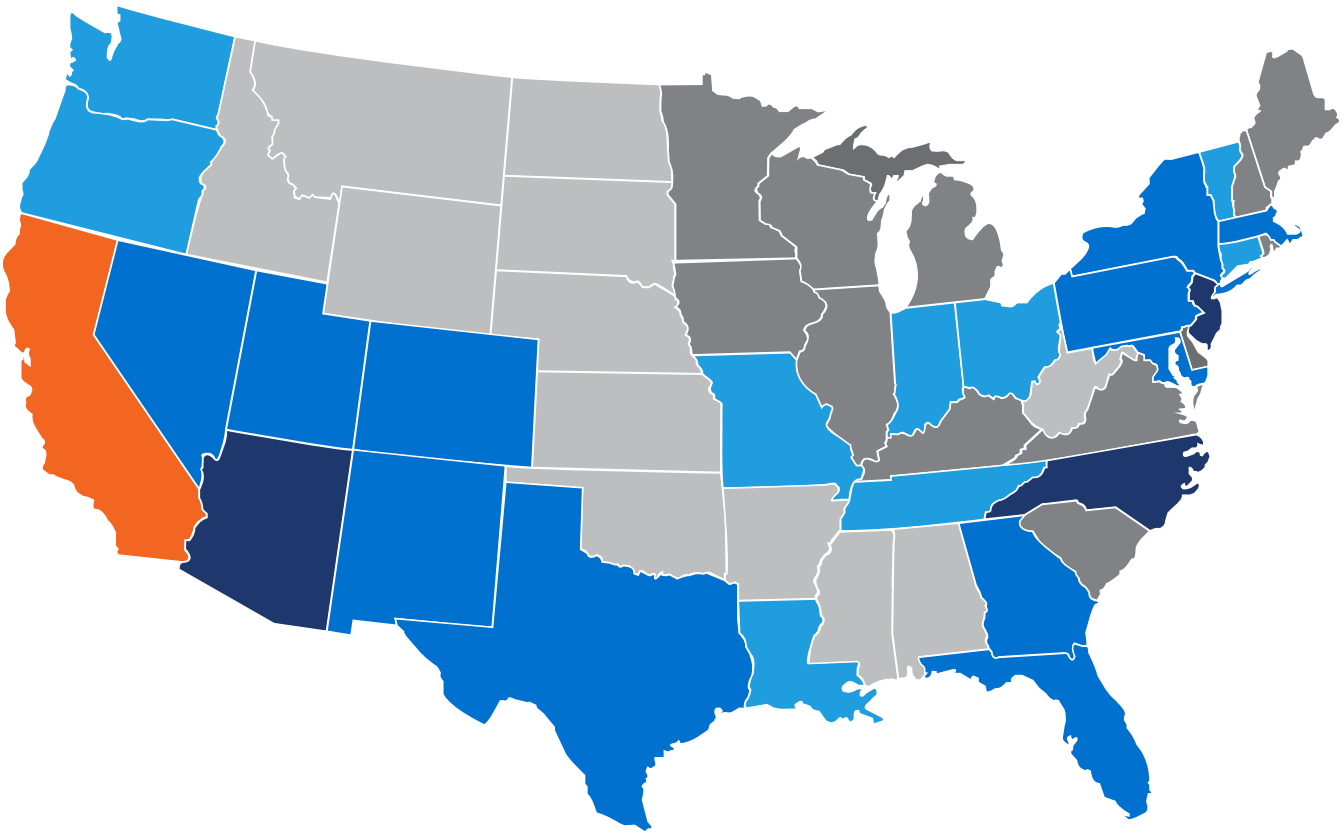
Smart Electric Power Alliance



2015 Utility Solar Market Snapshot

JULY 2016

NEXTera® ENERGY RESOURCES

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ABOUT THE REPORT

In 2007, SEPA began surveying electric utilities on the amount of solar they integrated each year, with the goal of providing the most accurate and granular solar market data in the industry. This report provides aggregated results of the survey and highlights top utilities in specific categories. For more detailed data, see SEPA's Utility Solar Database (sepausd.org).

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ACKNOWLEDGEMENTS

Special thanks to our SEPA staff members, Tanuj Deora, Bob Gibson, Ian Motley, Chirag Pansuriya, Himali Shah, and Mike Taylor, for lending their knowledge and expertise to the survey and report.

This research was made possible through voluntary contributions from our sponsors, EDF Renewable Energy and NextEra Energy Resources.

We would also like to recognize our subcontractors, Emily Brandon and KayAnn Schoeneman of Ketchum Global Research and Analytics, for their help collecting survey responses; SEPA member, Bryan Wells of the Tennessee Valley Authority, for contributing solar installation data for 155 local power companies in the Tennessee Valley; and Lisa Armstrong of Ajuga, Inc. for designing this report. All survey participants listed in Appendix A-4.

EXECUTIVE SUMMARY

SOLAR MARKETS CONTINUED SIGNIFICANT GROWTH IN 2015.

- **Added 6.1 gigawatts (GW)**[1] across more than 315,735 new systems; total installed solar nationwide is now 22.5 GW across more than 1 million installations.
- **Annual capacity growth rates** by market segments were
  - Residential: 50 percent
  - Nonresidential: 21 percent
  - Utility: 40 percent
- **Power purchase agreement prices** are now competitive with those of fossil fuel plants in many areas, not just the southwest. Several states, including Idaho, North Carolina, Oregon, South Carolina and Utah, are now seeing projects proposed at avoided cost rates. Development cost declines are driving both trends.

THE SOLAR MARKET IS HEAVILY CONCENTRATED IN PARTICULAR UTILITIES AND STATES.

- **Most solar-active utilities** are in California, Hawaii, New Jersey and North Carolina.
- **Aggregate solar portfolios** by utility types were
  - **Investor-owned**: majority utility-scale solar projects
  - **Public power:** majority customer-sited solar
  - **Cooperative:** roughly equal mix of customer and utility projects

KEY BUSINESS ISSUES THAT ARE LIKELY TO PERSIST FOR THE NEXT 2 TO 3 YEARS INCLUDE:

- **Residential rate restructuring,** which will expand to account for distributed energy resources and drive discussion among utilities, regulators and stakeholders. Eighty-four percent of survey respondents expressed interest in net metering reform. In 2015, 27 state legislatures or utility commissions took up net metering reforms.[2]
- **Tax incentives, recently extended,** now currently provide a gradual stepping-down from 30 percent to 10 percent by 2022, replacing the projected cliff at the end of 2016.
- **Community solar programs** will continue to receive strong interest from utilities of all types, with a notable increase among investor-owned utilities. Eighty-three programs are active as of the end of 2015.

LARGE-SCALE SOLAR IS INCREASINGLY BECOMING A NON-MANDATED, LEAST-COST OPTION FOR UTILITIES IN THE SOUTHEASTERN U.S.

Demand from key account customers is further driving build-out in southeastern and midwestern states. A third factor taking greater hold in 2015 and expected to continue is the flurry of independent power producers interconnecting in accordance with the Public Utility Regulatory Policies Act of 1978 (PURPA) in states such as North Carolina, Oregon and Utah.

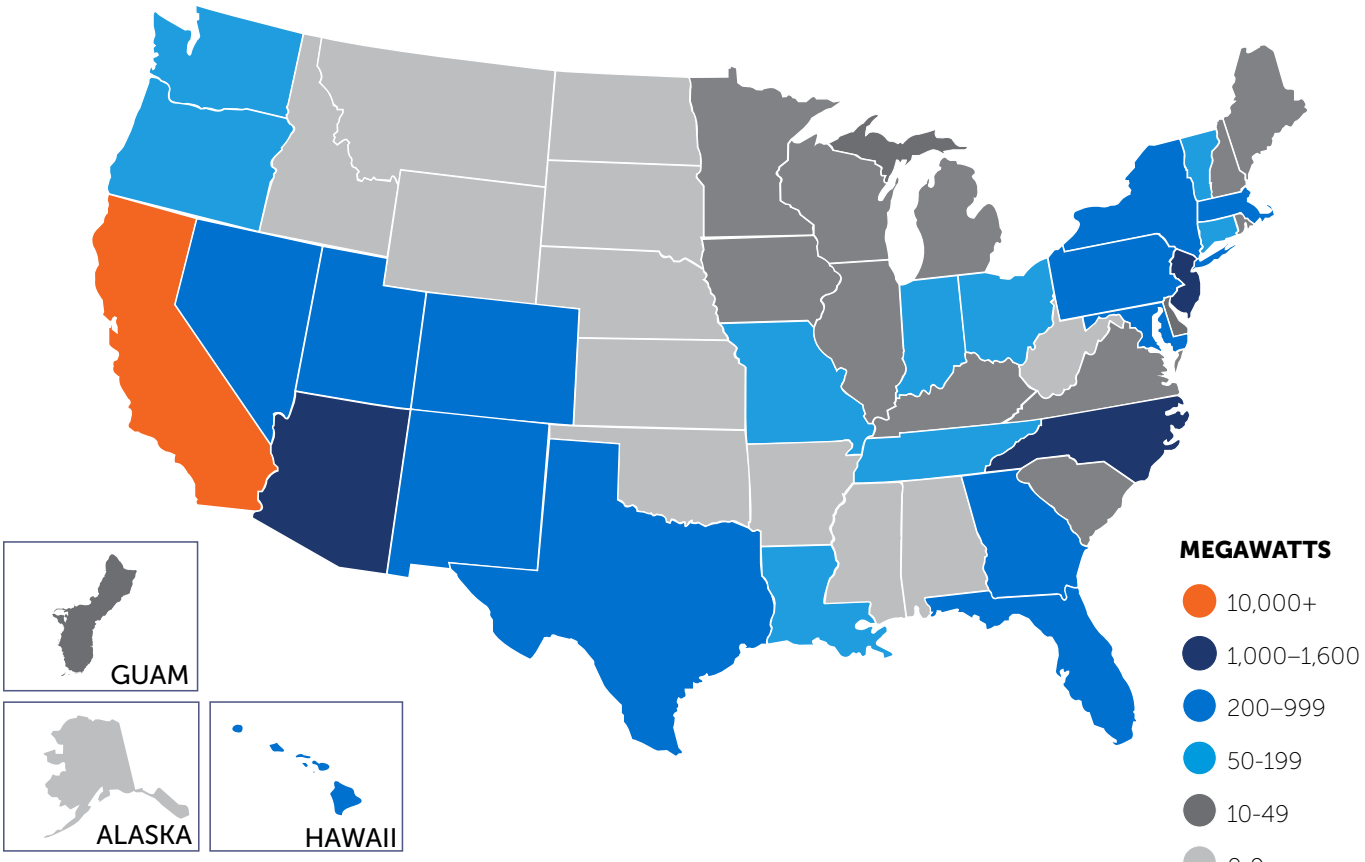
1 All capacity in this report is in alternating current (AC), a comparable format to other technologies. Most other industry market reports are listed in direct current, which would be 15-20% higher.

2 North Carolina Clean Energy Technology Center and Meister Consulting *50 States of Solar 2015* Q1, Q2, Q3 and Q4 reports

MW = Megawatts AC, except where noted

SOLAR MARKET EXPANSION

CUMULATIVE MEGAWATTS THROUGH 2015

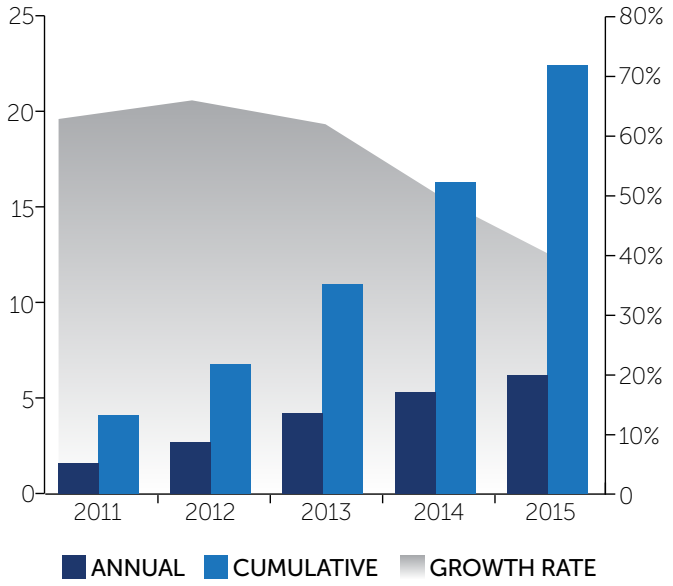


Source: Smart Electric Power Alliance, 2016

- **California, Hawaii, Vermont, and Oregon** recently increased their renewable portfolio standards, placing greater pressure on utilities to invest in renewable resources.
- **North Carolina and Utah**, two of 2015's biggest movers, have been the most affected by developers proposing qualifying facilities under PURPA. The federal regulation requires utilities to compensate independent power producers at avoided cost (one measure of solar's cost-competitiveness). Other states are beginning to see similar proposals.
- **Nevada** saw tremendous solar growth in 2015, driven in part by a 500-percent increase in customer interconnections. The state's regulator retroactively terminated net metering early this year, chilling this burgeoning residential market.

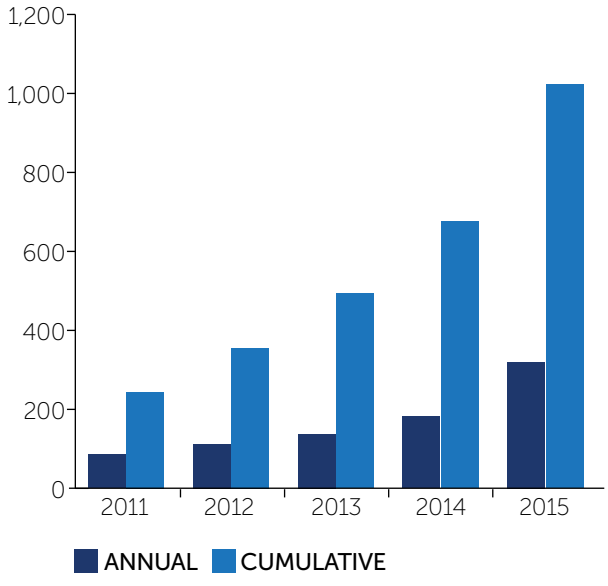
HOW MUCH SOLAR WAS INSTALLED IN 2015?

MEGAWATTS
(IN THOUSANDS)



YEAR	ANNUAL	CUMULATIVE
2011	1,577	4,095
2012	2,688	6,783
2013	4,198	10,981
2014	5,314	16,295
2015	6,137	22,454

INSTALLATIONS
(IN THOUSANDS)



YEAR	ANNUAL	CUMULATIVE
2011	85,993	244,698
2012	111,515	356,213
2013	137,056	493,269
2014	182,262	675,520
2015	315,735	1,021,732

- **Approximately 6.1 GW** of new solar was added in 2015, bringing U.S. solar capacity to 22.5 GW. This included more than 315,000 new systems, bringing the national total above 1 million.
- **U.S. solar capacity has increased** at a compound annual growth rate of 34 percent over the past five years.
- **Residential capacity added nearly twice the capacity** as in the largest year-over-year uptick among the categories surveyed.

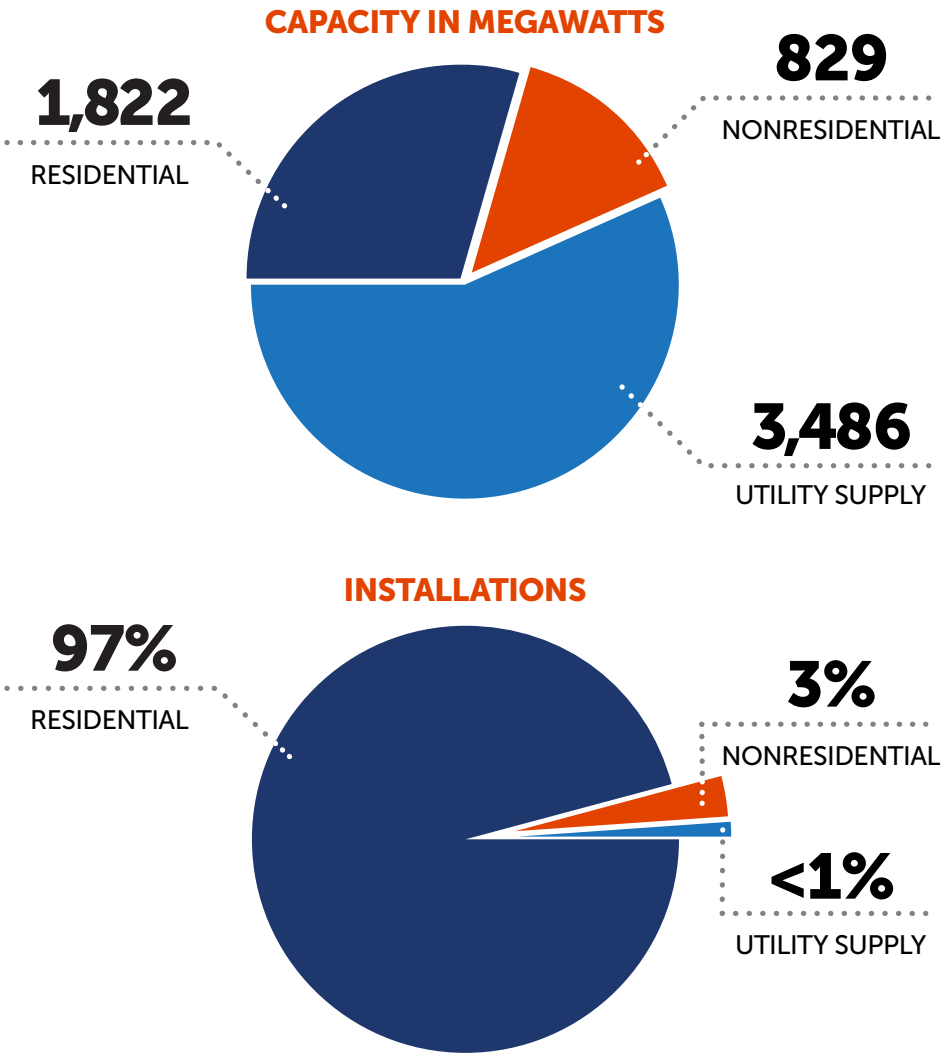
TOP 3 SOURCES OF NEW GENERATING CAPACITY IN THE U.S. IN 2015:

1. Wind: 8,112 MW
2. Solar: 6,137 MW
3. Natural Gas: 5,999 MW

Source: SEPA, EIA http://www.eia.gov/todayinenergy/detail.cfm?id=25492

MW = Megawatts AC, except where noted

HOW DID 2015 SOLAR GROWTH BREAK DOWN BY MARKET SEGMENT?



AVERAGE SYSTEM SIZE

Residential:	5.8 kW
Nonresidential:	87.8 kW
Utility Supply:	9.0 MW

ANNUAL GROWTH RATE IN CAPACITY FOR INDIVIDUAL MARKET SEGMENTS:

- **Residential market** grew 50 percent, adding twice the amount of solar capacity as 2014.
- **Nonresidential market** grew 21 percent, but added less capacity than 2014.
- **Utility procurements** grew 40 percent year over year and continue to be the largest source of megawatts in the solar industry.

WHICH UTILITIES INTEGRATED THE MOST SOLAR CAPACITY?

TOP 10 ANNUAL MEGAWATTS

1. SOUTHERN CALIFORNIA EDISON (CA) 1,258 MW
2. PACIFIC GAS & ELECTRIC (CA) 787 MW
3. DUKE ENERGY PROGRESS (NC, SC) 461 MW
4. SAN DIEGO GAS & ELECTRIC (CA) 441 MW
5. LOS ANGELES DEPARTMENT OF WATER AND POWER (CA) 247 MW
6. DOMINION NORTH CAROLINA POWER (NC) 232 MW
7. NV ENERGY (NV) 224 MW
8. ROCKY MOUNTAIN POWER (UT,WY,ID) 194 MW
9. GEORGIA POWER COMPANY (GA) 189 MW
10. NATIONAL GRID – MASSACHUSETTS (MA) 154 MW

TOP 10 ANNUAL WATTS PER CUSTOMER

1. VILLAGE OF MINSTER, OHIO (OH) 2,104 W/CUSTOMER
2. DOMINION NORTH CAROLINA POWER (NC) 1,946 W/CUSTOMER
3. CITY OF PALO ALTO UTILITIES (CA) 1,629 W/CUSTOMER
4. CAREY MUNICIPAL POWER & LIGHT (OH) 1,351 W/CUSTOMER
5. GUAM POWER AUTHORITY (GU) 661 W/CUSTOMER
6. ROSEVILLE ELECTRIC UTILITY (CA) 629 W/CUSTOMER
7. KAUAI ISLAND UTILITY COOPERATIVE (HI) 591 W/CUSTOMER
8. CITY OF OKOLONA, MISSISSIPPI ELECTRIC DEPARTMENT (MS) 495 W/CUSTOMER
9. MAUI ELECTRIC (HI) 386 W/CUSTOMER
10. DUKE ENERGY PROGRESS (NC,SC) 314 W/CUSTOMER

TOP 10 CUMULATIVE MEGAWATTS

1. PACIFIC GAS & ELECTRIC (CA) 5,386 MW
2. SOUTHERN CALIFORNIA EDISON (CA) 3,680 MW
3. SAN DIEGO GAS & ELECTRIC (CA) 1,777 MW
4. ARIZONA PUBLIC SERVICE (AZ) 935 MW
5. DUKE ENERGY PROGRESS (NC,SC) 896 MW
6. PUBLIC SERVICE ELECTRIC & GAS (NJ) 678 MW
7. NV ENERGY (NV) 496 MW
8. NATIONAL GRID – MASSACHUSETTS (MA) 472 MW
9. JERSEY CENTRAL POWER & LIGHT (NJ) 458 MW
10. LOS ANGELES DEPT. OF WATER AND POWER (CA) 393 MW

TOP 10 CUMULATIVE WATTS PER CUSTOMER

1. DOMINION NORTH CAROLINA POWER (NC) 2,873 W/CUSTOMER
2. FARMERS ELECTRIC COOPERATIVE (IA) 2,805 W/CUSTOMER
3. VILLAGE OF MINSTER, OHIO (OH) 2,104 W/CUSTOMER
4. KAUAI ISLAND UTILITY COOPERATIVE (HI) 1,870 W/CUSTOMER
5. CITY OF PALO ALTO UTILITIES (CA) 1,846 W/CUSTOMER
6. PICKWICK ELECTRIC COOPERATIVE (TN) 1,680 W/CUSTOMER
7. ROSEVILLE ELECTRIC UTILITY (CA) 1,416 W/CUSTOMER
8. CAREY MUNICIPAL POWER & LIGHT (OH) 1,351 W/CUSTOMER
9. VINELAND MUNICIPAL ELECTRIC UTILITY (NJ) 1,318 W/CUSTOMER
10. SAN DIEGO GAS & ELECTRIC (CA) 1,262 W/CUSTOMER

MW = Megawatts AC, except where noted

WHICH UTILITIES INTERCONNECTED THE MOST SOLAR SYSTEMS?

TOP 10 ANNUAL INTERCONNECTIONS

1. PACIFIC GAS & ELECTRIC (CA) 68,189
2. SOUTHERN CALIFORNIA EDISON (CA) 56,649
3. SAN DIEGO GAS & ELECTRIC (CA) 27,236
4. NATIONAL GRID – MASSACHUSETTS (MA) 12,192
5. NV ENERGY (NV) 12,099
6. ARIZONA PUBLIC SERVICE (AZ) 9,435
7. LONG ISLAND POWER AUTHORITY (NY) 9,352
8. CONNECTICUT LIGHT AND POWER CO. (CT) 5,994
9. BALTIMORE GAS & ELECTRIC (MD) 5,914
10. PUBLIC SERVICE COLORADO (CO) 5,235

TOP 10 CUMULATIVE INTERCONNECTIONS

1. PACIFIC GAS & ELECTRIC (CA) 219,714
2. SOUTHERN CALIFORNIA EDISON (CA) 158,801
3. SAN DIEGO GAS & ELECTRIC (CA) 79,201
4. HAWAIIAN ELECTRIC (HI) 41,568
5. ARIZONA PUBLIC SERVICE (AZ) 40,546
6. PUBLIC SERVICE COLORADO (CO) 30,094
7. NATIONAL GRID – MASSACHUSETTS (MA) 22,495
8. LONG ISLAND POWER AUTHORITY (NY) 21,522
9. LOS ANGELES DEPT. OF WATER AND POWER (CA) 19,596
10. NV ENERGY (NV) 17,502

TOP 10 ANNUAL PERCENTAGE OF NET METERED PROJECTS PER CUSTOMER

1. CITY OF GROTON UTILITIES (CT) 5.9 %
2. ELECTRICAL DISTRICT NO. 3 (AZ) 3.2 %
3. MAUI ELECTRIC (HI) 3.1 %
4. HAWAII ELECTRIC LIGHT COMPANY (HI) 2.7 %
5. SAN DIEGO GAS & ELECTRIC (CA) 1.9 %
6. CENTRAL HUDSON (NY) 1.9 %
7. HAWAIIAN ELECTRIC (HI) 1.7 %
8. PACIFIC GAS & ELECTRIC (CA) 1.3 %
9. ROSEVILLE ELECTRIC UTILITY (CA) 1.3 %
10. ORANGE AND ROCKLAND UTILITIES (NY) 1.2 %

TOP 10 CUMULATIVE PERCENTAGE OF NET METERED SYSTEMS PER CUSTOMER

1. HAWAIIAN ELECTRIC (HI) 13.8 %
2. MAUI ELECTRIC (HI) 13.3 %
3. HAWAIIAN ELECTRIC LIGHT COMPANY (HI) 11.6 %
4. CITY OF GROTON UTILITIES (CT) 5.9 %
5. SAN DIEGO GAS & ELECTRIC (CA) 5.4 %
6. ELECTRICAL DISTRICT NO. 3 (AZ) 5 %
7. ROSEVILLE ELECTRIC UTILITY (CA) 4.4 %
8. OTERO COUNTY ELECTRIC COOPERATIVE (NM) 4.4 %
9. PACIFIC GAS & ELECTRIC (CA) 4.2 %
10. ENTERGY NEW ORLEANS (LA) 3.8 %

ECONOMICS, POLICY, PROGRAMS, AND TECHNOLOGY OVERVIEW

PAGE 10

FEDERAL INVESTMENT TAX CREDIT EXTENDED

November 2015 saw the extension of the federal Investment Tax Credit (ITC) that has been a crucial policy behind solar's tremendous growth. The original incentive would have abruptly stepped down at the end of 2016 from 30 percent to 10 percent for commercial entities and to zero for individuals. The new policy will remain at 30 percent through 2019, then ratchet down annually to 10 percent in 2022 (zero for individuals).

PAGE 11

PRICING THE SOLAR MARKET

Prices for power purchase agreements and the installed cost of solar power continue to be hot topics in the U.S. market, where transparency is limited. SEPA's recent research has uncovered up-to-date prices for turnkey projects for all solar market sectors as well as a sample of PPA prices.

PAGE 12

COMMUNITY SOLAR PROGRAMS GAINING MOMENTUM

Community solar programs continue to capture the interest of utilities nationwide. Traditionally led by cooperative and public power utilities, investor-owned utilities have begun exploring programs in earnest.

PAGE 13

STRONG INTEREST IN RATE REFORMS

According to our survey results, 84 percent of responding utilities are researching or implementing rate reforms to address what they see as financial inequities intrinsic to net metering.

PAGE 15

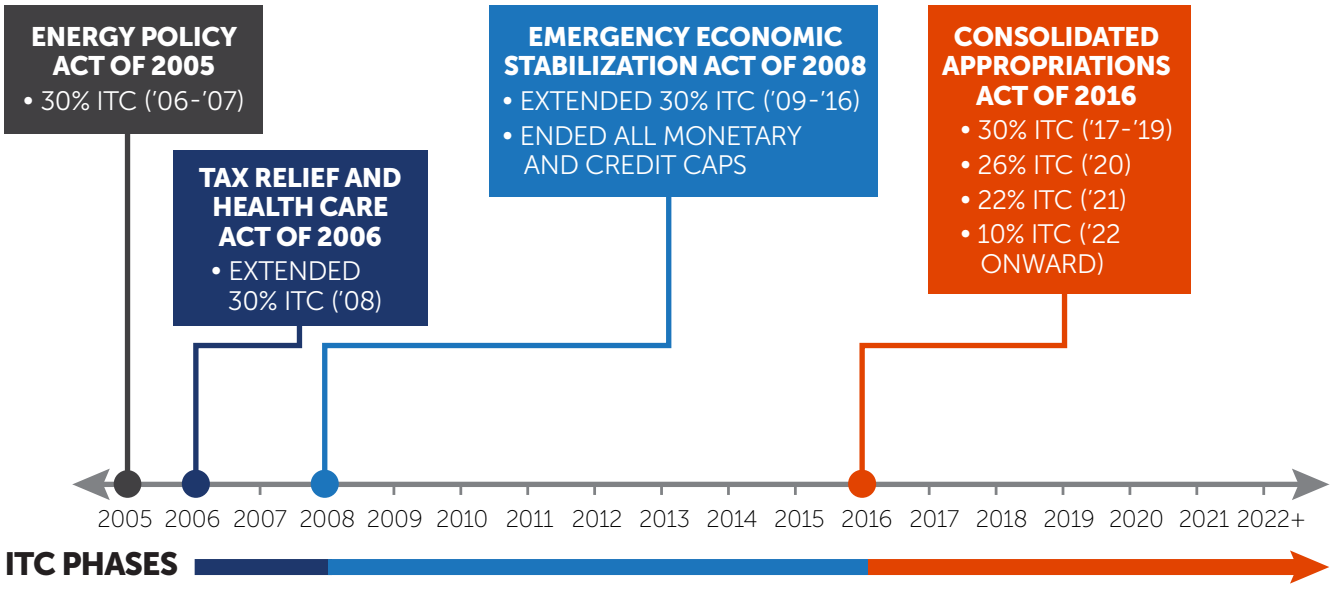
ADVANCED GRID TECHNOLOGY DEPLOYMENTS UNDERWAY

SEPA's annual utility survey revealed substantial interest regarding deployment of advanced inverter functionality, microgrids, and distributed energy resource management systems.

MW = Megawatts AC, except where noted

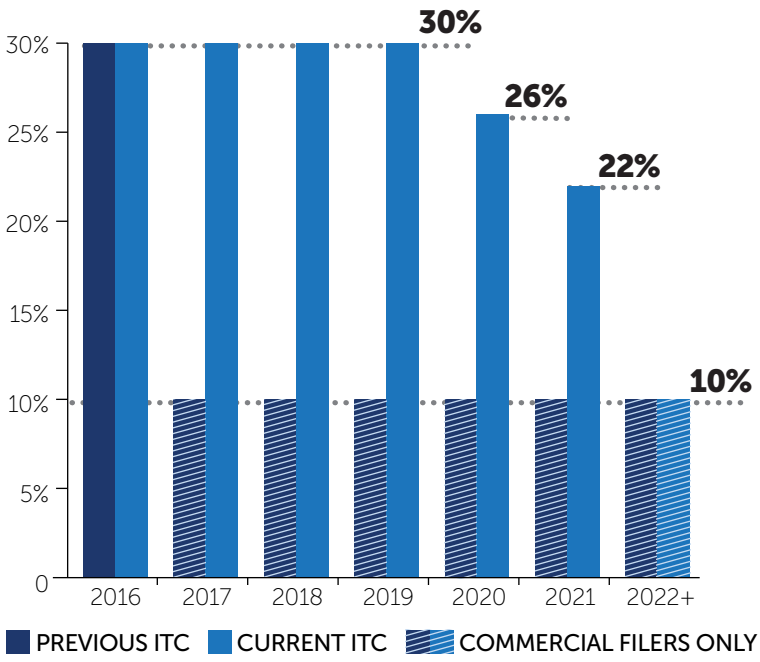
FEDERAL INVESTMENT TAX CREDIT (ITC) EXTENDED

FEDERAL ITC LEGISLATIVE HISTORY



Source: Smart Electric Power Alliance, 2016

2015 ITC EXTENSION



Source: Smart Electric Power Alliance, 2016

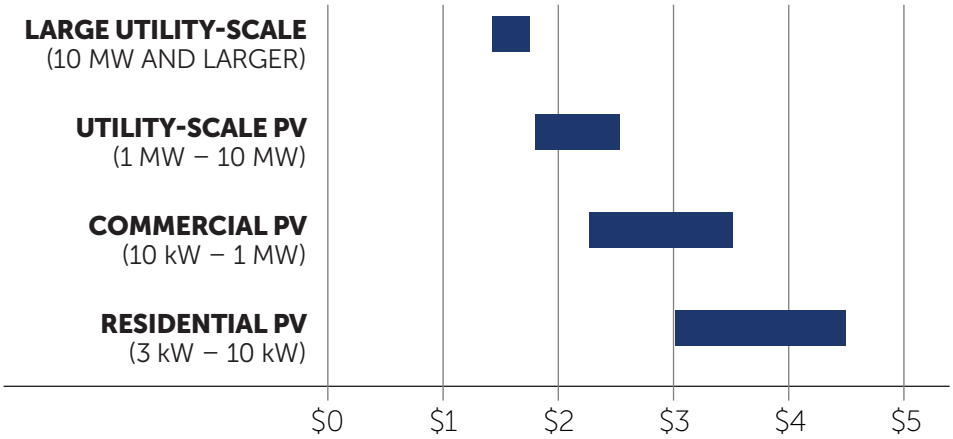
Sections 303 and 304 of the Consolidated Appropriations Act of 2016 – commonly referred to as the omnibus spending bill – extended the federal ITC for investments in solar power.[3]

- **26 U.S.C. §48** governs commercial tax filers. Applicable projects must begin construction before the credit's expiration date in a given year to receive that year's stated credit. The Internal Revenue Service will issue guidance on the "commence construction" provision of the law, which replaced the "placed-in-service" standard previously in place.
- **26 U.S.C. §25D** outlines the ITC for residential installations. The law stipulates that projects must be "placed in service" before the expiration date of the credit for a given year to receive credit.

3 CAA 2016, pg. 2005-2007

PRICING THE SOLAR MARKET

INSTALLED COST PER WATT (DC)



Source: Smart Electric Power Alliance, Solar Fundamentals: Markets, 2015

Record low prices for power purchase agreements (PPA) and record numbers of installations demonstrate solar's increasing cost-competitiveness. Sixty-two percent of survey respondents are planning for solar as a least-cost resource.

- In 2015, Austin Energy (Texas) received offers for less than $40 per megawatt-hour (MWh). The previous year, the utility signed a 150-MW PPA for less than $50/MWh – the lowest price yet seen at that time. The recent offers reflect a 20-percent drop in the span of only one year.[4]
- NV Energy (Nevada) signed two 100-MW PPAs – one fixed at $46/MWh and another starting at $38.70/MWh with a price escalator.[4]
- Tennessee Valley Authority (TVA) recently contracted PPAs for projects ranging 1-5 MW.[6] The base price average will be $48.10/MWh, according to TVA.

PURPA is also driving a growing pipeline of solar projects in locations where developers can profitably sell solar output at established avoided cost rates. PURPA's impact is most acute in Idaho, North Carolina, Oregon, South Carolina and Utah.

- For further information on pricing see *SEPA's Photovoltaic System Price Quotes from Selected States 2014-2015* from SEPA's Market Snapshot Series. See also *Solar Fundamentals, Volume 2: Markets*, and *Utility-scale Solar: The Path to High-Value, Cost-Competitive Projects*.

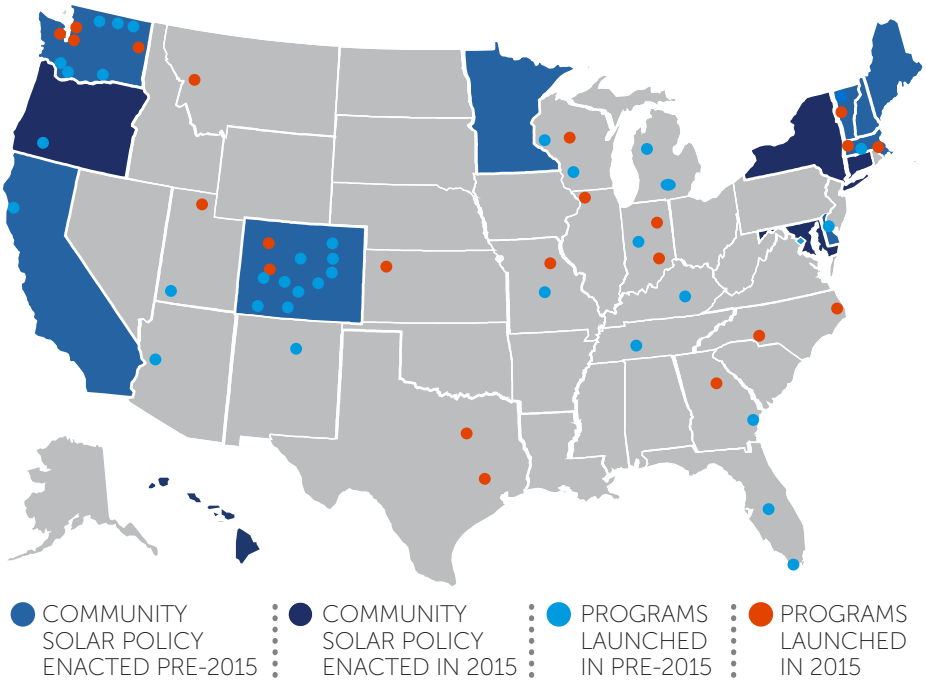
4 http://www.greentechmedia.com/articles/read/cheapest-solar-ever-austin-energy-gets-1.2-gigawatts-of-solar-bids-for-less

5 http://www.bloomberg.com/news/articles/2015-07-07/buffett-scores-cheapest-electricity-rate-with-nevada-solar-farms

6 http://www.ect.coop/power-supply/renewable-energy/tva-solar-program-taps-three-co-ops/90501

MW = Megawatts AC, except where noted

COMMUNITY SOLAR PROGRAMS GAINING MOMENTUM



Source: Smart Electric Power Alliance, 2016

COMMUNITY SOLAR FAST FACTS:

83 ACTIVE PROGRAMS AS OF THE END OF 2015

MORE THAN 100 MW ONLINE

79 PROGRAMS IN DEVELOPMENT

14 STATES AND D.C. ENACTED COMMUNITY SOLAR POLICIES

The popularity of community solar programs among utilities grew rapidly in 2015. The number of active programs increased 80 percent from 2014. With another 79 programs scheduled to come online in 2016, the market shows no signs of slowing down according to this year's survey and SEPA's Community Solar Tracker.

- 89 percent of utilities surveyed were either offering or planning/researching/considering a community solar program – an increase of 10 percent over 2014.
- Utilities planning a program favored utility-managed programs over third-party managed programs [39 percent]. However, 60 utilities, or 32 percent of respondents, are considering both program designs.

Enabling policies are not necessary for community solar programs to exist, but they have the ability to catalyze a market. At the end of 2015, 14 states and the District of Columbia had enacted such policies, five of which were implemented in 2015 (Connecticut, Maryland, Oregon, Hawaii and New York).

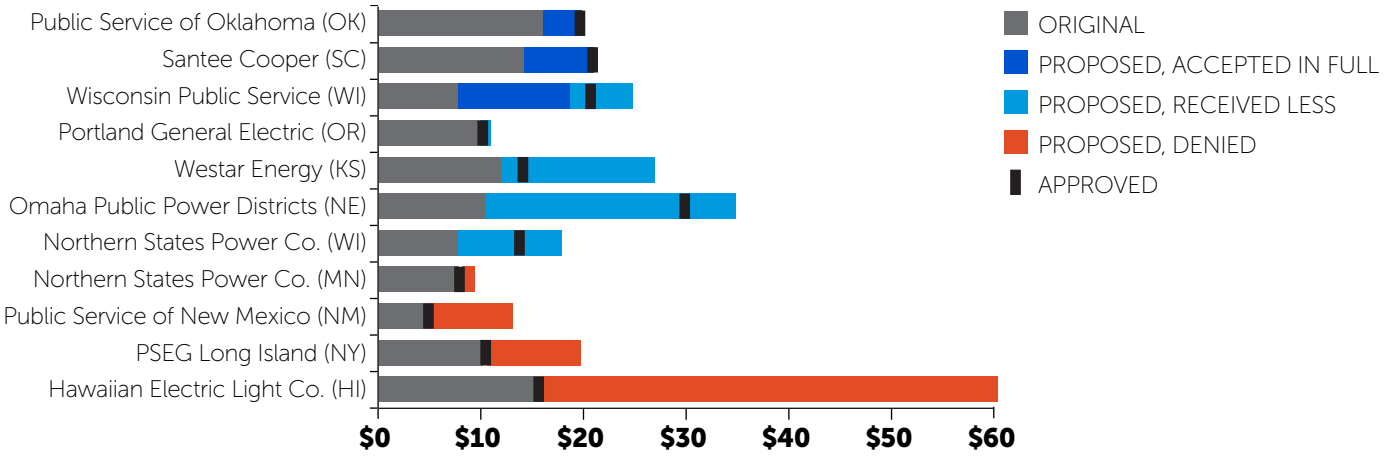
POLICY MATTERS: THE MINNESOTA EXPERIENCE

In 2013, Minnesota enacted the Solar Energy Job Act (H.F. 729) that required only Xcel Energy—the state's largest investor-owned utility—to accept proposals for developer-led community solar projects. The policy specifies virtual net metering priced at retail rates and does not specify a program cap. It has since resulted in 28 developers, many new to community solar, inundating Xcel Energy with more than 1 GW of project proposals.

STRONG INTEREST IN RATE REFORMS

SELECT UTILITY FIXED SERVICE CHARGE INCREASE REQUESTS IN 2015

(CHARGE PER MONTH)



Source: Smart Electric Power Alliance, 2016; data and information from North Carolina Clean Energy Technology Center *50 States of Solar 2015* Q1, Q2, Q3 and Q4 reports.

FIXED SERVICE CHARGE RATE CASE BREAKDOWN

DECISION	CASES	AVERAGE ORIGINAL CHARGE	AVERAGE PROPOSAL	AVERAGE APPROVED
Approved in Full	7	$11.80	$18.18	Full
Approved Less	18	$9.17	$16.83	$12.57
Denied/Withdrawn	17	$11.93	$24.15	No change
Pending	19	$8.12	$14.00	N/A
Total/Avg.	61	$9.92	$18.08	$13.15

Source: Smart Electric Power Alliance, 2016; data and information from North Carolina Clean Energy Technology Center *50 States of Solar 2015* Q1, Q2, Q3, and Q4 reports. Cases pending as of the Q4 report reflect up to date information as of 2/5/2016.

A total of 61 utilities from 30 states proposed increasing fixed service charges. Forty-two were decided in 2015 – 25 rate cases were approved and 17 were rejected.

- About two-thirds (40) of these proposals sought increases of 50 percent or greater; 18 proposed increases of 100 percent or more.
- Utility companies have indicated that raising general fixed service or adding solar-specific charges improves cost-of-service allocations among fixed, variable, and capacity based costs. The assertion is that removing fixed costs from the variable rate justifies the increases.

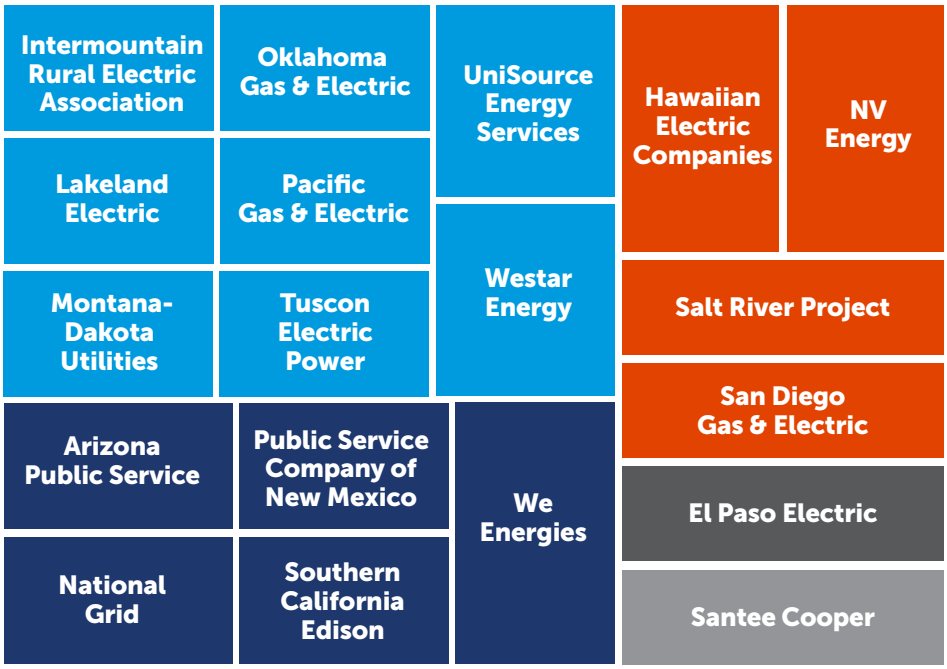
MW = Megawatts AC, except where noted

- Renewable energy and energy efficiency advocates suggest that these fixed and solar charge increases disincentivize renewables and efficiency measures. The renewable energy and energy storage industries would prefer demand charges and time-of-use rates as better, more workable long-term solutions that can be managed as solar and battery storage costs decline.

Prior to 2015, Arizona Public Service was the only electric utility in the United States with any type of specialized charges for solar or distributed generation customers--a standby charge of $0.70 per kilowatt of solar capacity.

Salt River Project, Intermountain Rural Electric Association, Lakeland Electric, Nevada Power, Sierra Pacific, and We Energies received approval from their respective regulators or authorities for standby or demand charges in 2015. We Energies' charges were struck down in court.

RATE REFORM STRATEGY



Source: Smart Electric Power Alliance, 2016

STAND-BY CHARGE:

Based on the customer's installed solar capacity. Proposed charges range from $3/kW to $6/kW per month.

DEMAND CHARGE:

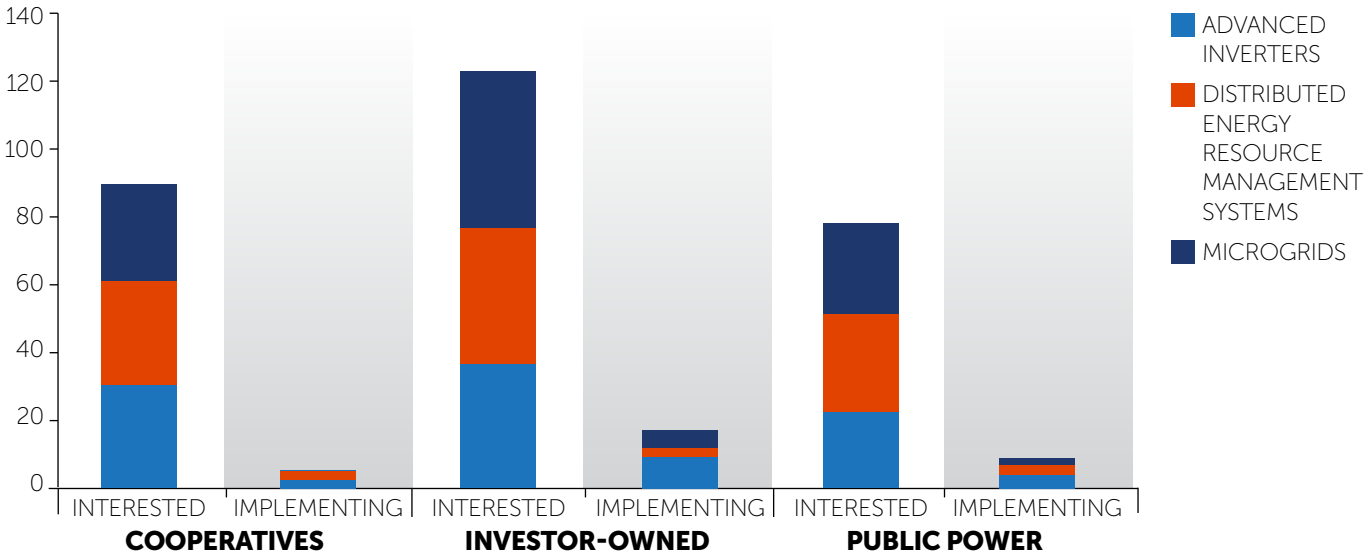
Variable monthly charge based on the customer's highest demand for a given time period (15, 30, and 60 minute increments have been proposed). Proposed charges range from $2.68/kW to $14.33/kW of peak demand per month.

SOLAR CUSTOMER FIXED CHARGE:

Fixed component of the bill is higher for solar customers. Proposed increases range from $5.00 to $50.00 above the standard fixed charge.

ADVANCED GRID TECHNOLOGY DEPLOYMENTS UNDERWAY

UTILITY INTEREST VS. IMPLEMENTATION OF ADVANCED GRID INTEGRATION TECHNOLOGIES



Source: Smart Electric Power Alliance, 2016

SEPA's annual utility survey revealed substantial interest regarding advanced strategies for solar resource integration, such as advanced inverter functionality, distributed energy resource management systems (DERMS), and microgrids. At sufficient levels of solar penetration, these enabling technologies will better integrate solar into the larger grid ecosystem.

ADVANCED GRID IMPLEMENTATION BY UTILITY TYPE

About half of cooperatives and public power utilities expressed interest in advanced grid integration strategies; among investor-owned utilities, interest jumped to two-thirds. Implementation remains nascent across all three utility types.

- **Advanced Inverters** – solar inverters programmed to support the grid by way of reactive power support, voltage and frequency ride-through support, and curtailment, among other functions.
- **Distributed Energy Resource Management Systems (DERMS)** – software that increases real-time visibility into distributed asset capabilities and functions, providing a utility with additional flexibility and control to manage technical challenges.
- **Microgrids** – a group of loads and distributed energy resources that are located within a defined electrical boundary and that can act as a single, controllable entity to connect and disconnect from the grid.

MW = Megawatts AC, except where noted

APPENDIX A-1: SOLAR INSTALLATIONS BY UTILITY TYPE[7]

INVESTOR-OWNED

ANNUAL MW		
1	Southern California Edison (CA)	1,258
2	Pacific Gas & Electric (CA)	787
3	Duke Energy Progress (NC,SC)	461
4	San Diego Gas & Electric (CA)	441
5	Dominion North Carolina Power (N)	232
6	NV Energy (NV)	224
7	Rocky Mountain Power (UT,WY,ID)	194
8	Georgia Power Company (GA)	189
9	National Grid – Massachusetts (MA)	154
10	Jersey Central Power & Light (NJ)	124

CUMULATIVE MW		
1	Pacific Gas & Electric (CA)	5,386
2	Southern California Edison (CA)	3,680
3	San Diego Gas & Electric (CA)	1,777
4	Arizona Public Service (AZ)	935
5	Duke Energy Progress (NC,SC)	896
6	Public Service Electric & Gas (NJ)	678
7	NV Energy (NV)	496
8	National Grid – Massachusetts (MA)	472
9	Jersey Central Power & Light (NJ)	458
10	Public Service Colorado (CO)	366

ANNUAL SYSTEMS		
1	Pacific Gas & Electric (CA)	68,189
2	Southern California Edison (CA)	56,649
3	San Diego Gas & Electric (CA)	27,236
4	National Grid -- Massachusetts (MA)	12,192
5	NV Energy (NV)	12,099
6	Arizona Public Service (AZ)	9,435
7	Connecticut Light and Power Company (CT)	5,994
8	Baltimore Gas and Electric (MD)	5,914
9	Public Service Colorado (CO)	5,235
10	Hawaiian Electric (HI)	5,178

CUMULATIVE SYSTEMS		
1	Pacific Gas & Electric (CA)	219,714
2	Southern California Edison (CA)	158,801
3	San Diego Gas & Electric (CA)	79,201
4	Hawaiian Electric (HI)	41,568
5	Arizona Public Service (AZ)	40,546
6	Public Service Colorado (CO)	30,094
7	National Grid – Massachusetts (MA)	22,495
8	NV Energy (NV)	17,502
9	Public Service Electric & Gas (NJ)	17,030
10	Jersey Central Power & Light (NJ)	15,306

CUMULATIVE WATTS PER CUSTOMER		
1	Dominion North Carolina Power (NC)	2,873
2	San Diego Gas & Electric (CA)	1,262
3	Maui Electric (HI)	1,084
4	Hawaiian Electric (HI)	1,076
5	Pacific Gas & Electric (CA)	1,038
6	Hawaiian Electric Light Company (HI)	882
7	Arizona Public Service (AZ)	804
8	Southern California Edison (CA)	741
9	Tucson Electric Power (AZ)	709
10	Duke Energy Progress (NC,SC)	609

CUMULATIVE PERCENTAGE OF NET-METERED SYSTEMS PER CUSTOMER		
1	Hawaiian Electric (HI)	13.8 %
2	Maui Electric (HI)	13.3 %
3	Hawaiian Electric Light Company (HI)	11.6 %
4	San Diego Gas & Electric (CA)	5.4 %
5	Pacific Gas & Electric Company (CA)	4.2 %
6	Entergy New Orleans (LA)	3.8 %
7	Arizona Public Service (AZ)	3.5 %
8	Southern California Edison (CA)	3.2 %
9	Fitchburg Gas & Electric Light (MA)	3.0 %
10	Tucson Electric Power (AZ)	2.6 %

7 Effective December 31, 2015. Source: Smart Electric Power Alliance, 2016

PUBLIC POWER

ANNUAL MW		
1	Los Angeles Department of Water and Power (CA)	247
2	CPS Energy (TX)	107
3	Salt River Project (AZ)	77
4	Long Island Power Authority (NY)	65
5	City of Palo Alto Utilities (CA)	48
6	Roseville Electric Utility (CA)	35
7	Guam Power Authority (GU)	32
8	Imperial Irrigation District (CA)	32
9	Riverside Public Utilities (CA)	19
10	Sacramento Municipal Utility District (CA)	17

CUMULATIVE MW		
1	Los Angeles Department of Water and Power (CA)	393
2	CPS Energy (TX)	256
3	Salt River Project (AZ)	225
4	Sacramento Municipal Utility District (CA)	197
5	Long Island Power Authority (NY)	159
6	Imperial Irrigation District (CA)	114
7	Roseville Electric Utility (CA)	79
8	Austin Energy (TX)	62
9	City of Palo Alto Utilities (CA)	54
10	Riverside Public Utilities (CA)	44

ANNUAL SYSTEMS		
1	Long Island Power Authority (NY)	9,352
2	Los Angeles Department of Water and Power (CA)	5,083
3	Salt River Project (AZ)	3,394
4	Sacramento Municipal Utility District (CA)	3,267
5	Modesto Irrigation District (CA)	1,271
6	Imperial Irrigation District (CA)	1,138
7	Austin Energy (TX)	962
8	CPS Energy (TX)	861
9	Electrical District No. 3 (AZ)	821
10	City of Groton Utilities (CT	793

CUMULATIVE SYSTEMS		
1	Long Island Power Authority (NY)	21,522
2	Los Angeles Department of Water and Power (CA)	19,596
3	Salt River Project (AZ)	15,481
4	Sacramento Municipal Utility District (CA)	11,578
5	Austin Energy (TX)	4,869
6	CPS Energy (TX)	3,186
7	Modesto Irrigation District (CA)	2,725
8	Roseville Electric Utility (CA)	2,473
9	Imperial Irrigation District (CA)	2,347
10	Seattle City Light (WA)	2,248

CUMULATIVE WATTS PER CUSTOMER		
1	Village of Minster (OH)	2,104
2	City of Palo Alto Utilities (CA)	1,846
3	Roseville Electric Utility (CA)	1,416
4	Carey Municipal Electric Utility (OH)	1,351
5	Vineland Municipal Electric Utility (NJ)	1,318
6	Ashburnham Municipal Light Plant (MA)	1,079
7	Sterling Municipal Light Department (MA)	848
8	Imperial Irrigation District (CA)	750
9	Guam Power Authority (GU)	710
10	Silicon Valley Power (CA)	613

CUMULATIVE PERCENTAGE OF NET-METERED SYSTEMS PER CUSTOMER		
1	City of Groton Utilities (CT)	5.9 %
2	Electrical District No. 3 (AZ)	5 %
3	Roseville Electric Utility (CA)	4.4 %
4	City of Moreno Valley (CA)	3.6 %
5	Pittsburgh Power Company (CA)	3.4 %
6	City of Palo Alto Utilities (CA)	2.9 %
7	Town of Concord (MA)	2.9 %
8	Modesto Irrigation District (CA)	2.3 %
9	Long Island Power Authority (NY)	1.9 %
10	Sacramento Municipal Utility District (CA)	1.9 %

MW = Megawatts AC, except where noted

COOPERATIVE

ANNUAL MW		
1	United Power (CO)	24
2	Southern Maryland Electric Cooperative (MD)	22
3	Kauai Island Utility Cooperative (HI)	19
4	Cobb EMC (GA)	8
5	Vermont Electric Cooperative (VT)	7
6	Blue Ridge Mountain Electric Membership Corporation (GA,TN)	4
7	Trico Electric Cooperative (AZ)	4
8	Intermountain Rural Electric Association (CO)	3
9	Holy Cross Energy (CO)	3
10	CoServ (TX)	2

CUMULATIVE MW		
1	Kauai Island Utility Cooperative (HI)	62
2	Southern Maryland Electric Cooperative (MD)	41
3	Pickwick Electric Cooperative (TN)	34
4	Flint Electric Membership Corporation (GA)	29
5	United Power (CO)	28
6	Delaware Electric Cooperative (DE)	16
7	Blue Ridge Mountain Electric Membership Corporation (GA,TN)	15
8	Trico Electric Cooperative (AZ)	13
9	Vermont Electric Cooperative (VT)	11
10	Sulphur Springs Valley Electric Cooperative (AZ)	9

ANNUAL SYSTEMS		
1	Southern Maryland Electric Cooperative (MD)	1,352
2	United Power (CO)	894
3	Kauai Island Utility Cooperative (HI)	802
4	Intermountain Rural Electric Association (CO)	605
5	Trico Electric Cooperative (AZ)	458
6	Pedernales Electric Cooperative (TX)	387
7	Clay Electric Cooperative (FL)	276
8	Delaware Electric Cooperative (DE)	247
9	New Hampshire Electric Cooperative (NH)	218
10	Grand Valley Power (CO)	182

CUMULATIVE SYSTEMS		
1	Kauai Island Utility Cooperative (HI)	3,236
2	Southern Maryland Electric Cooperative (MD)	2,151
3	Sulphur Springs Valley Electric Cooperative (AZ)	1,626
4	Trico Electric Cooperative (AZ)	1,371
5	United Power (CO)	1,229
6	Pedernales Electric Cooperative (TX)	983
7	Intermountain Rural Electric Association (CO)	905
8	Otero County Electric Cooperative (NM)	825
9	Delaware Electric Cooperative (DE)	782
10	Holy Cross Energy (CO)	691

CUMULATIVE WATTS PER CUSTOMER		
1	Farmers Electric Cooperative (IA)	2,805
2	Kauai Island Utility Cooperative (HI)	1,870
3	Pickwick Electric Cooperative (TN)	1,680
4	Chickasaw Electric Cooperative (TN)	434
5	United Power (CO)	379
6	Flint Electric Membership Corporation (GA)	347
7	Trico Electric Cooperative (AZ)	293
8	Vermont Electric Cooperative (VT)	286
9	Holston Electric Cooperative (TN)	280
10	Southern Maryland Electric Cooperative (MD)	262

CUMULATIVE PERCENTAGE OF NET-METERED SYSTEMS PER CUSTOMER		
1	Otero County Electric Cooperative (NM)	4.4 %
2	Sulphur Springs Valley Electric Cooperative (AZ)	3.2 %
3	Trico Electric Cooperative (AZ)	3.2 %
4	Washington Electric Cooperative (VT)	2 %
5	La Plata Electric Association (CO)	1.7 %
6	United Power (CO)	1.7 %
7	Vermont Electric Cooperative (VT)	1.7 %
8	San Miguel Power Association (CO)	1.5 %
9	Sangre De Cristo Electric Association (CO)	1.4 %
10	Southern Maryland Electric Cooperative (MD)	1.4 %

APPENDIX A-2: 2015 SOLAR CAPACITY ADDITIONS BY STATE[8]

STATE	TOTAL MW	RESIDENTIAL MW	NON-RESIDENTIAL MW	UTILITY SUPPLY MW
Alabama	1.26	.11	.29	.86
Alaska	.24	.2	.04	0
American Samoa	.28	0	.06	.22
Arizona	253.44	120.05	27.39	106
Arkansas	.6	.47	.13	0
California	2843.71	874.41	301.27	1736.04
Colorado	121.12	35.99	7.62	77.51
Connecticut	76.74	51.5	25.24	0
Delaware	3.17	1.99	1.18	0
District of Columbia	-	-	-	-
Florida	33.41	20.69	11.12	1.6
Georgia	217.63	.75	33.85	183.04
Guam	32.35	5.03	.82	26.5
Hawaii	120.83	69.29	37.01	14.54
Idaho	1.9	1.67	.24	0
Illinois	2.65	1.4	1.25	0
Indiana	29.84	1.63	2.22	25.99
Iowa	8.76	2.19	5.72	.85
Kansas	3.48	1.08	2.4	0
Kentucky	1.19	.74	.45	0
Louisiana	32.53	31.02	1.51	0
Maine	6.11	3.03	3.08	0
Maryland	109.9	70.79	29.11	10
Massachusetts	175.11	87.11	85	3
Michigan	9.46	3.86	1.6	4
Minnesota	11.49	5.47	4.13	1.89
Mississippi	4.14	.07	.11	3.95
Missouri	13.82	6.55	7.27	0
Montana	1.52	1.06	.47	0
Nebraska	.74	.7	.04	0
New Hampshire	14.19	10.38	3.82	0
New Jersey	157.56	61.49	85.07	57.78
New Mexico	12.37	9.24	3.12	0
Nevada	218.51	72.19	7.82	138.5
New York	210.43	151.26	59.17	0
North Carolina	681.89	7.21	3.67	806.11
North Dakota	0	0	0	0
Ohio	20.01	5.72	8.79	5.5
Oklahoma	.26	.21	.05	0
Oregon	19.31	9.59	5.53	4.2
Pennsylvania	7.2	4.23	2.98	0
Rhode Island	8.1	2.02	3.28	2.8
South Carolina	4.07	2.32	1.24	.51
South Dakota	.04	.03	0	.01
Tennessee	3.69	1.62	.95	1.12
Texas	142.9	24.76	13.6	104.5
Utah	198.66	23.3	10.36	165
Vermont	31.19	14.5	16.69	0
Virginia	8.55	5.37	2.24	.93
Washington	21.89	19.4	2.06	.42
West Virginia	.65	.58	.08	0
Wisconsin	7.57	5.04	1.65	.87
Wyoming	.32	.14	.18	0

8 Effective December 31, 2015. Source: Smart Electric Power Alliance and U.S. EIA, 2016

MW = Megawatts AC, except where noted

APPENDIX A-3: CUMULATIVE SOLAR CAPACITY BY STATE[9]

STATE	TOTAL MW	RESIDENTIAL MW	NON-RESIDENTIAL MW	UTILITY SUPPLY MW
Alabama	2.85	.83	1.16	.86
Alaska	.84	.6	.24	0
American Samoa	2.69	.04	.68	1.97
Arizona	1,527.65	426.75	346.08	754.82
Arkansas	4.29	2.32	1.97	0
California	11,877.6	2,582.39	1,591.04	7,704.17
Colorado	447.19	161.09	109.14	176.96
Connecticut	187.8	97.07	81.83	8.9
Delaware	40.83	19.6	16.04	5.19
District of Columbia	10.1	5.95	4.14	0
Florida	248.15	58.54	60.8	128.81
Georgia	364.61	6.26	84.37	273.99
Guam	34.72	6.07	2.15	26.5
Hawaii	534.15	314.97	168.77	50.42
Idaho	5.52	3.66	1.86	0
Illinois	11.63	5.21	6.42	0
Indiana	119.03	7.16	3.62	108.26
Iowa	31.56	11.18	18.68	1.7
Kansas	8.28	6.38	1.9	0
Kentucky	12.08	3.94	8.13	0
Louisiana	121.76	116.13	5.62	0
Maine	16.99	10.58	6.41	0
Maryland	272	133.69	122.82	15.5
Massachusetts	770.62	265.97	497.65	7
Michigan	27.36	8.41	6.94	12
Minnesota	26.37	8.81	12.8	4.76
Mississippi	6.59	.77	1.87	3.95
Missouri	111.16	47.32	63.84	0
Montana	7.16	4.88	2.28	0
Nebraska	1.76	1.31	.45	0
New Hampshire	26.99	18.72	8.27	0
New Jersey	1,336.17	234.85	792.65	308.68
New Mexico	242.59	43.45	47.79	151.35
Nevada	514.83	101.93	88.3	324.6
New York	528.87	318.62	210.26	0
North Carolina	1,591.79	21.21	28.37	1,542.21
North Dakota	.22	.12	.06	.05
Ohio	90.49	11.37	63.54	15.58
Oklahoma	2.1	1.61	.49	0
Oregon	111.74	45.42	45.87	20.45
Pennsylvania	211.11	66	145.11	0
Rhode Island	40.95	3.95	19.4	17.6
South Carolina	18.46	6.19	5.85	6.42
South Dakota	.33	.1	.22	.01
Tennessee	87.9	10.15	38.87	38.88
Texas	412.82	80.63	59.5	272.69
Utah	235.15	35.02	23.92	176.2
Vermont	63.96	38.99	24.97	0
Virginia	26.91	14.67	10.14	2.1
Washington	58.38	48.42	9.34	.62
West Virginia	3.27	2.49	.78	0
Wisconsin	23.49	13.26	9.36	.87
Wyoming	2.27	1.27	1	0

9 Effective December 31, 2015. Source: Smart Electric Power Alliance and U.S. EIA, 2016

APPENDIX A-4: SURVEY PARTICIPANTS

4-County Electric Power Association

Aberdeen Electric Department, City of

AEP Ohio

AEP Texas

Albertville Municipal Utilities Board

Alcoa Electric Department, City of

Alcorn County Electric Power Association

Allalmakee-Clayton Electric Cooperative

American Samoa Power Authority

Ames Municipal Electric System

Anaheim, City of

Appalachian Electric Cooperative

Appalachian Power

Arab Electric Cooperative

Arizona Public Service

Ashburnham Municipal Light Plant

Athens Electric Department, City of

Athens Utilities Board

Austin Energy

Avista Utilities

Baltimore Gas and Electric

Banning, City of

BARC Electric Cooperative

Beaches Energy

Benton County Electric System

Benton PUD

Berkeley Electric Cooperative

Big Bend Electric Cooperative

Black Hills Energy

Blue Ridge Mountain Electric Membership Corp

Bolivar Energy Authority

Bowling Green Municipal Utilities

Bristol Tennessee Essential Services

Bristol Virginia Utilities

Brunswick Electric Membership

Bushnell, City of

Caney Fork Electric Cooperative

Carey Municipal Power & Light

Carroll County Electric Department

Carroll EMC

Cass County Electric Cooperative Inc.

Cedar Falls Utilities

Central Electric Cooperative

Central Electric Power Association

Central Electric Power Cooperative

Central Hudson Gas & Electric

Central Virginia Electric Cooperative

Chariton Valley Electric Cooperative, Inc.

Chickasaw Electric Cooperative

Chugach Electric Association

City Water, Light & Power

Clark Public Utilities

Clarksville Department of Electricity (CDE) Lightband

Clay Electric Cooperative, Inc

Cleveland Utilities

Clewiston, City of

Clinton Utilities Board

Cobb EMC

College Station Utilities

Colorado Springs Utilities

Colton Electric Utility, City of

Columbia Power & Water Systems

Commonwealth Edison

Connecticut Light and Power Company

Consolidated Edison Company of New York

Consolidated Electric Cooperative

Consumers Power, Inc.

Cookeville Electric Department

CoServ

CPS Energy

CSD E8D

Cullman Electric Cooperative

Cullman Power Board

Cumberland Electric Membership Corporation

Cuming County Public Power District

Dayton Electric Department, City of

Decatur Utilities

Delaware Electric Cooperative

Dickson Electric Department

Dominion North Carolina Power

Dominion Virginia Power

DTE Energy

Duck River Electric Membership Corporation

Duke Energy Carolinas

Duke Energy Florida

Duke Energy Indiana

Duke Energy Kentucky

Duke Energy Ohio

Duke Energy Progress

Duquesne Light

East Mississippi Electric Power Association

Eau Claire Energy Cooperative

El Paso Electric Co

Electric Power Board Of Chattanooga

Electrical District No. 3

Elizabethton Electric Department, City of

Emerald PUD

Empire Electric

Erwin Utilities

Etowah Utilities

Farmers Electric Cooperative

Fayetteville Public Utilities

Flint Electric Membership Corporation

Florence Utilities, City of

Florida Keys Electric Cooperative Association

Florida Power & Light Company

Forked Deer Electric Cooperative, Inc.

Fort Loudoun Electric Cooperative

Fort Meade, City of

Fort Payne Improvement Authority

Fort Pierce Utility Authority

Fulton Electric System

Gainesville Regional Utilities

Gallatin Department of Electricity

Gastonia, City of

Georgia Power

Gibson Electric Membership Corporation

Glasgow Electric Plant Board

Glendale Water and Power

Golden Spread Electric Cooperative

Grand Valley Power

Great River Energy

Green Power EMC

Greeneville Light and Power System

Guam Power Authority

Guntersville Electric Board

Harriman Utility Board

MW = Megawatts AC, except where noted

Hawaii Electric Light Company
Hawaiian Electric
Heartland Power Cooperative
Heber Light & Power
Hickman Electric Plant Board
Hickman-Fulton Counties Rural Electric Cooperative
Holston Electric Cooperative
Holy Cross Energy
Hopkinsville Electric System
Horry Electric Cooperative
Hubbard Electric Department, City of
Humboldt Utilities
Huntsville Utilities
Imperial Irrigation District
Indiana Michigan Power
Indianapolis Power & Light Company
Intermountain Rural Electric Association
Interstate Power & Light Company
Jackson Energy Authority
JEA
Jellico Electric and Water Systems
Jersey Central Power & Light
Joe Wheeler Electric Membership Corporation
Johnson City Power Board
Kauai Island Utility Cooperative
Kentucky Power
Key West, City of
Kingsport Power
Kissimmee Utility Authority
Kit Carson Electric Cooperative
Knoxville Utilities Board
Kosciusko Water & Light Plant
LaFollette Utilities
Lake Region Electric Cooperative
Lakeland Electric
Lawrenceburg Utility Systems
Leesburg Electric Department, City of
Lenoir City Utilities Board
Lexington Electric System
Los Angeles Department of Water and Power
Loudon Utilities
Louisville Gas & Electric; Kentucky Utilities
Louisville Utilities
Lumbee River EMC
Lyon-Lincoln Electric Cooperative, Inc.
Madison Gas & Electric Co
Marshall-DeKalb Electric Cooperative
Maryville Electric Department, City of
Maui Electric
Mayfield Electric and Water Systems
Medina Electric Cooperative
Meeker Cooperative Light & Power
Memphis Light, Gas and Water Division
Meriwether Lewis Electric Cooperative
Mid-South Synergy
Middle Tennessee Electric Membership Corporation
Milan Department of Public Utilities
Mille Lacs Energy Cooperative
Minnesota Power
Moorhead Public Service
Morristown Utilities Commission
Mountain Electric Cooperative
Mt. Pleasant Power System
Murfreesboro Electric Department
Murphy Electric Power Board
Murray Electric System
Muscle Shoals Electric Board
Narragansett Electric Company
Nashville Electric Service
Natchez Trace Electric Power Association
National Grid - Massachusetts
Nebraska Public Power District
New Albany Light, Gas & Water, City of
New Hampshire Electric Cooperative
Newberry, City of
Newport Utilities
Niagara Mohawk Power Corporation
Nishnabotna Valley REC
North Alabama Electric Cooperative
North Carolina Electric Membership Corporation
North East Mississippi Electric Power Association
North Georgia Electric Membership Corporation
Northcentral Mississippi Electric Power Association
Northern Lights, Inc.
Northern States Power Minnesota
Northern States Power Wisconsin
Northwest Rural PPD
NV Energy
Oak Ridge Electric Department
Ocala, City of
Okefenoke REMC
Okolona Electric Department, City of
Oncor Electric Delivery
Orange & Rockland Utilities
Orlando Utilities Commission
Oxford Electric Department, City of
Ozarks Electric Cooperative Corporation
Pacific Gas & Electric Company
Pacific Power
Palmetto Electric Cooperative Inc.
Palo Alto Utilities, City of
Paris Board of Public Utilities
Pasadena Water and Power
PECO Energy
Pedernales Electric Cooperative
Pennyrile Rural Electric Cooperative Corp
PES Energize (Pulaski Electric System)
Pickwick Electric Cooperative
Piedmont EMC
Plateau Electric Cooperative
Platte River Power Authority
Platte-Clay Electric Cooperative
Pontotoc Electric Power Association
Port of Oakland
Portland General Electric
Powell Valley Electric Cooperative
PPL Electric Utilities Corp
Prentiss County Electric Power Association
Price Electric Cooperative
Public Service Colorado
Public Service Company of Oklahoma
Public Service Electric & Gas
Public Service of New Hampshire
PUD No.1 of Kittitas County
Randolph Electric Membership Corp
Ravalli County Electric Cooperative, Inc.
Riverside Public Utilities
Rockwood Electric Utility
Rocky Mountain Power
Roseville Electric Utility
Runestone Electric Association
Russellville Electric Plant Board
Sacramento Municipal Utility District
Salem Electric
Salt River Project

San Diego Gas & Electric
San Miguel Power Association
Sand Mountain Electric Cooperative
Santee Cooper
Seattle City Light
SECO Energy
Sedgwick County Electric Cooperative Association
Seminole Electric Cooperative, Inc.
Sequachee Valley Electric Cooperative
Sevier County Electric System
Sheffield Utilities
Silicon Valley Power/City of Santa Clara
Snapping Shoals EMC
Snohomish County PUD
South Carolina Electric & Gas
South Central Electric Association
South Central Indiana REMC
Southern California Edison
Southern Iowa Electric Cooperative
Southern Maryland Electric Cooperative
Southside Electric Cooperative
Southwest Tennessee Electric Membership Corporation
Southwestern Electric Power Company
Southwestern Public Service
Springfield Department of Electricity
Starke, City of
Starkville Electric System
Sterling Municipal Light Department
Sulphur Springs Valley Electric Cooperative
Sweetwater Utilities Board
Tallahassee, City of
Tallahatchie Valley Electric Power Association
Talquin Electric Cooperative
Tampa Electric Company
Tarrant Electric Department
Taylor Electric Cooperative
Tennessee Valley Electric Cooperative
Tombigbee Electric Power Association
Town of Havana
Tri-County Electric Cooperative, Inc.
Tri-County Electric Membership Corp
Tri-State Electric Membership Corp
Trico Electric Cooperative, Inc.
Truckee Donner Public Utility District
Tucson Electric Power Company
Tullahoma Utilities Board
Tupelo Water & Light Department, City of
Tuscumbia Electricity Department
Two Rivers Water & Light
United Cooperative Services
United Power
UNS Electric, Inc
Upper Cumberland Electric Membership Corporation
Vera Water and Power
Verendrye Electric Cooperative
Vermont Electric Cooperative
Vernon Gas & Electric
Village of Minster
Vineland Municipal Electric Utility
Volunteer Energy Cooperative
Wabash Valley Power
Warren Rural Electric Cooperative Corporation
Weakley County Municipal Electric System
West Kentucky Rural Electric Cooperative Corporation
Westar Energy
Wheeling Power
Wisconsin Power and Light Company

METHODOLOGY

The Smart Electric Power Alliance (SEPA) first identified over 500 solar-active utilities with at least 1 MW of installed solar capacity through previous surveys and net metering data from U.S. Energy Information Administration (U.S. EIA) Forms 861 for 2014 (revised January 2016) and 826 Net Metering for 2015 (accessed April 2016). These utilities were contacted via email and phone January through April of 2016, and 331 utilities responded by submitting either an Excel file or an online survey, with an additional 786 utilities from the EIA data, giving a total of 1,117 utilities represented in the study. This represents 34 percent of the electricity providers in the U.S. SEPA vetted the accuracy of survey information through personal contacts at utilities and external data sources. For the Watts-per-customer analysis, utilities must have at least 500 bundled customer accounts.

All generating capacity is presented in alternating current except where indicated.

Contact SEPA for more information.

Smart Electric Power Alliance

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