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Helping Utilities Make Smart Solar Decisions

SEPA Top 10 Utility Solar Rankings Report

Solar Power Fastest Growing Utility Generation Source in 2011

June 21, 2012



Webinar: SEPA Top 10 Utility Solar Rankings Report

- Webinar recording and slides will be sent to all registered attendees after the webinar, and available at www.solarelectricpower.org within 2 business days
- Submit questions in the chat window at any time
- Questions will be answered at the end of the session.
- **Upcoming SEPA events:**
 - Webinar: Solar Case Study: SDG&E's Successful Partnership Sees Solar Projects and Manufacturing Spring Up Locally, Thursday, July 19th, 2pm ET
 - Training: Intro to Electric Utilities for the Solar Sector, Sept. 9-10, Orlando, FL
 - Solar Power International, Sept. 10-13, Orlando, FL

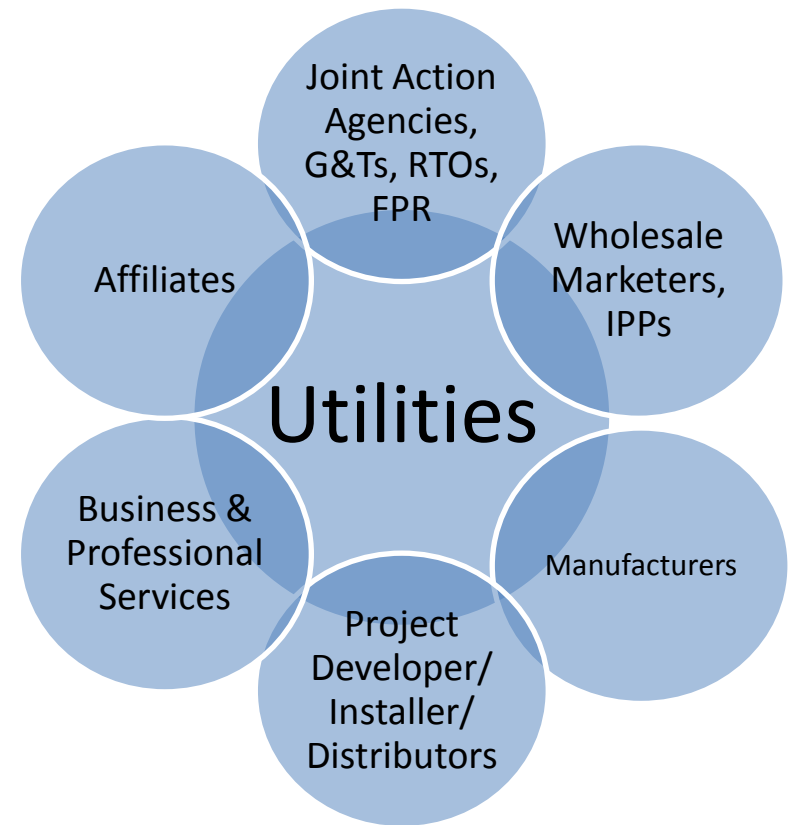


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About SEPA

- Formed in 1992 as the Utility Photovoltaic Group
- Educational non-profit organization
- Provides unbiased solar information, services and events with a utility focus





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Report Background

- General
 - Comparing utility solar portfolios across the U.S.
 - “Friendly” competition on national, regional and utility level
- 2011 Report
 - Fifth annual report, issued May 23 on 2011 data
 - Total of 242 utilities participated
 - Survey captured 99% of the annual and 99% of the cumulative national solar market
- More granular solar intelligence





1. Utilities are adapting to solar as their fastest growing electricity source
 - Over 62,500 PV systems PV systems interconnected in 2011
 - 350 non-solar power plants (> 1 MW) were expected across the entire U.S. in 2011
 - How will the volume of these PV systems be managed?
 - How will the distribution grid accommodate high-penetration PV development?
 - How will utilities, regulators and stakeholders resolve the economic implications of net metered solar?



2. For the fourth straight year, utilities integrated a record amount of new solar power, despite the recession

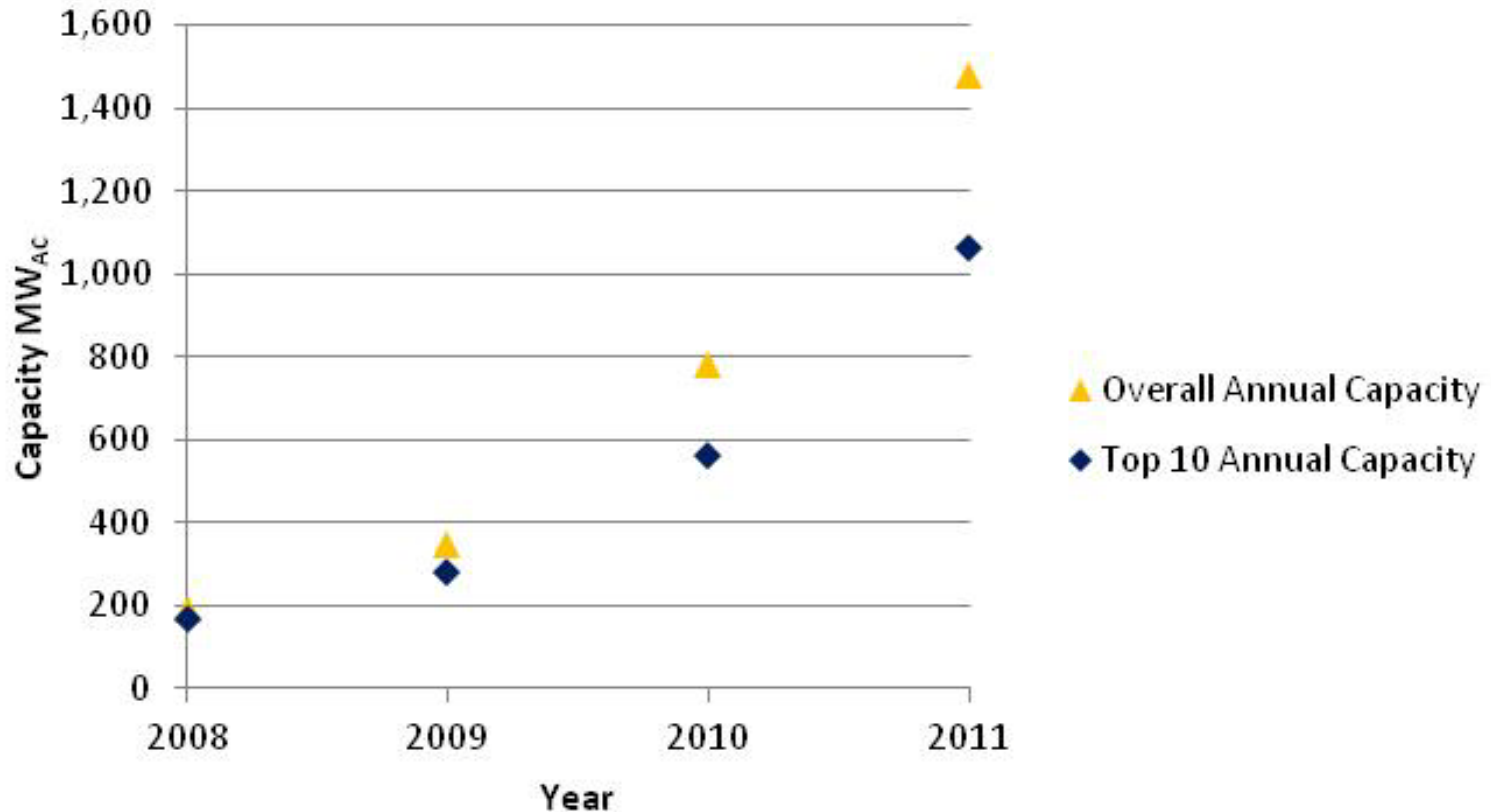
- 1,500 megawatts (MW-ac)
- 120% growth over 2010
- Fifteen utilities integrated more than 20 MW each
- Eight utilities integrated more than 50 MW each



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National Annual Solar Capacity Growth 2008-2011





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Utility Solar Trends

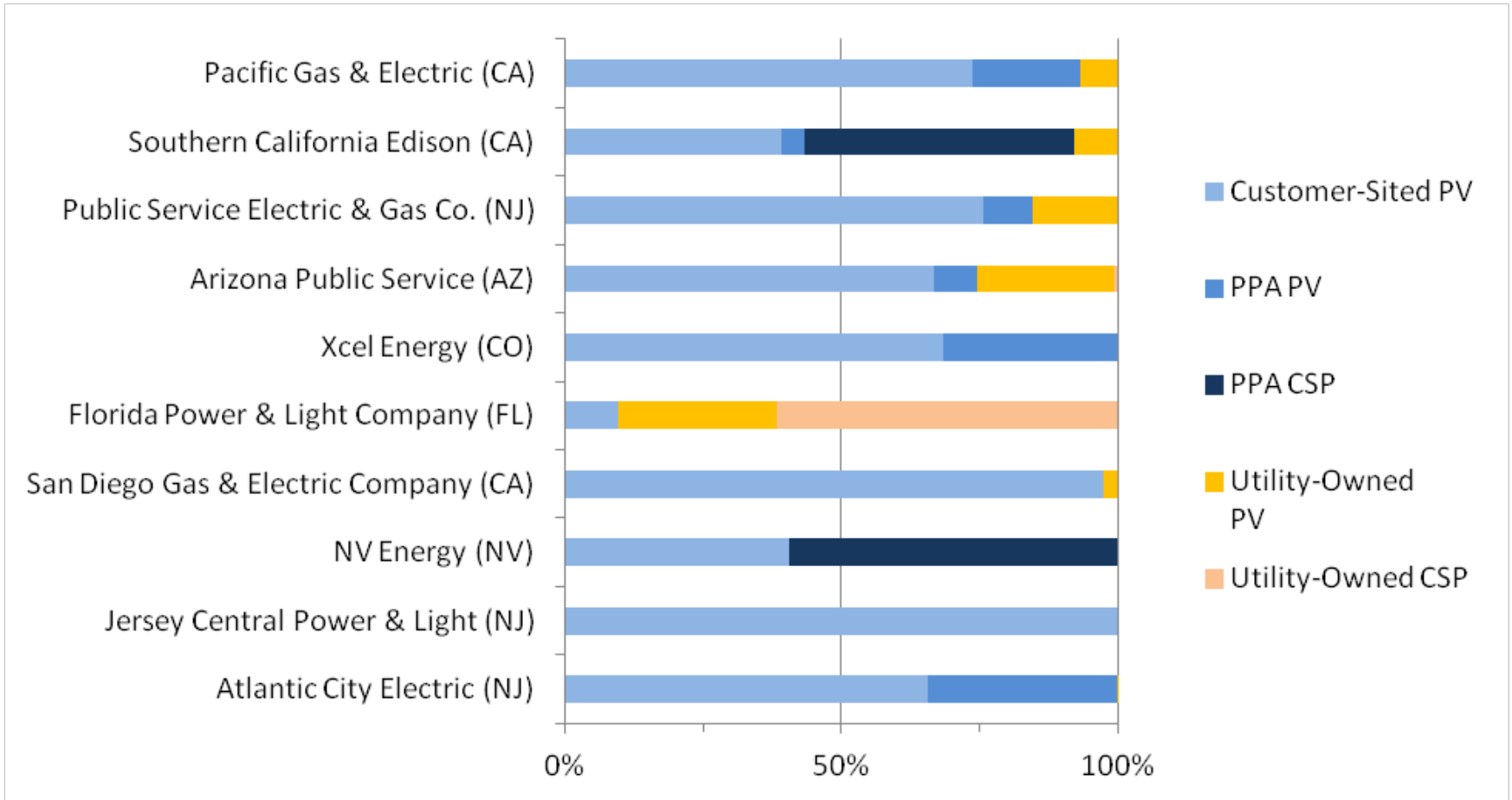
3. Utility-driven solar procurement is a growing part of rapid solar market expansion
 - Utility-driven procurement represented 39% of the new solar capacity in 2011, of which:
 - 26% wholesale purchases
 - 13% utility-owned projects



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National Cumulative Top 10 MW Utility Solar Portfolio Distribution





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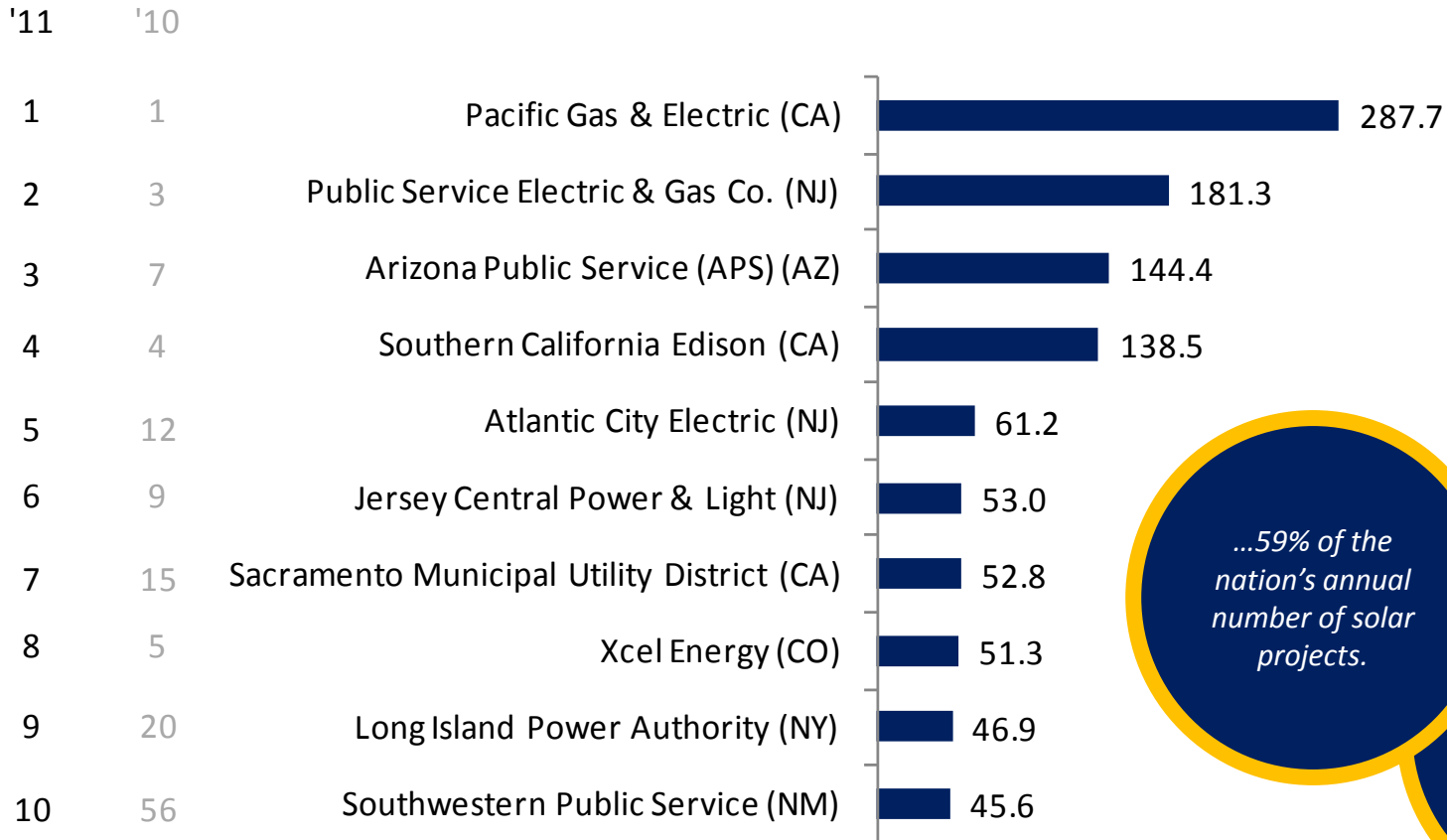
The Rankings



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National Rankings Annual Solar Megawatts



...59% of the nation's annual number of solar projects.

...72% of the nation's annually installed solar capacity.

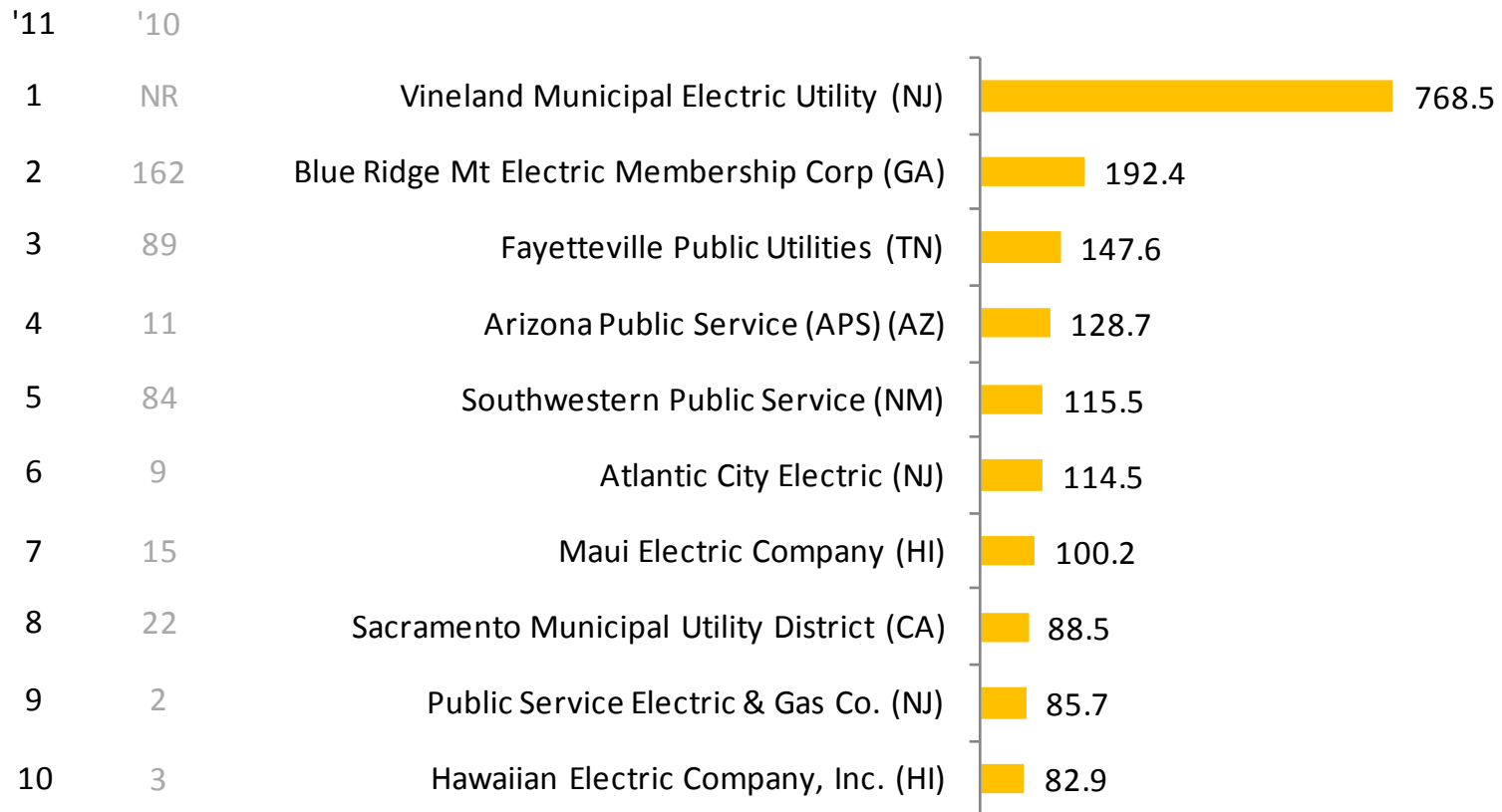
National Rankings

Cumulative – Megawatts

'11	'10	Utility	MW _{AC}
1	2	Pacific Gas & Electric (CA)	762
2	1	Southern California Edison (CA)	741
3	3	Public Service Elec. & Gas (NJ)	299
4	8	Arizona Public Service - APS (AZ)	198
5	7	Xcel Energy (CO)	136
6	4	Florida Power & Light Co. (FL)	122
7	6	San Diego Gas & Electric Co. (CA)	121
8	5	NV Energy (NV)	108
9	9	Jersey Central Power & Light (NJ)	104
10	10	Atlantic City Electric (NJ)	99
		Other Utilities	948
		Total	3638

National Rankings

Annual – Watts-per-Customers



National Rankings

Cumulative – Watts-per-Customers

'11	'10	Utility	Watts _{AC}
1	NR	Vineland Municipal Electric (NJ)	991
2	5	Maui Electric Co. (HI)	209
3	66	Blue Ridge Mountain EMC (GA)	195
4	11	Atlantic City Electric (NJ)	185
5	2	Kauai Island Utility Co-op (HI)	179
6	18	Arizona Public Service - APS (AZ)	176
7	1	Southern California Edison (CA)	152
8	117	Fayetteville Public Utilities (TN)	150
9	9	Hawaiian Electric Co. (HI)	149
10	6	Pacific Gas & Electric (CA)	146

Break-out Rankings

Central Region 2011 Annual Solar Megawatts

'11	'10	Utility	MW _{AC}
1	5	Austin Energy (TX)	29.7
2	3	Oncor Electric Delivery Co. (TX)	7.9
3	4	Detroit Edison – DTE Energy (MI)	5.2
4	9	Duke Energy Ohio (OH)	5.1
5	43	Fayetteville Public Utilities (TN)*	2.6
6	1	CPS Energy (TX)	2.2
7	42	Indianapolis Power & Light Co. (IN)	2.0
8	13	Middle Tennessee Electric Co-op (TN)*	2.0
9	59	Warren Rural Electric Co-op (KY)*	2.0
10	12	Ameren Missouri (MO)	1.8
		Other Utilities	14.2
		Total	74.7

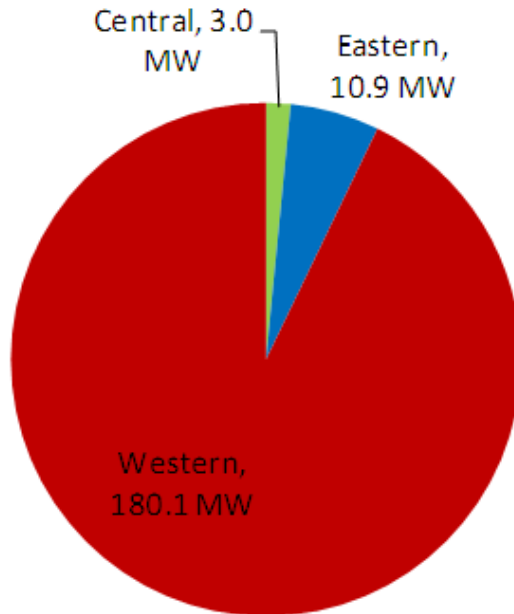
Cooperative Utilities 2011 Annual Solar Watts-per-Customer

'11	'10	Utility	Watts _{AC}
1	18	Blue Ridge Mountain EMC (GA)*	192.4
2	1	Kauai Island Utility Co-op (HI)	63.5
3	4	Trico Electric Co-op (AZ)	34.3
4	38	Warren Rural Electric Co-op (KY)*	32.7
5	34	Mountain Electric Co-op (TN)*	21.8
6	9	Choptank Electric Co-op (MD)	20.1
7	NR	Delaware Electric Co-op (DE)	19.1
8	6	Holy Cross Energy (CO)	15.4
9	5	Sulphur Springs Valley Elec. Co-op (AZ)	14.9
10	2	Kit Carson Electric Co-op (NM)	12.7

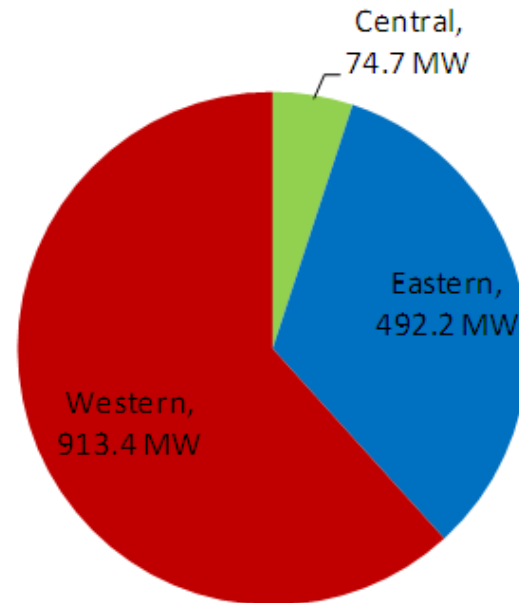


Regional Growth

2008



2011





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IOU Holding Company Rankings

Cumulative Rankings

	Holding Company	MW_{AC}	Utilities
1	PG&E Corporation	762.0	PG&E
2	Edison International	741.3	SCE
3	Public Service Enterprise Group	298.7	PSE&G
4	Pinnacle West Capital Corp.	197.7	APS
5	Xcel Energy, Inc. ¹	182.3	Xcel CO Xcel NM
6	PEPCO Holdings, Inc.	126.5	PEPCO Delmarva Atlantic City Elec.
7	NextEra Energy, Inc.	121.6	FPL
8	Sempra Energy	120.9	SDG&E
9	FirstEnergy Corp. ¹	118.1	JCP&L Met-Ed Penelec Penn Power West Penn Power
10	NV Energy, Inc.	107.5	NV Energy
	Other Utilities	433.1	
	Total	3209.8	

¹Only utilities that participated in the survey are listed, though there are other regulated subsidiaries not accounted for.



Penetration Rates

Cumulative # of Solar Systems per 1,000 Customers

'11	'10	Utility	#
1	4	Maui Electric Co. (HI)	29.3
2	6	Hawaiian Electric Co. (HI)	23.0
3	1	Roseville Electric (CA)	21.8
4	7	Hawaii Electric Light Co. (HI)	20.6
5	11	Kauai Island Utility Co-op (HI)	19.9
6	2	Verendrye Electric Co-op (ND)	19.0
7	3	City of Palo Alto Utilities (CA)	16.1
8	NR	Healdsburg Electric Department (CA)	13.6
9	5	Sulphur Springs Valley Electric Co-op (AZ)	13.5
10	9	Pacific Gas & Electric (CA)	11.6



Largest Projects - Annual

	Project	MW	Tech.	Purchasing Utility
1	Mesquite Solar I	37.5	PV	Pacific Gas and Electric (CA)
2	Long Island Solar Farm (LISF)	32	PV	Long Island Power Authority (NY)
3	Webberville Solar	30	PV	Austin Energy (TX)
4	Stillwater Solar Plant	24	PV	Sierra Pacific Power (NV)
5	Copper Crossing Solar Ranch Roadrunner Solar Project Stroud Solar Station Sun City Project	20	PV	Salt River Project (AZ) El Paso Electric (TX) Pacific Gas and Electric (CA) ¹ Pacific Gas and Electric (CA)
6	Sand Drag Solar Project	19	PV	Pacific Gas and Electric (CA)
7	Pilesgrove Solar Project	18	PV	Atlantic City Electric (NJ)
8	Paloma Solar Plant Cotton Center Solar	17	PV	Arizona Public Service (AZ) ¹ Arizona Public Service (AZ) ¹
9	Bagdad Solar Plant Five Points Solar Station West Side Solar Station	15	PV	Arizona Public Service (AZ) Pacific Gas and Electric (CA) ¹ Pacific Gas and Electric (CA) ¹
10	Carlsbad Regional Airport	11	PV	Xcel Energy NM (NM)

¹The purchasing utility is also the project owner.



SEPA Largest Projects - Cumulative

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	Project	MW	Tech.	Purchasing Utility
1	SEGS VIII (1990) SEGS IX (1991)	80 MW	CSP	Southern California Ed. (CA)
2	Martin Solar Center (2010)	75 MW	CSP	Florida Power & Light (FL) ¹
3	Nevada Solar One (2007)	64MW	CSP	NV Energy (NV)
4	Copper Mountain (2010)	48 MW	PV	Pacific Gas & Electric (CA)
5	Mesquite Solar I (2011)	37.5 MW	PV	Pacific Gas and Electric (CA)
6	Long Island Solar Farm (2011)	32 MW	PV	Long Island Power Authority (NY)
7	Webberville Solar (2011)	30 MW	PV	Austin Energy (TX)
	Cimarron 1 Solar (2010)		PV	Tri-State G&T (CO) ¹
	SEGS II (1986)		CSP	Southern California Ed. (CA)
	SEGS III (1987)		CSP	Southern California Ed. (CA)
	SEGS IV (1987)		CSP	Southern California Ed. (CA)
	SEGS V (1988)		CSP	Southern California Ed. (CA)
	SEGS VI (1989)		CSP	Southern California Ed. (CA)
	SEGS VII (1989)		CSP	Southern California Ed. (CA)
8	DeSoto Solar Center (2009)	25 MW	PV	Florida Power & Light (FL) ¹
9	Stillwater Solar Plant (2011)	24 MW	PV	Sierra Pacific Power (NV)
10	FSE Blythe (2009)	21 MW	PV	Southern California Ed. (CA)

¹The purchasing utility is also the project owner.



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Full Dataset



- Where does your business focus align with utility and state activity?
 - Which utilities integrated more than 50 commercial net metered PV systems each?
 - Which utilities are focusing on utility owned installations?
 - Which utilities had more wholesale market activity than net metered activity?
 - Which utilities have balanced residential and commercial markets?



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Additional Analysis

- Hard numbers – no estimates
- 200 utilities cover 99.9% of the solar megawatts in the U.S.
- Data By Utility Includes:
 - Solar capacity in megawatts (AC, CEC-AC, and DC)
 - Number of solar installations
- Data Can Be Analyzed By/For:
 - Utility, utility type, state, region, utility size
 - Residential, non-residential, centralized and off-grid segments
- Photovoltaic and CSP Technologies
- Annual (2011) and cumulative timeframes
- Utility and customer side of the meter
- Utility ownership



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More Information

- .xlsx format
- For internal corporate use only
- Contact us about:
 - Customized data analysis
 - External publishing partnerships
- Report, basic slides, and executive summary are free for use and distribution with citation



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Discount Price

	Regular Price	15% Off
Participating Utilities	\$495	\$421
SEPA Members	\$1,195	\$1,016
Non-Members	\$2,995	\$2,546

**Code: “RankingsData-2011” (no quotes)
Through June 28, 2012**

www.SEPATop10.org

Question & Answers



Mike Taylor

Director of Research



Becky Campbell

Research Manager

Continue the discussion at
www.SEPAConnect.org

SEPAConnect is an innovative and interactive online portal and forum for you to discuss key industry topics, facilitate dialogue, and network within the SEPA member community.

Press questions? Contact Don Lintvet: dlintvet@solarelectricpower.org



Eastern Rankings

Eastern Region 2011 Annual Solar Megawatts

'11	'10	Utility	MW _{AC}
1	2	Public Service Electric & Gas Co. (NJ)	181.3
2	5	Atlantic City Electric (NJ)	61.2
3	3	Jersey Central Power & Light (NJ)	53.0
4	7	Long Island Power Authority (NY)	46.9
5	8	PECO Energy (PA)	20.7
6	NR	Vineland Municipal Electric Utility (NJ)	18.9
7	9	NSTAR Electric Co. (MA)	16.4
8	14	National Grid (MA)	14.6
9	4	Duke Energy Carolinas (NC)	10.4
10	36	Blue Ridge Mountain EMC (GA)*	9.4
		Other Utilities	59.4
		Total	492.2

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.



Eastern Region 2011 Annual Solar Watts-per-Customer

'11	'10	Utility	Watts _{AC}
1	NR	Vineland Municipal Electric Utility (NJ)	768.5
2	28	Blue Ridge Mountain EMC (GA)*	192.4
3	3	Atlantic City Electric (NJ)	114.5
4	1	Public Service Electric & Gas Co. (NJ)	85.7
5	4	Gainesville Regional Utilities (FL)	52.5
6	5	Jersey Central Power & Light (NJ)	49.7
7	11	Long Island Power Authority (NY)	42.0
8	NR	Rockland Electric Co. (NJ)	32.4
9	NR	Pike County Light & Power Co. (PA)	28.5
10	30	Orlando Utilities Commission (FL)	22.1

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.



Central Region 2011 Annual Solar Megawatts

'11	'10	Utility	MW _{AC}
1	5	Austin Energy (TX)	29.7
2	3	Oncor Electric Delivery Co. (TX)	7.9
3	4	Detroit Edison – DTE Energy (MI)	5.2
4	9	Duke Energy Ohio (OH)	5.1
5	43	Fayetteville Public Utilities (TN)*	2.6
6	1	CPS Energy (TX)	2.2
7	42	Indianapolis Power & Light Co. (IN)	2.0
8	13	Middle Tennessee Electric Co-op (TN)*	2.0
9	59	Warren Rural Electric Co-op (KY)*	2.0
10	12	Ameren Missouri (MO)	1.8
		Other Utilities	14.2
		Total	74.7



Central Region 2011 Annual Solar Watts-per-Customer

'11	'10	Utility	Watts _{AC}
1	18	Fayetteville Public Utilities (TN)*	147.6
2	8	Austin Energy (TX)	71.4
3	65	Warren Rural Electric Co-op Corp (KY)*	32.7
4	90	Jackson Energy Authority (TN)*	26.1
5	66	Mountain Electric Co-op (TN)*	21.8
6	NR	Louisville Utilities (MS)*	13.1
7	NR	Starkville Electric System (MS)*	13.0
8	NR	Wyandotte Municipal Services (MI)	11.4
9	17	Middle Tennessee Electric Co-op (TN)*	11.0
10	28	Duke Energy Ohio (OH)	9.0

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.

Source: Solar Electric Power Association, 2011 SEPA Utility Solar Rankings



Western Rankings

Western Region 2011 Annual Solar Megawatts

'11	'10	Utility	MW _{AC}
1	1	Pacific Gas & Electric (CA)	287.7
2	5	Arizona Public Service - APS (AZ)	144.4
3	2	Southern California Edison (CA)	138.5
4	8	Sacramento Municipal Utility District (CA)	52.8
5	28	Xcel Energy (NM)	45.6
6	6	San Diego Gas & Electric Co. (CA)	34.6
7	15	Public Service Co. of NM - PNM (NM)	25.2
8	9	Hawaiian Electric Co. (HI)	24.5
9	12	NV Energy (NV)	18.3
10	7	Tucson Electric Power Co. (AZ)	17.2
		Other Utilities	90.5
		Total	913.4

Source: Solar Electric Power Association, 2011 SEPA Utility Solar Rankings



Western Rankings

Western Region 2011 Annual Solar Watts-per-Customer

'11	'10	Utility	Watts _{AC}
1	8	Arizona Public Service - APS (AZ)	128.7
2	45	Xcel Energy (NM)	115.5
3	11	Maui Electric Co. (HI)	100.2
4	15	Sacramento Municipal Utility District (CA)	88.5
5	2	Hawaiian Electric Co. (HI)	82.9
6	9	Kauai Island Utility Co-op (HI)	63.5
7	NR	UNS Electric (AZ)	58.5
8	4	Pacific Gas & Electric (CA)	55.2
9	24	Public Service Co. of NM - PNM (NM)	50.2
10	10	Hawaii Electric Light Co. (HI)	46.9

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.

Source: Solar Electric Power Association, 2011 SEPA Utility Solar Rankings



IOU 2011 Annual Solar Megawatts

'11	'10	Utility	MW _{AC}
1	1	Pacific Gas & Electric (CA)	287.7
2	3	Public Service Electric & Gas Co. (NJ)	181.3
3	6	Arizona Public Service - APS (AZ)	144.4
4	4	Southern California Edison (CA)	138.5
5	10	Atlantic City Electric (NJ)	61.2
6	8	Jersey Central Power & Light (NJ)	53.0
7	5	Xcel Energy (CO)	51.3
8	38	Xcel Energy (NM)	45.6
9	7	San Diego Gas & Electric Co. (CA)	34.6
10	21	Public Service Co. of NM - PNM (NM)	25.2
		Other Utilities	218.5
		Total	1241.3



IOU 2011 Annual Solar Watts-per-Customer

'11	'10	Utility	MW _{AC}
1	8	Arizona Public Service - APS (AZ)	128.7
2	31	Xcel Energy (NM)	115.5
3	7	Atlantic City Electric (NJ)	114.5
4	10	Maui Electric Co. (HI)	100.2
5	1	Public Service Electric & Gas Co. (NJ)	85.7
6	2	Hawaiian Electric Co. (HI)	82.9
7	NR	UNS Electric (AZ)	58.5
8	4	Pacific Gas & Electric (CA)	55.2
9	18	Public Service Co. of NM - PNM (NM)	50.2
10	11	Jersey Central Power & Light (NJ)	49.7

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.



Cooperative Rankings

Cooperative Utilities 2011 Annual Solar Megawatts

'11	'10	Utility	MW _{AC}
1	23	Blue Ridge Mountain EMC (GA)*	9.4
2	2	Kauai Island Utility Co-op (HI)	2.1
3	9	Middle Tennessee Electric Co-op (TN)*	2.0
4	32	Warren Rural Electric Co-op Corp (KY)*	2.0
5	NR	Delaware Electric Co-op (DE)	1.6
6	5	Trico Electric Co-op (AZ)	1.4
7	8	Choptank Electric Co-op (MD)	1.1
8	7	Holy Cross Energy (CO)	0.84
9	6	Sulphur Springs Valley Electric Co-op (AZ)	0.76
10	39	Mountain Electric Co-op (TN)*	0.73
		Other Utilities	2.9
		Total	24.6

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.



Cooperative Rankings

Cooperative Utilities 2011 Annual Solar Watts-per-Customer

'11	'10	Utility	Watts _{AC}
1	18	Blue Ridge Mountain EMC (GA)*	192.4
2	1	Kauai Island Utility Co-op (HI)	63.5
3	4	Trico Electric Co-op (AZ)	34.3
4	38	Warren Rural Electric Co-op (KY)*	32.7
5	34	Mountain Electric Co-op (TN)*	21.8
6	9	Choptank Electric Co-op (MD)	20.1
7	NR	Delaware Electric Co-op (DE)	19.1
8	6	Holy Cross Energy (CO)	15.4
9	5	Sulphur Springs Valley Elec. Co-op (AZ)	14.9
10	2	Kit Carson Electric Co-op (NM)	12.7

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.



Municipal Utilities 2011 Annual Solar Megawatts

'11	'10	Utility	MW _{AC}
1	3	Sacramento Municipal Utility District (CA)	52.8
2	6	Long Island Power Authority (NY)	46.9
3	11	Austin Energy (TX)	29.7
4	NR	Vineland Municipal Electric Utility (NJ)	18.9
5	4	Los Angeles Dept. of Water & Power (CA)	14.0
6	5	Salt River Project (AZ)	9.2
7	NR	Imperial Irrigation District (CA)	4.9
8	30	Orlando Utilities Commission (FL)	4.9
9	8	Gainesville Regional Utilities (FL)	4.8
10	20	Turlock Irrigation District (CA)	3.0
		Other Utilities	25.3
		Total	214.3

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.

Municipal Utilities 2011 Annual Solar Watts-per-Customer

'11	'10	Utility	Watts _{AC}
1	NR	Vineland Municipal Electric Utility (NJ)	768.5
2	40	Fayetteville Public Utilities (TN)*	147.6
3	7	Sacramento Municipal Utility District (CA)	88.5
4	28	Austin Energy (TX)	71.4
5	4	Gainesville Regional Utilities (FL)	52.5
6	14	Long Island Power Authority (NY)	42.0
7	NR	Imperial Irrigation District (CA)	33.1
8	22	Turlock Irrigation District (CA)	29.8
9	2	Jackson Energy Authority (TN)*	26.1
10	1	Silicon Valley Power (CA)	24.7

NR = No Rank; the utility either did not participate in or was not ranked in the previous year's rankings.