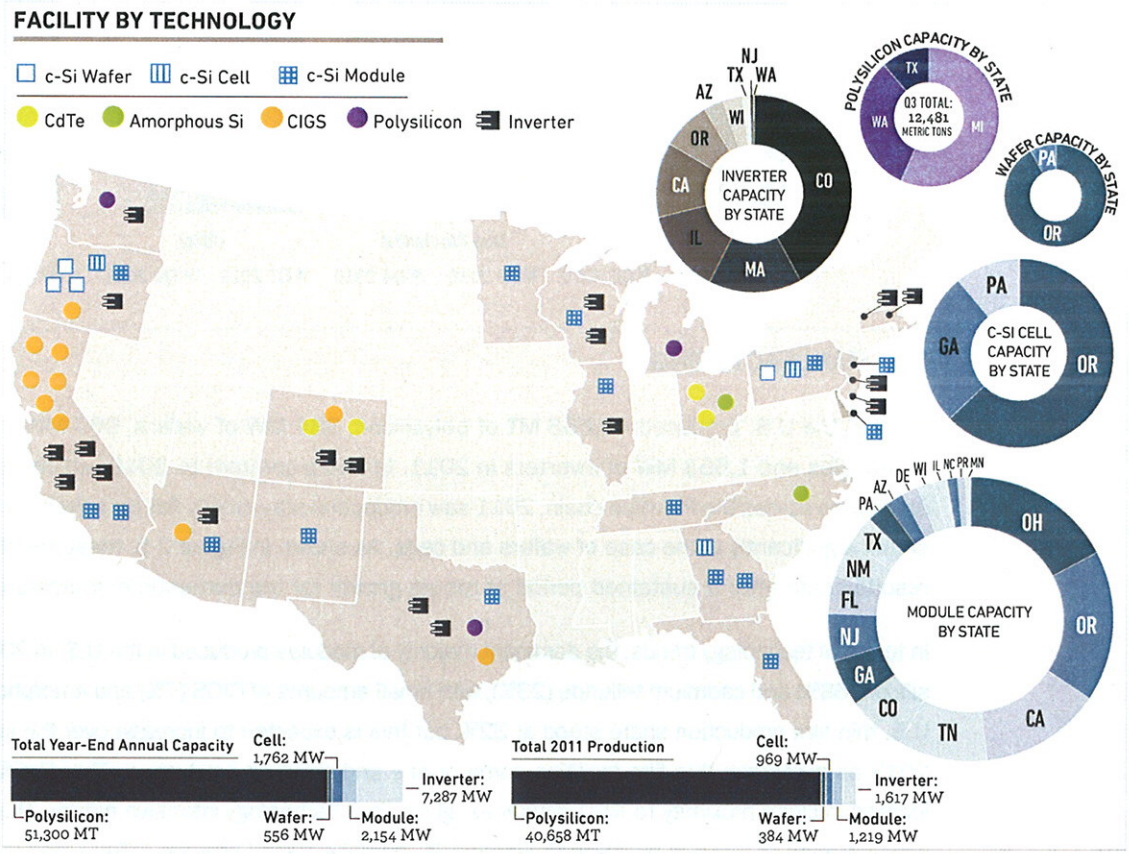
Figure 2-5: U.S. PV Production, 2008-2011



VALUE CHAIN COMPONENT	PRODUCTION UNIT	2008	2009	2010	2011
Polysilicon	MT	13,384	22,120	40,715	40,658
Wafers	MW	220	317	595	384
Cells	MW	401	580	1,099	969
Modules	MW	545	742	1,273	1,219

Figure 2-6: U.S. Manufacturing Map



Note: Full report contains market forecast through 2015 by market segment.

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Figure 2-7: U.S. Module Production by Technology, 2011

Module Manufacturing by Tech.	Capacity						Production					
	Q1	Q2	Q3	Q4	2011 Annual (Year-end)	Y/Y	Q1	Q2	Q3	Q4	2011 Total	Y/Y
Crystalline Si	334	339	314	328	1,312	-11%	270	225	205	134	834	4%
CdTe	96	106	116	126	502	46%	76	75	78	55	284	12%
CIGS	65	72	78	68	270	13%	29	28	26	8	91	-2%
Amorphous Si	18	18	18	18	70	0%	3	2	2	2	10	-92%
Total	**512**	**534**	**525**	**539**	**2,154**	**2%**	**378**	**330**	**312**	**199**	**1,219**	**-4%**

2.4 MARKET OUTLOOK

U.S. market prospects are generally strong. This quarter we have increased our base case 2012 forecast from 2.5 GW to 2.8 GW as a result of the large quantity of product safe harbored to meet the Section 1603 Treasury program year-end deadline. Most of these projects will be completed in 2012 and will prop up installation totals throughout the year. In addition, we are more bullish on near-term growth prospects in the California commercial market and in the prospects for many of the utility-scale projects in the pipeline to attain financing. In truth, 2012 market size will still be largely determined by factors that have not yet been decided, such as the final outcome of the trade petition and market dynamics in Germany and Italy.

Figure 2-8: Top Market Predictions for 2012

TOP STATES BY ANNUAL INSTALLED PV - 2012E				
Rank	Residential	Non-Residential	Utility	Overall
1	California	California	California	California
2	Arizona	New Jersey	Arizona	Arizona
3	New Jersey	Arizona	New Jersey	New Jersey
4	Hawaii	Massachusetts	Nevada	Colorado
5	Colorado	Colorado	Colorado	Nevada
6	New York	Hawaii	New Mexico	Massachusetts
7	Texas	North Carolina	Florida	New York
8	Oregon	New York	New York	Hawaii
9	Pennsylvania	Maryland	Maryland	New Mexico
10	Maryland	Nevada	Massachusetts	Pennsylvania

3 CONCENTRATING SOLAR

3.1 INSTALLATIONS

Ten concentrating photovoltaics (CPV) projects were completed in 2011. The majority of this capacity came on-line in Q2 2011, with only two projects interconnected in Q4 2011. There were no concentrating solar power (CSP) projects completed in 2011, though a number of large projects are currently under construction and

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slated for commissioning in the next two years. While total capacity installed in 2011 was lower than originally expected, there was additional progress on several of the large concentrating solar projects under development.

Significant developments in 2011 include:

- The DOE finalized a $1.6 billion loan guarantee for the 370 MW (net) Ivanpah plant.
- The 484 MW Blythe Phase I plant was offered a conditional $2.1 billion loan guarantee and subsequently switched from trough to PV.
- Solar Trust of America sold its 2.25 GW, four-project CSP pipeline to Solarhybrid, which plans to use PV for the four projects.
- Several concentrating solar projects closed DOE loan guarantees in Q3 including:
  - 250 MW Mojave Solar trough CSP project
  - 110 MW Crescent Dunes tower CSP project
  - 250 MW Genesis trough CSP project
  - 30 MW Alamosa CPV project
- Over 400 MWac of concentrating solar power purchase agreements were approved by the California Public Utilities Commission in Q4, including:
  - 250 MW Mojave Solar trough CSP project
  - 5 MW Littlerock CPV project
  - 4.8 MW Garnet CPV project
  - 4.7 MW Blythe CPV project
  - 14 MW Lucerne Valley CPV project
  - 80 MW Rugged Solar CPV project
  - 45 MW Tierra Del Sol CPV project
  - 22 MW LanEast Solar CPV project
  - 6.5 MW LanWest Solar CPV project
  - 6.5 MW Desert Green Solar CPV project

3.2 OUTLOOK

In 2012, we expect that 81 MW of CSP and CPV projects will come on-line in the U.S., up from 12 MW in 2011. Much of the capacity expansion will come from the 30 MW CPV Alamosa Solar project. It should be noted that we have significantly reduced our concentrating solar forecast in light of the announcement that Blythe would be switched from trough to PV for economic reasons. The dramatic improvements in PV panel costs have put trough at a significant cost disadvantage, and puts many of the planned trough projects at risk, as they may be difficult to finance or fail to receive regulatory approval. A massive wave of plant commissioning is expected in 2013, including Abengoa's Solana, BrightSource's Ivanpah 1, 2 and 3, and SolarReserve's Crescent Dunes. In later years, greater uncertainty regarding financing, permitting and approvals surrounds the pipeline. The current pipeline of concentrating solar projects is over 9,000 MW, of which more than 5,000 MW have signed PPAs.

References, data, charts or analysis from this Executive Summary should be attributed to the SEIA/GTM Research *U.S. Solar Market Insight*

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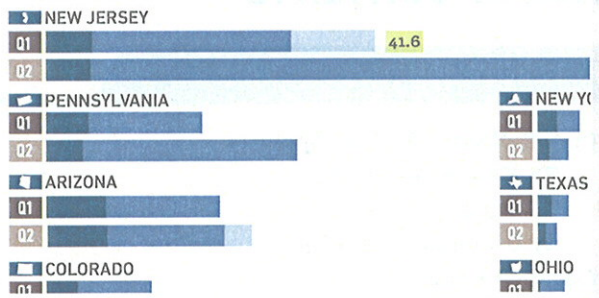

- Installations by market segment for the top 20 states
- Installed cost by market segment for each state
- State-by-state market analysis
- Component pricing across the value chain
- Manufacturing capacity & production by component by state
- Demand projections to 2015 by technology, market segment & state

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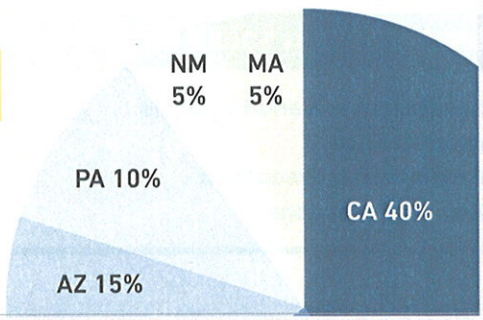

- National aggregate capacity additions
- National aggregate number of installations
- National weighted average installed price
- National aggregate manufacturing production

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U.S. SOLAR MARKET INSIGHT

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