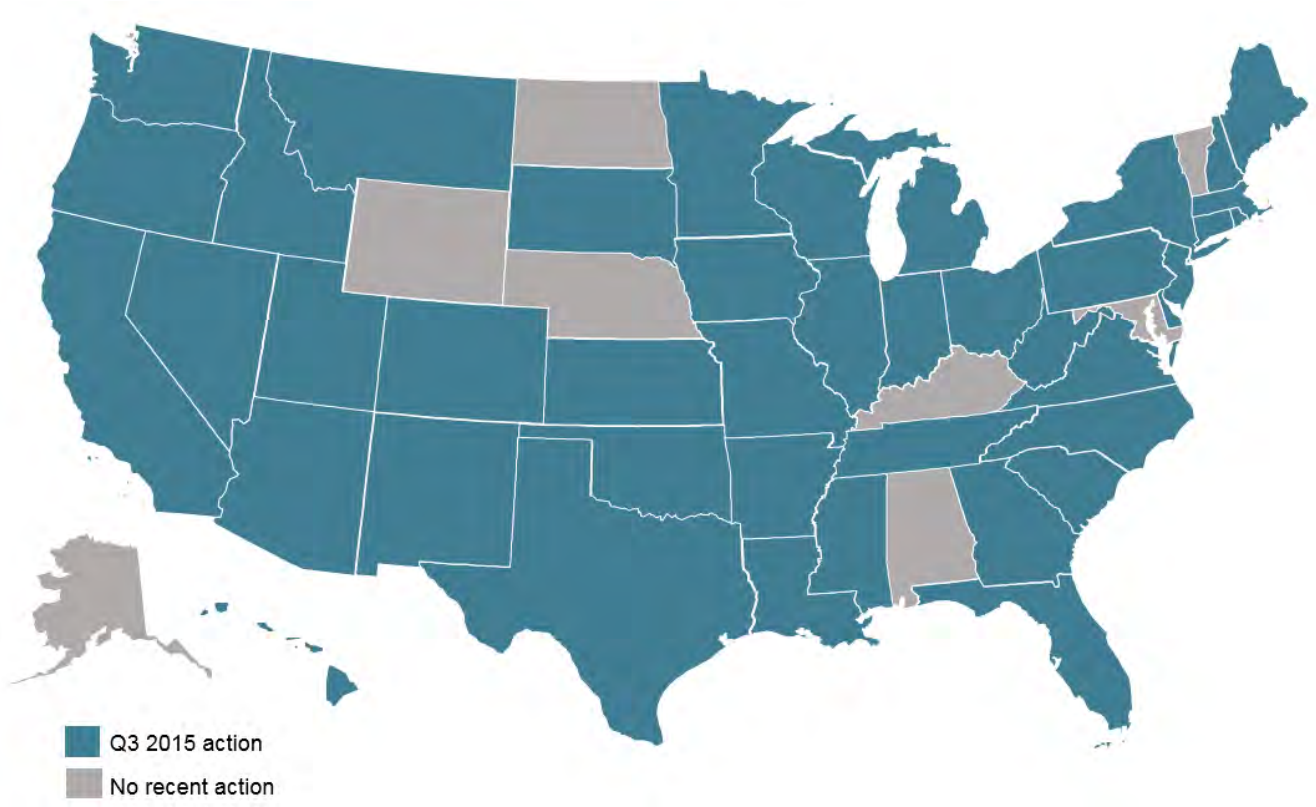
THE 50 STATES OF SOLAR



A QUARTERLY LOOK AT AMERICA'S FAST-EVOLVING DISTRIBUTED SOLAR POLICY CONVERSATION

Q3 2015

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The NC Clean Energy Technology Center is a UNC System-chartered Public Service Center administered by the College of Engineering at North Carolina State University. Its mission is to advance a sustainable energy economy by educating, demonstrating and providing support for clean energy technologies, practices, and policies. The Center provides service to the businesses and citizens of North Carolina and beyond relating to the development and adoption of clean energy technologies. Through its programs and activities, the Center envisions and seeks to promote the development and use clean energy in ways that stimulate a sustainable economy while reducing dependence on foreign sources of energy and mitigating the environmental impacts of fossil fuel use.

Meister Consultants Group, Inc. (MCG) is an international sustainability consulting firm specializing in renewable energy policy and strategy development. With affiliates in the United States and Europe, MCG is a global leader in clean energy policy, climate change planning, and stakeholder dialogue. MCG works with clients across the globe, from multi-national finance institutions; to federal, state and local governments; to philanthropic foundations. MCG's unique approach provides solutions that are grounded in global best practices yet are tailored to local context.

ACKNOWLEDGMENT

The authors would like to thank Tom Stanton of the National Regulatory Research Institute for his generous research assistance and insightful comments and review of a report draft. Any omissions or inaccuracies are the authors' own.

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PREVIOUS EDITIONS

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GLOSSARY OF ABBREVIATIONS

AC	Alternating Current – An inverter converts electricity generated by solar photovoltaic panels from direct current (DC) into alternating current, which is the type of electricity used on the U.S. electric grid.
DG	Distributed generation – Decentralized energy generation by small grid-connected devices.
IOU	Investor-Owned Utility – Utility owned by private investors (i.e., a for-profit utility), as opposed to one owned by a municipal or public agency or its members.
kW	Kilowatt – Unit of power used to express the capacity of residential solar photovoltaic systems (typically 3 kW – 7 kW); also commonly used to measure a customer's electricity demand at a given time; 1 kW = 1,000 watts.
kWh	Kilowatt-hour – Unit of energy equal to 1,000 watt-hours; commonly used to measure a customer's electricity consumption during a billing period.
MW	Megawatt – Unit of power used to the express capacity of large-scale solar arrays and other types of power plants; 1 MW = 1,000,000 watts.
PPA	Power Purchase Agreement – A contract between two parties in which one party agrees to purchase the energy production of an electricity generator for a specified price over a given period of time.
REC	Renewable Energy Credit/Certificate – A tradeable commodity which represents the renewable attributes of energy produced from a renewable energy facilities; RECs are often used as a method of tracking progress towards renewable energy portfolio standards and serve as a market-based incentive.
TOU	Time-Of-Use Rates/Tariffs – A pricing strategy by an energy provider in which the electricity rate is dependent on the time of energy consumption. Higher rates correspond to periods of higher demands.

STATE DISTRIBUTED SOLAR MARKETS AND POLICY OVERVIEW

Distributed solar continues to thrive in many U.S. markets. Through the end of 2014, more than 600,000 homes and businesses had installed on-site solar.[1] The residential market grew by more than 50% annually in 2012, 2013, and 2014[2]—a trend that some experts predict will continue for 2015 and 2016.[3] These systems generate approximately one-third of the total U.S. solar electricity production.[4] Although other states have rapidly expanding distributed solar markets, California accounts for approximately half of all residential solar installations. Seventy-two percent of residential solar systems installed in 2014 were financed through a third-party ownership model (i.e., solar leasing or a third-party power purchase agreement (PPA)), although solar loan products are rising in popularity.[5]

Community solar programs are expanding into new states and utility service areas, yet this option is not yet available to most U.S. residential customers. Community solar has sparked strong interest among many electric utilities.[6] As of August 2014, there were 57 active or proposed utility-offered community solar programs in 22 states.[7] These utility programs range significantly in design and size. For example, Xcel Energy's community solar program in Colorado, stemming from Colorado's landmark 2010 community solar legislation, is currently capped at 30 megawatts annually, whereas Xcel Energy's community solar program in Minnesota does not have an aggregate cap, but limits the size of each community solar garden to 5 megawatts.

Despite strong near-term growth projections for distributed solar, mid- to long-term policy uncertainties pose a challenge for the industry.

- At the federal level, an important solar policy, the 30% investment tax credit, is set to expire after December 31, 2016, for residential PV owners and drop to 10% for commercial PV owners.[8]
- At the state level, the general trends are that solar rebate incentives are decreasing, solar tax incentives are expiring, renewable portfolio standards are nearing their targets, net metering caps are being reached, and net metering and rate design are undergoing regulatory and legislative review.

Rate design, net metering, and distributed solar ownership are among the most contentious ongoing renewable energy policy issues. Some states have initiated studies or opened dockets to address these issues, and others have already approved some changes.

Many utilities have proposed or advocated for changes to net metering rules or residential customer rate design. Many utilities claim that net-metered customers are unfairly subsidized under existing net metering rules. The utility industry's chief concern is the recovery of its fixed costs to avoid both stranded assets and cost shifts; they argue that non-solar customers pay a larger share of the fixed costs than solar customers who continue to use the grid.[9] Consequently, many utilities have proposed net metering changes, such as reducing compensation rates for the electricity customers put onto the grid, or rate design changes imposing higher costs on solar customers. Solar advocates, on the other

hand, point to a number of benefits that solar provides to both the grid and society more broadly. Thus far, no consensus on the presence or absence of a cost shift has been reached, based on empirical evidence. Many (but not all—e.g., Louisiana) studies conducted by state governments on these issues show that existing net-metered customers produce net benefits to all customers (e.g., Mississippi) and that solar electricity production results in substantial value, comparable to or in excess of the retail rate (e.g., Maine).

PURPOSE OF THIS REPORT

The purpose of this quarterly report is to provide state lawmakers and regulators, electric utilities, the solar industry, and other energy stakeholders with timely, accurate, informative, and unbiased quarterly updates on how states are choosing to study, adopt, implement, amend, or discontinue policies associated with distributed solar photovoltaics (PV). This report catalogues proposed and enacted legislative and regulatory policy and rate design changes affecting the distributed solar PV value proposition during the third quarter (Q3) of 2015 (July 1 – September 30), with an emphasis on the residential sector.

APPROACH

The authors identified relevant policy changes through state utility commission docket searches on state websites or through Advanced Energy Economy's DocketDash tool (http://powersuite.aee.net), bill searches using Advanced Energy Legislation Tracker (www.aeltracker.org) and LexisNexis (www.lexisnexis.com), energy news articles, and direct communication with stakeholders and regulators in the industry. Despite the authors' best efforts to be comprehensive, omissions might have occurred. Where relevant information, including dockets, is unavailable, readers are invited to send omissions or corrections to the authors for inclusion in future editions.

Questions Addressed

This report addresses several questions about the changing U.S. solar policy landscape:

- How are (1) state regulatory bodies and legislatures and (2) investor-owned utilities (IOUs) and public power utilities addressing fast growing markets for distributed solar PV?
- What changes to traditional rate design features and net metering policies are being proposed, approved, and implemented?
- Where are distributed solar markets potentially affected by policy or regulatory decisions on community solar, third-party solar ownership, and utility-led residential rooftop solar programs?

Actions Included

This quarterly report focuses on cataloguing and describing important proposed and adopted policy changes affecting solar customer-generators of IOUs and large (i.e., at least 100,000 customers) publicly-owned or nonprofit utilities. Specifically, actions tracked in this issue include:

- Significant changes to state or utility **net metering** or **community solar** laws and rules, including program caps, system size limits, aggregate net metering rules, and compensation rates for net excess generation
- Legislative or regulatory-led efforts to study the **value of solar**, **net metering**, or **distributed solar generation policy**, e.g., through a regulatory docket or a cost-benefit analysis
- Utility-initiated rate requests for **charges applicable only to residential customers with solar PV** or other types of distributed generation, such as added monthly fixed charges, demand charges, stand-by charges, or interconnection fees
- Utility-initiated rate requests that propose a 10% or larger increase in either **fixed charges** or **minimum bills** for all residential customers
- Changes to the legality of **third-party solar ownership**, including solar leasing and solar third-party solar PPAs, and proposed **utility-led rooftop solar** programs

In general, this report considers an "action" to be a relevant (1) legislative bill that has been passed by at least one chamber or (2) a regulatory docket, utility rate proposal, or rulemaking proceeding. One exception is that introduced legislation related to third-party sales is included irrespective of whether it has passed at least one chamber, as only a small number of bills related to this policy have been introduced.

Actions Excluded

In addition to excluding most legislation that has been introduced, but not advanced, this report excludes a review of state actions pertaining to solar incentives, as well as more general rate design changes, like decoupling or time-of-use tariffs. The report also excludes changes to solar access laws, interconnection rules, and renewable portfolio standards. Details and updates on these policies and incentives are available at **www.dsireusa.org**.

OVERVIEW OF Q3 2015 POLICY CHANGES

Summary of State Actions

Table 1 provides a summary of state actions related to net metering, rate design, or solar ownership during Q3 2015. Of the 91 actions catalogued, the most common were related to fixed charge increases

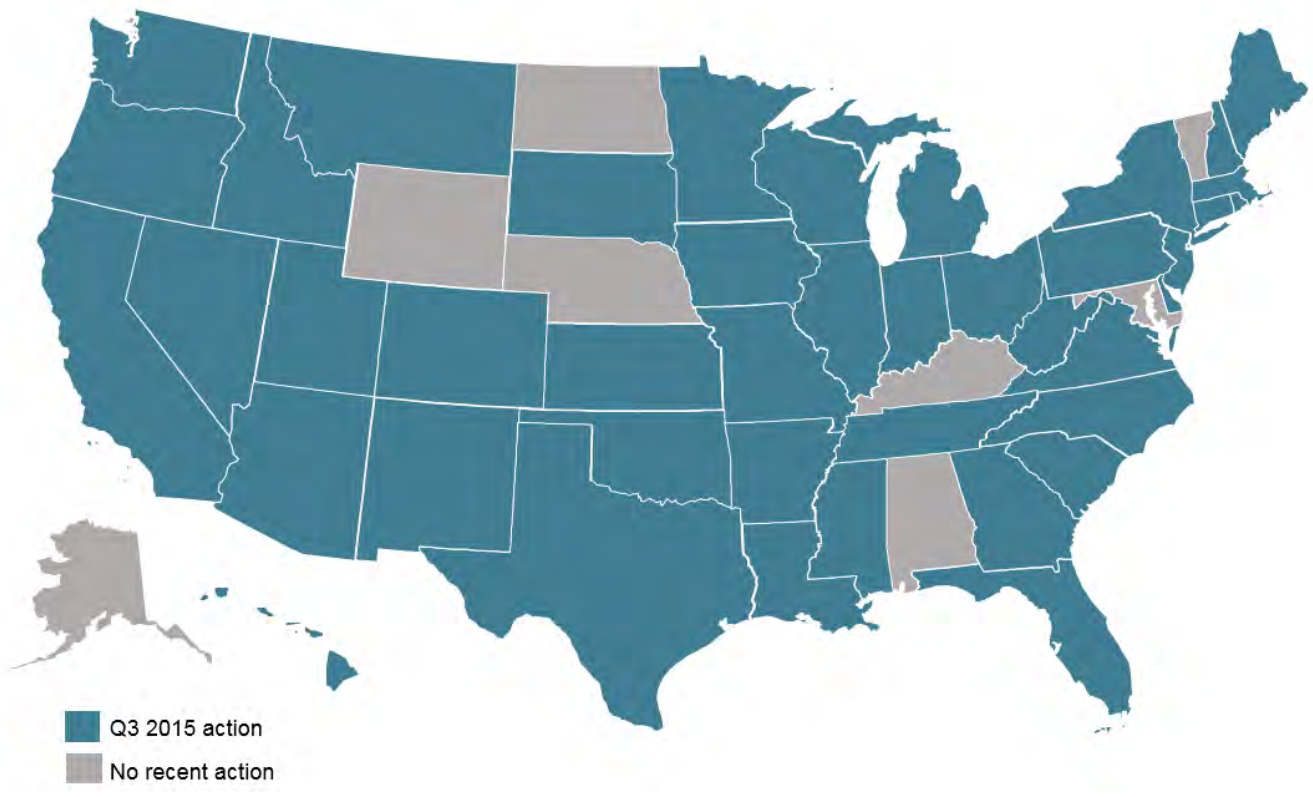
(26), followed by net metering policy changes (22), solar/DG charges (14), and state solar valuation or net metering studies (13). The actions occurred across 42 states in Q3 2015 (Figure 1).

Table 1. Summary of Policy Actions (Q3 2015)

Policy Type	# of Actions	% by Type	# of States
Residential fixed charge increase	26	29%	18
Net metering	22	24%	19
Residential solar/DG charge	14	15%	10
Solar valuation or net metering study	13	14%	12
Community solar	5	5%	5
Utility-led rooftop PV programs	5	5%	4
Third-party ownership of solar	4	4%	4
Minimum bill increase	2	2%	2
Total	91	100%	42 States

Note: The "# of States/ Districts/ Territories" total is not the sum of the cells, as some states have multiple actions.

Figure 1. Recent Action on Net Metering, Rate Design, and Solar Ownership Policies (Q3 2015)



Box 1 highlights some of the key trends and actions of Q3 2015, described in greater detail in the following sections.

Box 1. In Brief: Top Five Solar Policy Developments of Q3 2015

1. **UTILITY-LED ROOFTOP SOLAR EXPANDS**

   Utilities are exploring new business models by owning and operating distributed PV assets. Programs developed across the country over the last quarter include in **Arizona**, **Georgia** and **Texas**. In **New York**, Con Edison proposed a residential solar and storage program as one of its demonstration projects as part of the REV proceeding, where systems will be owned and financed by the utility's unregulated subsidiary.

2. **THE UNCERTAIN FUTURE OF NET METERING IN CALIFORNIA**

   California received proposals from its IOUs and other stakeholders on future net metering tariffs in Q3 2015. Proposals included buy-all, sell-all options for customers, new charges and fees, and reduced compensation for net excess generation.

3. **UTILITIES PROPOSE RESIDENTIAL FIXED CHARGE INCREASES**

   Utilities across the country continue to propose substantial increases in residential fixed customer charges. Fixed charge increases remain the most frequent proposed policy change impacting the residential solar value proposition in Q3.

4. **RESIDENTIAL DEMAND CHARGES GAIN MOMENTUM**

   In response to growing interest in distributed generation, a number of utilities have proposed new rate structures which would subject residential customers with solar to demand charges, which are based on peak energy usage over a billing period. These charges have traditionally been included only for some non-residential customers. States with pending utility proposals in Q3 for new residential demand charges include **Arizona**, **California**, **Kansas**, **Oklahoma**, and **Texas.**

5. **NEVADA HITS NET METERING CAP**

   In August 2015, **Nevada** reached its 235 MW net metering cap. Revised net metering tariffs were to take effect after the cap was reached. Until the Public Utilities Commission approves revised tariffs, new systems are being net metered under existing policies. NV Energy's proposed successor tariffs feature a new rate class for net metering customers with both time-of-use (TOU) and demand charges.

NET METERING POLICY CHANGES

Nineteen states enacted or are formally considering changes or clarifications to existing net metering policies in Q3 2015 (see Table 2). Massachusetts, New Hampshire, New Jersey, New York, and Nevada are among states policies to accommodate new systems. California, Hawaii, Arizona, Nevada, and Maine examined successor tariffs to net metering. State regulators in Illinois, Minnesota, and Virginia considered changes to align administrative rules with recently passed legislation. Finally, new net metering tariffs were approved for IOUs in South Carolina, and final comments were accepted on proposed net metering rules in Mississippi; both states had not previously enacted a statewide net metering policy.

Table 2. Summary of Net Metering Changes (Q3 2015)

Type of Change	# of Instances	% by Type
Net metering rules	15	75%
Net excess generation	10	50%
Aggregate cap	6	30%
System Size	3	15%
Meter aggregation	2	10%
REC ownership	1	5%
Total	22 Actions (19 States)	100%

Note: Total does not reflect sum of the rows because one action can include multiple types of changes.

Box 2. A Note on Net Metering Terminology

"Net excess generation" includes changes to how utilities compensate customers for excess electricity they export to the grid. An "aggregate cap" refers to the total limit on net-metered systems allowed by a state or a utility, whereas the "system size limits" are capacity sizes allowed for individual systems to net meter. "Aggregate net metering" refers to a program design allowing one or more customers to aggregate multiple electric meters for the purpose of allocating net metering credits. "Virtual net metering" is a type of aggregate net metering where credits from one solar PV system are used to offset multiple customers' electricity bills. "Meter aggregation" is another type of aggregate net metering in which a single customer may be able to offset electrical use from multiple meters on his or her property.[10] "Net metering rules" encompass other policy changes to net metering not covered by any of the other categories. "REC ownership" refers to rules that specify whether renewable energy credits generated by a net-metered system shall accrue to the solar PV system owner or the utility company.

Figure 2. Net Metering Policy Action (Q3 2015)

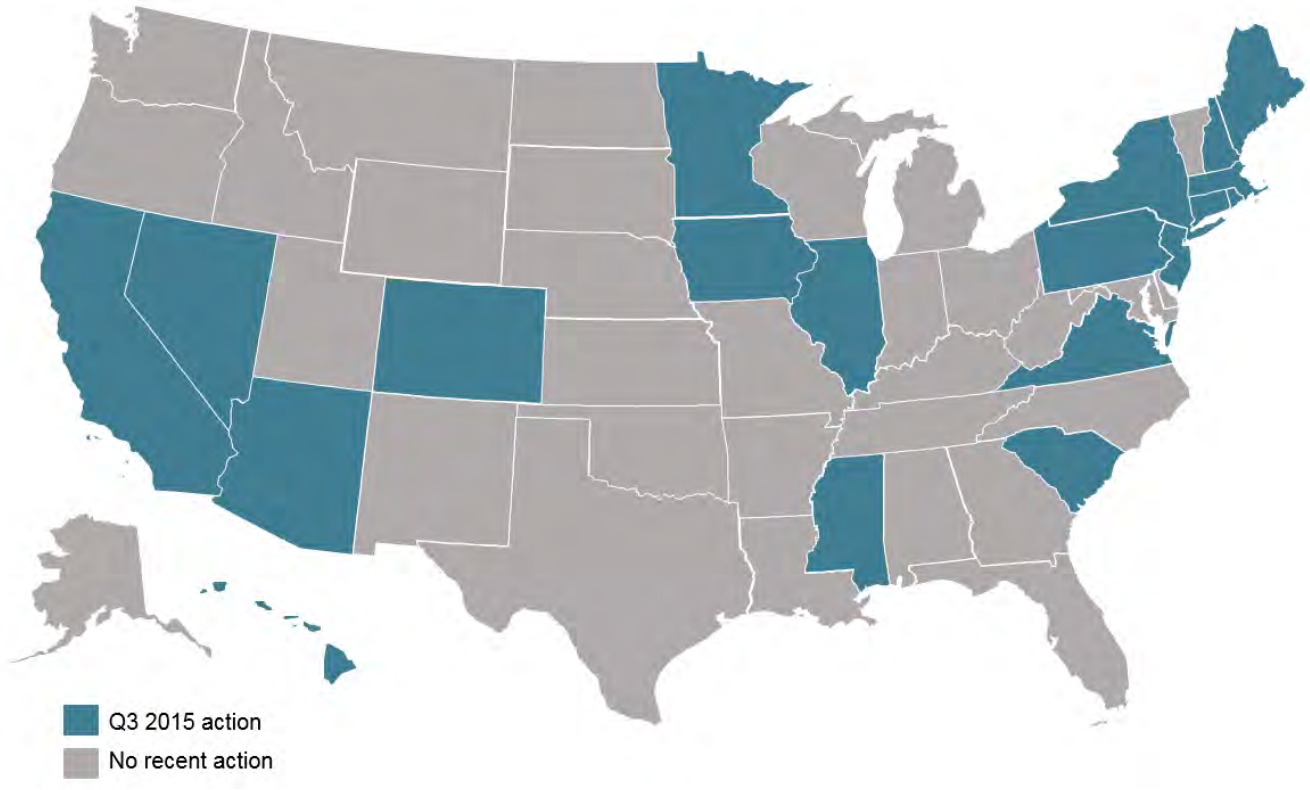


Table 3. Net Metering Policy Updates (Q2 2015)

State	Type of Change	Description	Source
Arizona 	Net Excess Generation	Tucson Electric Power (TEP) requested a change to the reimbursement rate for net excess generation in March 2015 in a separate docket. In June, it withdrew the request with plans to incorporate net metering changes into its next general rate case. In August, the Arizona Corporation Commission (ACC) closed the docket and ordered TEP to revise disclaimer language that indicated net metering rates may change for systems connected on or after June 1, 2015. In early September, TEP submitted a notice of intent to file a rate case application on or about November 5, 2015.	Docket No. E-01933A-15-0100 and E-01933A-15-0322
California 	Net Metering Rules, Aggregate Cap, Net Excess Generation	In August 2015, Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas and Electric (SDG&E) proposed successor net metering tariffs pursuant to A.B. 327. A net metering successor tariff will take effect for the three IOUs on July 1, 2017, or when 5% of the sum of non-coincident customer peak demand is reached for the IOU, with translates to an installed capacity of 2,409 MW (PG&E), 2,240 MW (SCE), and 617 MW (SDG&E) of net-metered systems. The successor tariff will not apply to customers entering into a net metering agreement before the existing cap or end date is reached. **PG&E** proposes a demand charge and lower TOU energy charges, compensating exports to the grid at the energy portion of the generation rate (average of $0.097) rather than the retail rate (average of $0.163), and a monthly true-up of charges and credits.	Docket No. R1407002

California (continued) 	Net Metering Rules, Aggregate Cap, Net Excess Generation	**SCE** proposes compensating customers via an on-bill credit at a rate of $0.08 per kWh rather than at the retail rate (average of $0.15 per kWh) for any electricity instantaneously exported to the grid and adding a monthly Grid Access Charge based on system size. **SDG&E** proposes a Default Unbundled Rate Option that features a special monthly fixed charge called a System Access Fee, a Grid Use Charge based on a customer's non-coincident monthly demand, and compensating energy exported to the grid at a rate of $0.04 per kWh. Alternatively, customers could opt for a Sun Credits tariff option that is a buy-all, sell-all arrangement. The **Office of Ratepayer Advocates** proposes keeping net metering, but implementing a charge on new solar customers. The monthly charge would start at $2 per installed kW of PV once the existing net metering cap or end date is reached. When a utility's aggregate customer peak demand reaches 6% and 7%, respectively, the charge would increase to $5 per kW and $10 per kW. Solar advocates including **The Alliance for Solar Choice**, the **Solar Energy Industries Association** and **Vote Solar** propose continuing net metering for now at the retail rate under the existing structure and rules.	Docket No. R1407002
Colorado 	Net Metering Rules	In August 2015, the Colorado Public Utilities Commission (PUC) decided to keep the state's net metering rules unchanged. The PUC informational proceeding, beginning in March 2014, examined net metering and potential impacts of renewable distributed generation.	Docket No. 14M-0235E

Connecticut 	Net Metering Rules, Net Excess Generation	The Connecticut Public Utilities Regulatory Authority (PURA) is reviewing credit banking under its net metering policy, including when and how kWh credits are accrued, banked, used, priced, and reimbursed, with an emphasis on when customers change electric suppliers.	Docket No. 15-09-03
Hawaii 	Net Metering Rules, Net Excess Generation	In August 2014, Hawaiian Electric Companies (HECO) proposed a Distributed Generation Integration Plan that was deemed insufficient by the Public Utilities Commission in March 2015. In June 2015, HECO proposed a new plan that would increase minimum bills and reduce net metering compensation from $0.295 per kWh to $0.18 per kWh for HECO (Oahu) customers, from $0.359 per kWh to $0.225 per kWh for HELCO (Big Island) customers, and from $0.351 per kWh to $0.231 per kWh for MECO (Maui, Molokai, and Lanai) customers.	Docket No. 2014-0192
Illinois 	Net Metering Rules, Meter Aggregation	In April 2015, the Illinois Commerce Commission (ICC) initiated a rulemaking proceeding on the state's net metering rules. The proposed rule adds new, clarifying definitions, enables web-based electronic application procedures, and requires a case-by-case consideration of meter aggregation by the utility and an explanation by the utility to the ICC if the request is denied. The proposed rules also align ICC net metering rules with previously enacted legislation. In Q3, intervening parties submitted reply comments.	Docket No. 15-0273

Iowa 	Net Metering Rules	In June 2015, Eagle Point Solar filed a complaint with the Iowa Utilities Board, seeking a ruling that (1) net metering a system financed by a third party does not constitute a "resale" of energy and (2) Large General Service customers (i.e., customers that have a demand charge) of Interstate Power and Light (IPL) are eligible to net meter. Eagle Point Solar alleged that IPL "will take the position that any energy flowing from the solar array under a net metering arrangement is a 'resale' of energy in violation of their tariffs" if a third-party power purchase agreement (PPA) is used. In July, IPL began to offer net metering for solar PV systems using a third-party PPA for customers on its General Service tariff. Customers on IPL's Large General Service tariff are ineligible for net metering, regardless of the system size or ownership arrangement. MidAmerican Energy, Iowa's other large IOU, does not currently offer net metering for systems financed through a third-party PPA.	Docket No. FCU-2015-0009
Maine 	Net Metering Rules, Net Excess Generation	The Maine Public Utilities Commission opened a docket in July 2015, pursuant to LD 1263, to investigate the potential for an alternative to net metering in the state. The Commission is responsible for convening a stakeholder group to develop this alternative policy. The Commission allowed interested parties to submit notification of their intent to participate in this group and to submit proposed topics for discussion by September 3, 2015. A report is due to the legislature by January 30, 2016.	Docket No. 2015-00218

Massachusetts 	Net Metering Rules	In June 2015, SolarCity submitted a request to the Department of Public Utilities (DPU) for an advisory ruling on the ability of a combined solar and storage project to net meter under current Massachusetts statutes and regulations. SolarCity withdrew the petition in July 2015, because they were able to work with the net metering administrator to submit an application. However, National Grid submitted comments requesting the DPU to still address this question, as the company is unsure whether combined solar and storage projects are eligible net metering facilities.	Docket No. 15-77
	Aggregate Cap, Net Excess Generation	In July 2015, the Senate passed a bill that raises the net metering aggregate cap to 1,600 MW and eliminates the cap altogether once 1,600 MW of capacity is reached. This bill also permits the DPU to adjust the distribution portion of the net metering credit for systems consuming less than 67% of their generation onsite beginning in 2017.	S.B. 1979
Minnesota 	Net Metering Rules, REC Ownership, Net Excess Generation	The Minnesota Public Utilities Commission (PUC) issued proposed rules to revise the state's net metering policy in December 2014 pursuant to H.F. 729 of 2013. The final rules were adopted in September 2015. The rules specify that a net-metered facility may elect kWh credits for monthly net excess generation in place of a payment at the avoided cost rate. The proposal also clarifies the definition of a standby charge and that generators own all RECs unless other ownership is expressly stated.	Docket No. 13-729

Mississippi 	Net Metering Rules, Aggregate Cap, System Size Limits, Net Excess Generation	In April 2015, the Mississippi Public Service Commission (PSC) issued proposed net metering rules. The proposed rule requires all electric distribution companies (EDCs) to offer net metering. The aggregate cap is 3% of each EDC's current total distribution system peak demand, with a 10 kW system size limit for residential customers and a 2 MW system size limit for nonresidential customers. Net excess generation during a billing period would be rolled over to the following billing period in the form of a kWh credit. At the end of the annualized period, an EDC compensates the customer for any net excess generation credits at the avoided cost of wholesale power rate. In Q3, the PSC accepted oral comments extended a deadline for public comments.	Docket No. 2011-AD-002
Nevada 	Aggregate Cap, Net Metering Rules	S.B. 374, passed in June 2015, defined the aggregate capacity limit for net metered systems as 235 MW and required utilities to submit new net metering tariffs to come into effect when the cap is reached. That cap was reached in August 2015. NV Energy filed new "NEM2" tariffs in July and proposed these rates take effect immediately for post-cap applicants. In August, the Nevada Public Utilities Commission ordered that applicants whose systems were installed after the cap was reached be allowed to participate in net metering under the existing net rules and tariffs until the final NEM2 tariffs are approved. NV Energy's proposed NEM2 tariff would create a separate rate class for net-metered customers with four new net metering rate schedules, each with an optional TOU rate. Each includes a basic service charge, demand charge, and substantially reduced energy (per-kWh) charges.	Dockets No. 15-07041 and 15-07042

New Hampshire 	Net Metering Rules	In July 2015, the New Hampshire Public Utilities Commission (PUC) began an investigation into the queue process for net-metered customer-generators, following a recommendation from the staff of the Sustainable Energy Division of the PUC. The PUC will review and potentially interpret the phrase "first come, first-served" that determines access to net metering. This proceeding may also include potential changes to electric distribution utility procedures the PUC finds necessary as a result of this review.	Docket No. DE 15-271
New Jersey 	Aggregate Cap	In August 2015, New Jersey's Governor signed S.B. 2420, authorizing the New Jersey Board of Public Utilities (BPU) to limit net metering to 2.9% of the total annual kWh sold in the state by each electric power supplier during the prior one-year period. There is no set cap for net metering in New Jersey, but the statute allows the BPU to limit net metering customers to 2.5% of the peak demand. The total capacity of net-metered systems in NJ have long surpassed the 2.5% "trigger," but the BPU has allowed net metering to continue beyond this percentage.	S.B. 2420
New York 	Net Excess Generation	In September 2015, several stakeholders petitioned the New York State Public Service Commission to change the current way the true-up date for net excess generation credits is assigned to residential net-metered PV customers. Net-metered customers currently have a one-time option to select the date when their excess credits are cashed out each year at the wholesale rate.	Docket No. 15-E-0572

New York (continued) 	Aggregate Cap	In July 2015, the Orange and Rockland Utilities (O&R) notified the New York State Public Service Commission (PSC) that based on applications received, it had exceeded its net metering cap set at 6% of 2005 peak load (62 MW). O&R has proposed the PSC to treat applications beyond 6% cap as a buy-all, sell-all arrangement, where the customers pay for all electricity delivered to them at normal rates, and their exported electricity will be credited at the avoided cost rate. O&R will continue to accept net metering applications but will notify customers that the new requests will be treated differently, as determined in the future by the PSC.	Docket No. 15-01526/15-E-0407
	Meter Aggregation	In April 2015, the New York State Public Service Commission issued a transition plan to change remote net metering from monetary to volumetric crediting. Previous rate design allowed a farm or a non-residential customer with remote net metering at a site where a non-demand rate was in effect to obtain monetary credits that could be applied to its satellite sites. On-site net metering credits are offered volumetric rates which were generally lower than monetary rates that are offered for remote net metering. This potentially offered an advantage for remote net metering customers and created an opportunity for arbitrage by pursuing remote instead of on-site net metering.	Docket No. 14-E-0151/14-E-0422

Pennsylvania 	System Size, Net Excess Generation	In April 2015, the Pennsylvania Public Utilities Commission (PUC) proposed changing net metering system size cap from 110% to 200% of load for on-site generation. The PUC ended public comment on the rules at the end of May. The draft is subject to 18 months of reviews by state lawmakers and regulators before it is finalized by September 2016.	Docket No. L-2014-2404361
Rhode Island 	Net Metering Rules	S.B.0081, enacted in June 2015, requires the Rhode Island Public Utilities Commission (PUC) to consider rate design and cost allocation among rate classes, taking into account the effects of net metering and increasing distributed energy resources. Electric utilities are required to file a revenue-neutral allocated cost-of-service study for all rate classes and propose new rates for all customers in each rate class. The PUC can choose to consider any reasonable rate design option, including fixed charges, minimum monthly charges, demand charges, volumetric charges, or any combination thereof. The PUC shall issue an order before March 2016, and the new rates would take effect after April 2016.	S.B. 0081, Docket No. 4545
South Carolina 	Net Metering Rules	In August 2015, the South Carolina Public Utilities Commission approved new net energy metering riders for Duke Carolinas, Duke Energy Progress, and South Carolina Electric and Gas. Pursuant to a previous settlement agreement, all tariffs will allow customers to net meter at the full retail rate.	South Carolina Public Service Commission E-Tariff Site

Virginia 	Net Metering Rules, System Size	In June 2015, the Virginia State Corporation Commission (SCC) opened a proceeding to amend the net-metering rules pursuant to a law passed in 2015 session that, among other changes, (1) increases system size eligible for net metering for non-residential customers from 500 kW to 1 MW, (2) limits the capacity of a generation facility to the expected annual energy consumption, and (3) clarifies requirements regarding a participant's obligation to bear the cost of equipment required for interconnection. The SCC published its proposed rules and is reviewing public comments.	Docket No. PUE-2015-00057

DISTRIBUTED SOLAR VALUATION AND NET METERING STUDIES

There continues to be debates across the country about how to properly value key attributes of distributed generation while also considering potential cost-shifting between solar and non-solar customers. During Q3 2015, 12 states published a study, proposed new studies, or had ongoing, formal regulatory discussions regarding the proper value of distributed solar generation or net metering policies (see Figure 3 and Table 4).

Of note is a Louisiana study released in September by the Louisiana Public Service Commission. The report examined the costs and benefits of net metering in Louisiana, and estimates that over $2 million in costs per year are being subsidized by non-net-metering customers.

In Georgia, the 2016 integrated resource planning process involves reporting on the costs and benefits of renewable power and distributed generation, with a draft report due in November.

Figure 3. Action on Solar Valuation and Net Metering Studies (Q3 2015)

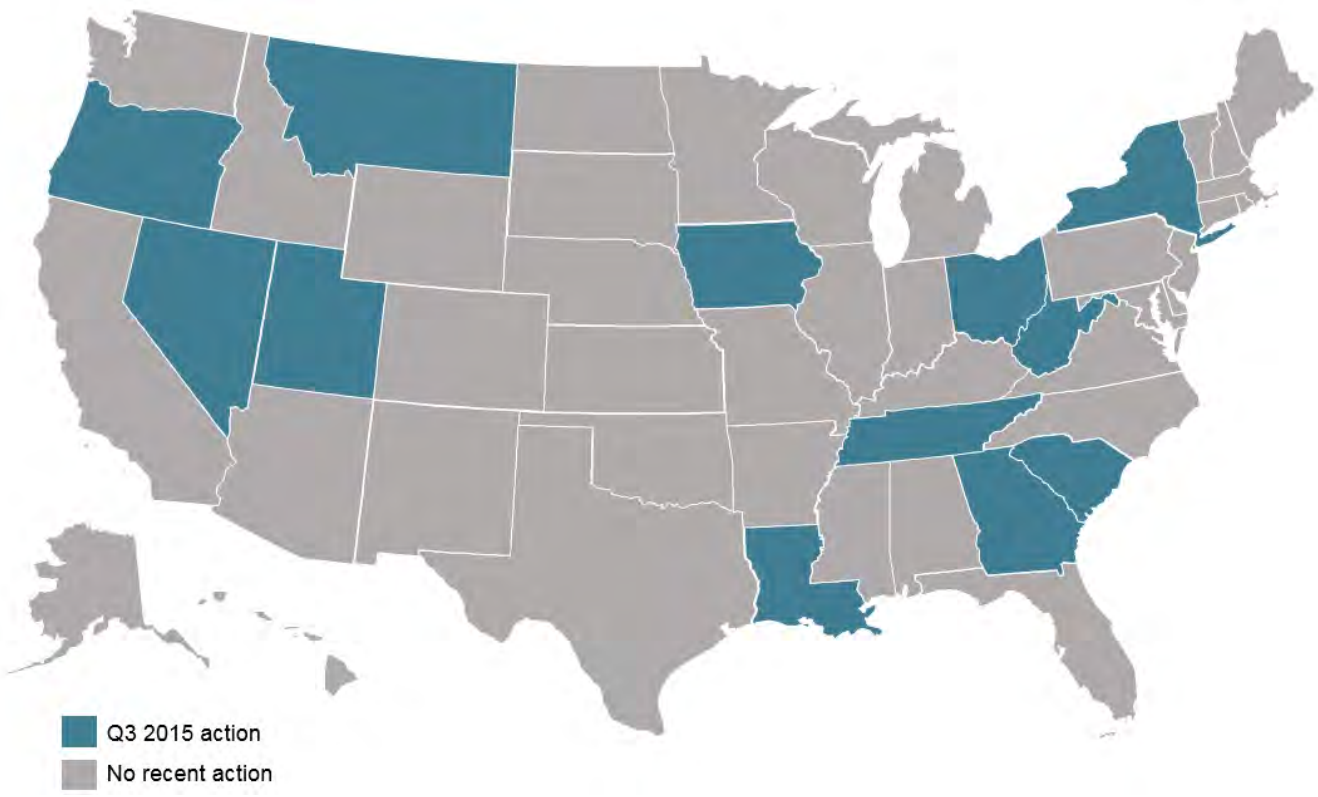


Table 4. Distributed Solar Valuation and Net Metering Study Updates (Q3 2015)

State	Description	Source
Georgia 	As part of Georgia's 2016 integrated resource planning process, the Georgia Public Service Commission will issue a final report regarding the costs and benefits of renewable power and distributed generation on December 18th. A workshop on the matter was conducted on October 20. A draft report is due to the Executive Secretary's Office by November 20, and interested parties may file comments until December 4.	Docket No. 39732
Iowa 	In January 2014, the Iowa Utilities Board (IUB) issued an order commencing an inquiry into issues surrounding DG, including possible changes to net metering and interconnection rules, which remained pending before the IUB at the end of Q3.	Docket No. NOI-2014-0001
Louisiana 	In September 2015, the Louisiana Public Service Commission released its final report examining the costs and benefits of net metering in Louisiana. The analysis estimates that over $2 million in costs per year are being subsidized by non-net metering customers.	Docket No. X-33192
Montana 	Senate Joint Resolution 12, passed in the 2015 legislative session, requires the Montana Legislature's Energy and Telecommunications Interim Committee to study the costs and benefits of net metering. The Committee is currently in data gathering phases of the study and will meet again in January 2016 to draw conclusions from submissions it has received and make a recommendation to the Legislature.	Energy and Telecommunications Interim Committee
Nevada 	NV Energy completed its cost-of-service study for net-metered customers in July 2015. It found that net-metered customers, or partial requirements customers, do not fully pay for the costs the utility incurs to serve them. It also found that the structure of the existing "NEM 1" net metering rates do not align with how net metering customers incur costs. NV Energy proposed new NEM 2 rates based on the results of its cost of service study.	Dockets 15-07041 and 15-07042

New York 	In July 2015, the New York State Public Service Commission (PSC) staff released a white paper on ratemaking and utility business models as a part of Track two of Reforming Energy Vision (REV) proceeding. The white paper provides proposals on various rate making issues including utility business model, earnings, ratemaking process, and rate design. In the proposed model, the electric utilities would serve as Distributed System Platform providers who would maintain a marketplace for different parties to engage in markets for providing grid services. The utilities rate design would shift from cost-of-service model to Market Based Earnings (MBE) model where the utilities interests are aligned closely with the customer's interest. The paper proposes that larger DER resources should be compensated at Locational Marginal Price (LMP)+ "D", where D is the full value of DER system, and retaining net metering or smaller systems.	Docket No. 14-M-0101 Staff White Paper on Benefit-Cost Analysis in the Reforming Energy Vision Proceeding
	On July 1, 2015 the NY Public Service Staff released a white paper describing a framework to determine the Benefit Cost Analysis (BCA) of Distributed Energy Resources (DERs) in the electric system. It includes general principles that are to be included during the BCA analysis and also methods to quantify such attributes. This framework is provided to help develop Distributed System Implementation plans (DSIPs) that the utilities are required to submit by December 15, 2015. DSIP plans will include the projected utilities systems needs, and methods to meet those needs using alternative resources including DERs. The BCA will have an integral role in developing successor tariffs that places a specific value on the DER.	Docket No. 14-M-0101 Staff White Paper on Ratemaking and Utility Business Models
Ohio 	The Public Utilities Commission of Ohio submitted a joint status report to the Ohio Supreme Court and the briefing schedule was extended. Net metering rules are being reviewed in response to an Ohio Supreme Court case filed last summer.	Ohio Power Company and AEP v. Public Utilities Commission of Ohio, Case 2014-1290

Oregon 	The Public Utility Commission of Oregon (PUC) opened a docket in January 2015 to determine the resource value of solar. In September, the PUC issued an order to outline the scope of the investigation. The PUC will use a contested-case process, including evidentiary hearings, with two phases. The first will be to determine which elements will be included in calculating the resource value of solar, and the second phase will be to determine values for those elements. The PUC will use the results of the investigation in reports to the Legislature under H.B. 2893 (2013) and H.B. 2941 (2015) if results are ready by those statutory deadlines.	Docket No. UM 1716
South Carolina 	In August 2015, the South Carolina Public Service Commission issued a call for public comments seeking guidance and feedback on "fixed costs, fixed charges, and the extent of cost shifting attributable to distributed energy resources within current utility cost of service ratemaking methodologies, cost allocations, and rate designs." The PSC Office of Regulatory Staff requested that all public comments be submitted by September 2015 in order to meet a December 31 report deadline.	SC PSC Letter
Tennessee 	In the spring of 2014, the Tennessee Valley Authority (TVA) convened a Distributed Generation – Integrated Value stakeholder group. The group released a draft of the report in Q3.	TVA Website
Utah 	In August 2014, the Utah Public Service Commission opened a docket to review the costs and benefits of Rocky Mountain Power's net metering program. Hearings are scheduled for October to discuss the analytical framework of the cost-benefit study.	Docket No. 14-035-114

West Virginia 	In March 2015, H.B. 2201 was signed into law after a prior version was vetoed. The bill prohibits "cross-subsidization" of ratepayers potentially caused by net metering tariffs and requires the Public Service Commission to investigate current and adopt new net metering and interconnection rules. A Net Energy Metering Task Force was formed to complete the net metering study that was published on the last day of Q3. The Task Force agreed upon recommendations for modifications to interconnection rules but did not agree upon cross-subsidization occurring due to net metering. Specifically, parties agreed that cross subsidization refers to "costs directly incurred by the electric utility in accommodating a net metering system to electric retail customers who are not customer generators" and that this applied to equipment provided to customers to net meter. Some parties believed that the cross-subsidization referred only to the equipment, while other parties believed that it also extended to other costs associated with providing power to customer generators.	Docket No. 15-0682-E-GI

COMMUNITY SOLAR POLICY ACTION

Several states took action in Q3 2015 to enable community solar policies or programs, with particularly noteworthy developments in New York and Hawaii, where utilities have been directed to file tariffs that would enable community solar projects for the first time in both states. California has also made steady progress in developing its Green Tariff Shared Renewables program, and Oregon has also opened a proceeding to develop a proposed community solar program design. In Minnesota, state regulators issued a ruling that clarifies size limits of community solar projects and establishes time limits for community solar interconnection requests. Notably, many utilities have separately proposed implementing community solar programs for their customers outside of these types of policy changes; these individual utility programs are not tracked here.

Box 3. What is Community Solar?

"Community solar" refers to a voluntary program for customers where a solar PV system "provides power and/or financial benefits to, or is owned by, multiple community members."[11] While some community solar projects share similarities with utility-scale solar projects (e.g., large in size, located off-site from consumption, ground-mounted systems, utility-side of the meter), this report treats it as a type of distributed solar, as it is community-focused and allows residential customers participation.

Figure 4. Action on Community Solar Policy (Q3 2015)

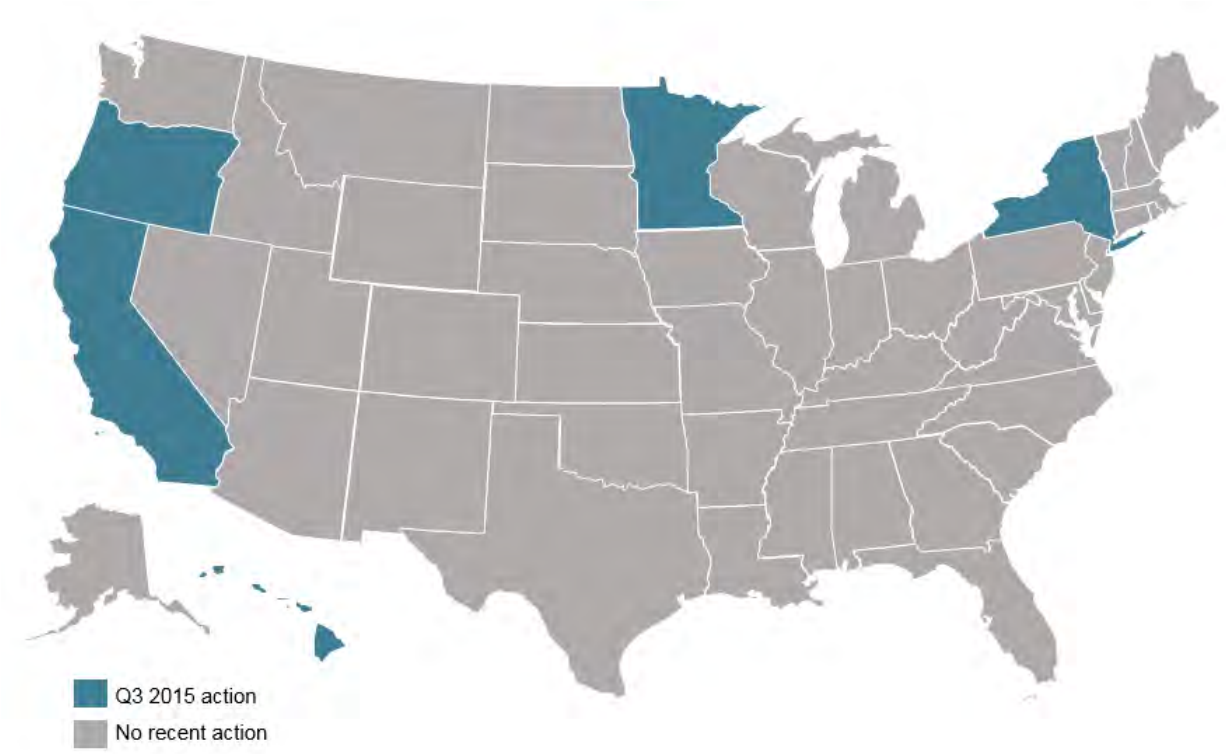


Table 5. Community Solar Policy Updates (Q3 2015)

State	Description	Source
California 	Pursuant to S.B. 43 of 2013, the California Public Utilities Commission (CPUC) issued a decision in January 2015 outlining steps for IOUs to implement the 600-MW Green Tariff Shared Renewables (GTSR) Program. In Q3 2015, the process was in Phase IV Track A, which involves CPUC consideration of 10 issues including program design, procurement, environmental justice, and rate design. The Phase IV Track A proposed decision is expected November 2015, and IOUs are expected be begin offering GTSR in 2016.	Docket No. A1201008
Hawaii 	S.B. 2010, enacted May 2015, allows any person or entity to "own or operate an eligible community-based renewable energy project." The bill requires utilities to file community renewable energy tariffs with the Hawaii Public Utilities Commission (PUC) by October 1, 2015. Hawaii Electric Company (HECO) proposed a community solar pilot program that was rejected in Q3 on the grounds that the PUC had not yet instituted the community-based renewable energy tariff.	S.B. 2010 Order No. 33086
Minnesota 	In August 2015, the Minnesota Public Utilities Commission approved a settlement agreement between Xcel Energy and a group of solar developers, placing an initial 5-MW cap on co-location for existing solar-garden applications. For applications submitted from September 25, 2015, through September 15, 2016, community solar gardens will be limited to 1 MW at a given site. Further rules on interconnecting solar gardens were also specified, including a requirement that Xcel approve interconnection within 50 days of an application being deemed complete.	Docket No. 13-867

New York 	In July 2015, the New York State Public Service Commission issued an order that established community net metering in the state. Implementation of the program is divided into two phases. The first phase of the program began on October 19, 2015 and will last until April 30, 2016. During this period, the projects will be limited to siting distributed generation in areas where it provides the greatest locational benefits to the larger grid and in areas that promote low-income customer participation. The second phase will begin in May 2016, when the community net metering projects will be fully implemented throughout utility service territories.	Case 15-E-0082
Oregon 	Pursuant to H.B. 2941, the Public Utility Commission of Oregon (PUC) has opened a docket in order to recommend a community solar program design to the legislature by November 1, 2015. The PUC requested proposals for program designs by August, held two workshops, and will hold a public meeting on October 6 at which it will discuss its proposal.	Docket No. UM 1746

FIXED CHARGE INCREASES

The trend of utilities proposing fixed charge increases for all residential customers continued in Q3 2015. These fixed charge increases (which are sometimes accompanied by a corresponding decrease in per-kilowatt-hour (kWh) rates) impact the financial value of solar to residents by limiting the portion of their electric bill that can be reduced through self-generation and reducing the value of any net metering credits that residential solar systems generate. Furthermore, rate structures that increase fixed charges and decrease variable energy charges have the effect of decreasing utility bills for large energy consumers while increasing utility bills for customers who consume less energy (including distributed solar owners).[12]

Figure 6 shows states where utility proposals for monthly fixed charge increases were pending or decided in Q3 2015. Twenty-six rate increases were under consideration across 18 states. The largest pending increases were proposed in Missouri, Kansas, Arizona, and Wisconsin, where utilities proposed increases of $10 per month or more.

Figure 5. Action on Residential Fixed Charge Increases (Q3 2015)

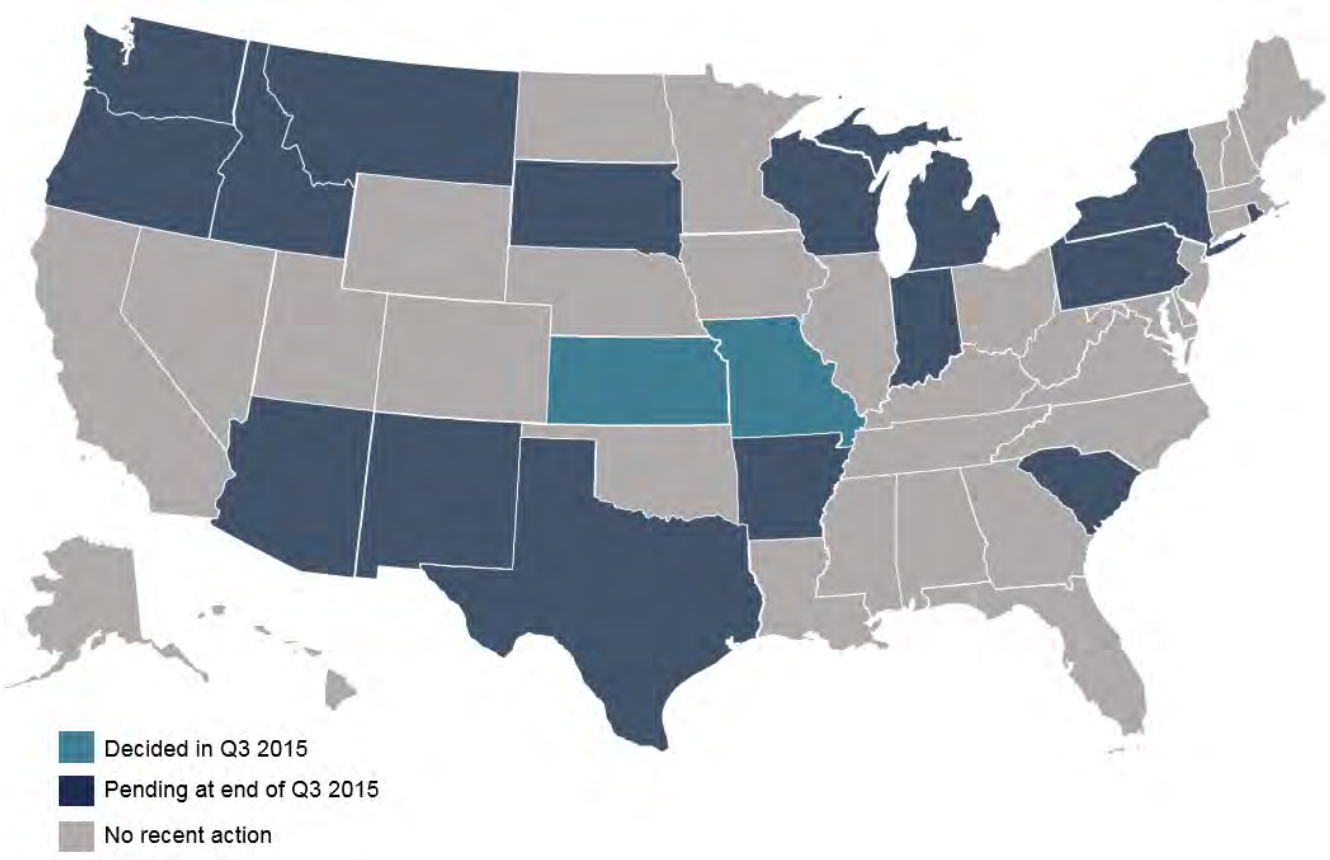


Table 6 details proposed and adopted (if applicable) utility fixed charge increases for Q3 2015. **Of the twenty-six proposed changes presented in Table 6, the average existing monthly residential fixed**

charge is $9.61, and the average proposed fixed charge is $15.76.[1] The average proposed fixed charge increase in these 26 cases is 70%; at least six utilities proposed fixed charge increases of at least 100%.

Most of these fixed charge are pending approval as of the end of Q3. In Kansas and Missouri, regulators approved fixed charge increases that were much lower than the levels originally proposed by the utilities.

[1] In the case of proposed increases that have a tiered structure, these averages incorporate the most likely consumption tier for a solar customer. In the case of proposed increases that escalate over several years, these averages use the final proposed charge.

Table 6. Residential Fixed Charge Increase Updates (Q3 2015)

State	Utility	Monthly Residential Fixed Charge			Description	Source
		Existing	Proposed	Approved		
Arizona 	UniSource Energy Services	$10	$20	*Pending*	In May 2015, UniSource Energy Services (UNS) proposed a residential monthly fixed charge increase. The rate case includes several other proposed changes, including a demand-based rate mandatory for solar customers and changes to its net metering tariff. A hearing is scheduled for March 2016.	Docket No. E-04204A-15-0142
Arkansas 	Entergy Arkansas	$6.95	$9.00	*Pending*	In April 2015, Entergy Arkansas proposed a residential monthly fixed charge increase.	Docket No. 15-015-U
Idaho 	Avista Utilities	$5.25	$8.50	*Pending*	In June 2015, Avista Utilities proposed a residential monthly fixed charge increase. Two public workshops were held in early September, and technical evidentiary hearings are scheduled for November.	Docket No. AVU-15-05

Indiana 	Indianapolis Power and Light	$6.75 (up to 325 kWh per month) $11 (>325 kWh per month)	$11.25 (up to 325 kWh per month) $17 (>325 kWh per month)	*Pending*	In December 2014, Indianapolis Power and Light proposed a residential monthly fixed charge increase.	Docket No. 44576 - NONE
Kansas 	Kansas City Power and Light	$10.71	$19	$14	In September 2014, Kansas City Power and Light proposed a residential monthly fixed charge increase. In September 2015, the Kansas Corporation Commission approved a non-unanimous partial settlement agreement stipulating a smaller fixed charge increase than originally proposed.	Docket No. 15-KCPE-116-RTS
	Westar Energy	$12	$27 or $50	$14.50	In March 2015, Westar Energy proposed a residential monthly fixed charge increase. In September, the Kansas Corporation Commission approved a settlement agreement that featured a smaller customer charge increase than requested.	Docket No. 15-WSEE-115-RTS

Michigan 	DTE Energy	$6	$10	*Pending*	In December of 2014, DTE Electric proposed a residential monthly fixed charge increase. The Proposal for Decision Target date was October 8, 2015.	Docket No. 17767
Missouri 	Kansas City Power and Light	$9	$25	$11.88	In October 2014, Kansas City Power and Light (KCP&L) proposed a residential monthly fixed charge increase. In September, the Missouri Public Service Commission (PSC) issued an Order granting a small increase based on the customer-related costs determined in the PSC's class cost-of-service study.	Docket No. ER-2014-0370
Montana 	Montana-Dakota Utilities	$5.40 *	$7.50 *	*Pending*	In June 2015, Montana-Dakota Utilities proposed a residential monthly fixed charge increase. Hearings are scheduled for February 2016 with a final order due by March 2016.	Docket No. D2015.6.51
New Mexico 	El Paso Electric	$7	$10	*Pending*	In May 2015, El Paso Electric proposed a residential monthly fixed charge increase.	Docket No. 15-00127-UT

New Mexico (continued) 	Public Service Company of New Mexico	$5	$13.14	*Pending*	In August 2015, the Public Service Company of New Mexico (PNM) refiled a rate case, proposing increasing its residential monthly fixed charge. In May 2015, the New Mexico Public Regulation Commission rejected this proposal on the grounds of incompleteness of PNM's previous rate filing that featured a monthly solar charge and an increased fixed charge.	Docket No. 15-00261-UT
New York 	PSEG Long Island	$10.95 *	$20.08 *	*Pending*	In January 2015, PSEG Long Island proposed a residential monthly fixed charge increase.	Docket No. 15-00262
	New York State Electric & Gas	$15.11	$18.89	*Pending*	In May 2015, New York State Electric & Gas proposed a residential monthly fixed charge increase.	Docket No. 15-01092/15-E-0283
	PSEG Long Island	$10.80	$19.80	*Pending*	In March 2015, PSEG Long Island proposed a residential monthly fixed charge increase.	Docket No. 15-00262
	Rochester Gas & Electric	$21.38	$26.73	*Pending*	In May 2015, Rochester Gas & Electric (RG&E) proposed a residential monthly fixed charge increase.	Docket No. 15-01094/15-E-0285

Oregon 	Portland General Electric	$10	$11	*Pending*	In February 2015, Portland General Electric proposed a residential monthly fixed charge increase. The target date for a final order was October 30, 2015.	Docket No. UE 294
Pennsylvania 	PECO Energy	$7.13	$12	*Pending*	In March 2015, PECO Energy proposed a residential monthly fixed charge increase.	Docket No. R-2015-2468981
	PPL Electric Utilities	$14.13	$20	*Pending*	In April 2015, PPL Electric Utilities proposed a residential monthly fixed charge increase. In September 2015, PPL Electric Utilities and the consumer advocate reached a settlement agreement where the fixed charge will remain unchanged. The settlement needs to be approved by the administrative judge and the Public Utility Commission before being implemented.	Docket No. R-2015-2469275

Rhode Island 	National Grid	$5.00	$5.25 (250 kWh), $8.50 (up to 750 kWh), $13 (up to 1200 kWh), $18 (greater than 1200 kWh)	*Pending*	In August 2015, National Grid filed its rate design which includes a framework to shift cost recovery from variable energy charges to fixed charges. The proposal includes a four-tier customer charge based on the customer's electric consumption.	Docket No. 4568
South Carolina 	Santee Cooper	$14.00	$17.00 (in 2016) $19.50 (in 2017) $21.00 (in 2018)	*Pending*	In Q3, the Santee Cooper Board of Directors accepted public comment on a proposed residential fixed charge increase. A vote is planned for a December 7 meeting.	Santee Cooper Website
South Dakota 	NorthWestern Energy	$5.00	$9.00	*Pending*	In December 2014, NorthWestern Energy proposed a residential monthly fixed charge increase. In September 2015, NorthWestern and the South Dakota Public Utility Commission staff reached a settlement agreement, with a hearing scheduled for October 2015.	Docket No. EL14-106

Texas 	Southwestern Public Service Company	$7.60	$9.50	*Pending*	In December 2014, Southwestern Public Service Company proposed a residential monthly fixed charge increase.	Docket No. 43695
	El Paso Electric	$5	$10	*Pending*	In May 2015, El Paso Electric proposed a residential monthly fixed charge increase.	Docket No. 44941
Washington 	Avista Utilities	$8.50	$14	*Pending*	In February 2015, Avista Utilities proposed a residential monthly fixed charge increase. The fixed charge increase was dropped under a settlement agreement reached in May 2015. The Washington Utilities and Transportation Commission must approve the settlement. Public comment hearings were held in September and evidentiary hearings are scheduled for October.	Docket No. UE-150204
Wisconsin 	Wisconsin Public Service Corporation	$19	$25	*Pending*	In May 2015, the Wisconsin Public Service Corporation proposed a residential monthly fixed charge increase.	Docket No. 6690-UR-124
	Northern States Power Company	$8	$18	*Pending*	In May 2015, Northern States Power Company proposed a residential monthly fixed charge increase.	Docket No. 4220-UR-121

* Denotes that the utility uses a daily fixed charge for residential customers instead of a monthly fixed charge. All daily charges are converted into monthly charges for this table using the following formula: [(365 days/year)*($[fixed charge]/day)]/(12 months/year) = $[fixed charge]/month

SOLAR AND DISTRIBUTED GENERATION CHARGE INCREASES

An increasing number of utilities are proposing extra charges that apply only to solar or distributed generation customers. In Q3 2015, state regulators approved or were considering solar or DG charge increases for 19 utilities in 12 states (see Figure 6 and Table 7). The structure of proposed charges vary significantly, including flat monthly charges, charges based on the capacity of the installed solar system, charges based on measured monthly peak generation, and increases to variable per-kWh charges that would apply only to net metering.

The vast majority of these increases are still pending regulatory decision as of the end of Q3.

Figure 6. Action on Solar and Distributed Generation Charge Increases (Q3 2015)

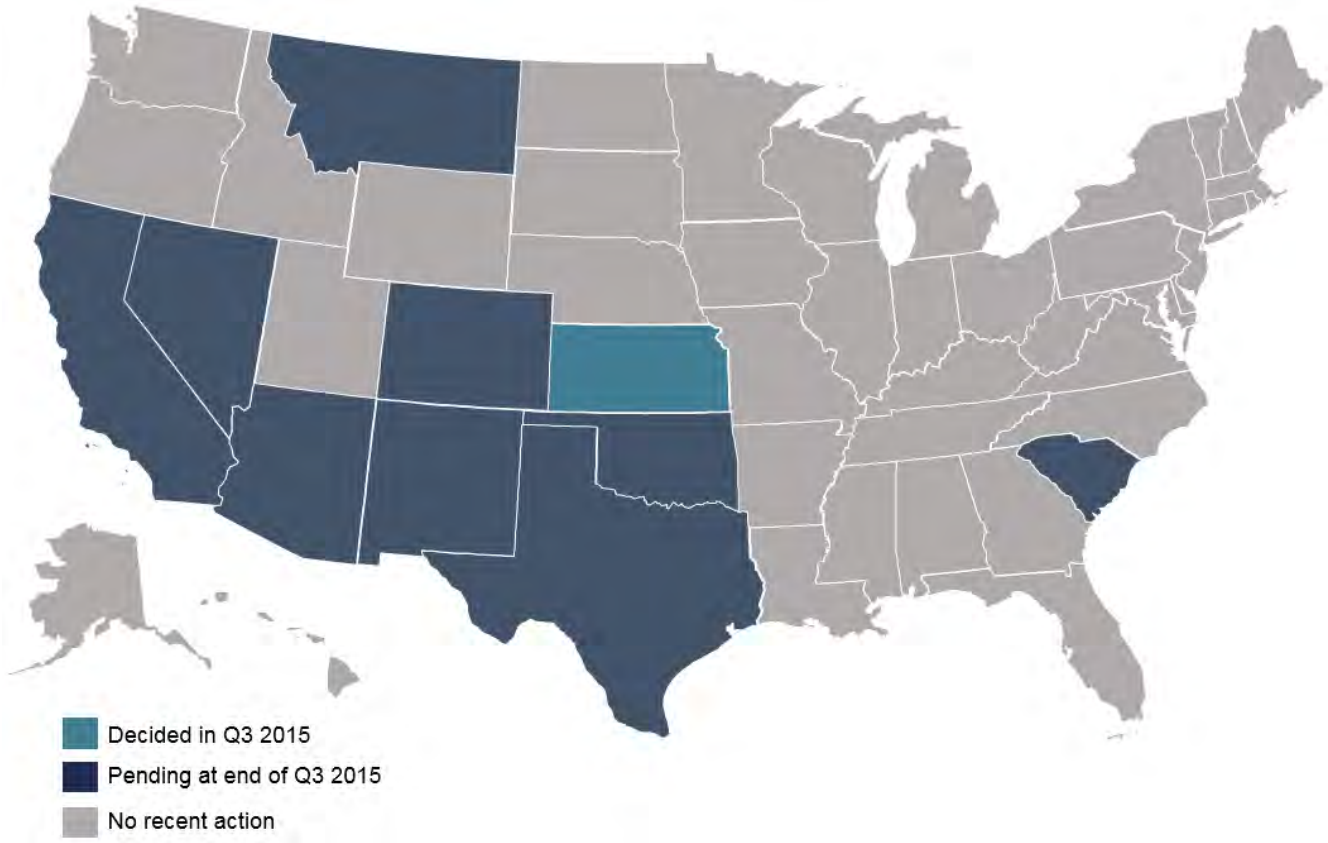


Table 7. Residential Solar/DG Charges Updates (Q3 2015)

State	Utility	Current Monthly Solar/DG Charge(s)	Proposed Monthly Solar/DG Charge(s)	Approved Monthly Solar/DG Charge(s)	Description	Source
Arizona 	Arizona Public Service	$0.70 per kW of installed PV	$3 per kW of installed PV	*Pending*	Arizona Public Service (APS) filed a motion with the Arizona Corporation Commission (ACC) in September 2015 to drop APS's proposed increased "Grid Access Charge" for solar customers if the ACC conducts an investigation into the costs of providing service to solar customers and how those costs are collected. APS requests the study's results be ready by March 2016 for use in its next general rate case.	Docket No. E-01345A-13-0248
	UniSource Energy Services	$0	$6.00 per kW from 0-7 kW; $9.95 per kW for over 7 kW, based on the maximum 60-minute demand during the billing cycle	*Pending*	As part of its general rate case filed in June 2015, UniSource Energy Services (UNS) proposed a mandatory new rate design for "partial requirements customers," including new users of solar. The new rate has a three-part structure including a monthly service charge, a demand charge, and volumetric energy charges. This rate is optional for standard residential customers.	Docket No. E-04204A-15-0142

California 	Pacific Gas and Electric	$0	$3 per kW, based on the maximum 60-minute demand during the billing cycle	*Pending*	In August 2015, Pacific Gas and Electric (PG&E) proposed successor net metering tariffs pursuant to A.B. 327. PG&E's proposal includes a demand charge with commensurately lower time-of-use energy charges.	Docket No. R1407002
	Southern California Edison	$0	$3 per KW of installed PV	*Pending*	In August 2015, Southern California Edison (SCE) proposed successor net metering tariffs pursuant to A.B. 327. SCE's proposal includes a Grid Access Charge based on the installed AC nameplate capacity of the system.	Docket No. R1407002
	San Diego Gas and Electric	$0	$9.19 per kW, based on the maximum 60-minute demand during the billing cycle, and a $20.54 fixed customer charge	*Pending*	In August 2015, San Diego Gas and Electric (SDG&E) proposed successor net metering tariffs pursuant to A.B. 327. SDG&E's proposal includes a Grid Usage Charge based on a customer's demand, a fixed monthly System Access Fee, and a time-of-use rate for energy charges.	Docket No. R1407002

Colorado 	Intermountain Rural Electric Association	$0	$4.04 or $4.13 per kW, based on maximum 60-minute kW demand during the billing cycle	*Pending*	After withdrawing a proposal in June 2015 that would have reduced compensation for solar electricity sent to the grid and added a demand charge, the Intermountain Rural Electric Association (IREA) proposed a new Load Factor Adjustment Rider that would apply to new residential customers or those installing solar after December 30, 2015. The charge would apply to any residential customer who has a load factor less than or equal to the Load Factor Threshold (9% or 10%) in a billing period. IREA's board will consider the matter in its October meeting.	IREA Rates and Regulations (redlined proposal)
Kansas 	Westar Energy	$0	$3 per kW (based on the maximum 30-minute kW demand during the billing cycle), *or* a $50 per month fixed charge	$0	In March 2015, Westar Energy proposed two tariff options for new residential solar customers: a demand charge option and a high fixed charge option. Kansas Corporation Commission approved a settlement agreement in September that results in no additional charges to solar customers. A generic docket will be opened to examine solar distributed generation issues.	Docket No. 15-WSEE-115-RTS

Montana 	Montana - Dakota Utilities	$0	$1.50 per kW, based on the maximum 15-minute kW demand during the billing cycle	*Pending*	In its June 2015 general rate case application, Montana-Dakota Utilities requested a new demand charge for net metering customers. Customers on the standard residential electric service rate would not face a demand charge. The Commission is due to issue an order by March 2016.	Docket No. D2015.6.51
Nevada 	Nevada Power (dba NV Energy)	$0	$14.33 per kW of maximum demand, $1.43 meter charge, a basic service charge that is $5.40 higher than for non-DG customers, and lower energy (per kWh) charges	*Pending*	NV Energy has filed for an approval of a cost of service study and new net metering tariffs for its Nevada Power service territory. The rate filing includes a separate rate class for new distributed generation customers ("NEM2"), which includes an increased fixed charge (from $12.75 per month to $18.15 per month), reduced per-kW charges (from $0.120 per kWh to $0.058 per kWh), a $14.33 per kW charge based on maximum demand, and a $1.43 per month meter charge.	Dockets No. 15-07041

Nevada (continued) 	Sierra Pacific Power Company (dba NV Energy)	$0	$8.63 per kW of maximum demand, $1.12 meter charge, a basic service charge that is $9.25 higher than for non-DG customers, and lower energy (per kWh) charges	*Pending*	NV Energy has filed for an approval of a cost of service study and new net metering tariffs for its Sierra Pacific Power Company service territory. The rate filing includes a separate rate class for new distributed generation customers ("NEM2"), which includes an increased fixed charge (from $15.25 per month to $24.50 per month), reduced per-kW charges (from $0.0971 per kWh to $0.0462 per kWh), a $8.63 per kW charge based on maximum demand, and a $1.12 per month meter charge.	Docket No. 15-07042
New Mexico 	El Paso Electric	$0	Higher per kWh charges, varying on usage	*Pending*	In May 2015, El Paso Electric proposed a separate rate class for all existing and future net metering customers. The "Partial Requirements Service Rate" proposed would charge solar customers more per-kWh for electricity than other residential customers.	Docket No. 15-00127-UT

Oklahoma 	Oklahoma Gas and Electric	$0	$2.68 per kW, based on the maximum 15-minute kW demand during the billing cycle	*Pending*	In July 2015, Oklahoma Gas and Electric proposed a new demand charge for its residential TOU tariff, which applies to all residential customers that became renewable DG customers after October 31, 2014. The proposal also includes a larger monthly fixed charge of $18 (compared to a fixed charge of $13 for customers on the non-TOU residential tariff).	Docket No. 500274
South Carolina 	Santee Cooper	$0	$9.00 meter charge and a $4.20 per KW standby charge	*Pending*	Santee Cooper's board approved an interim distributed generation rider (DG-15) in August 2015 applicable to residential and commercial customers with on-site solar systems issued after September 1, 2015. A new DG-16 rider has been proposed for consideration for a December 7 board meeting. The new DG-17 rider would cap commercial systems at 1 MW and residential systems at 20 kW. It would include a $9.00 meter charge as well as standby charges.	Interim DG-15 Rider 2015 Electric System Cost of Service and Rate Design Study
Texas 	El Paso Electric	$0	$3.89 per kW and a fixed charge that is $5 higher than for non-solar customers	*Pending*	In May, El Paso Electric proposed a new tariff for residential solar customers, "Rate No. 3 - Partial Requirement". It includes a higher monthly fixed charge than for non-solar customers ($10) but lower energy (per-kWh) charges and a demand charge.	Docket No. 44941

MINIMUM BILLS

Table 8 identifies actions in California and Hawaii to adjust minimum bills. A minimum bill is a base amount which must be paid by all rate payers on an annual or monthly basis, to ensure at least that minimum amount of utility cost recovery for providing electric service.

Table 8. Minimum Bill Updates (Q3 2015)

State	Utility	Monthly Minimum Bill			Description	Source
		Existing	Proposed	Approved		
California 	Pacific Gas and Electric (PG&E), San Diego Gas and Electric (SDG&E), Southern California Edison (SCE)	$4.50 (PG&E) $5.17 * (SDG&E) $1.79 * (SCE)	$10 ($5 for non-CARE customers)	$10 ($5 for non-CARE customers)	In July 2015, the California Public Utilities Commission (CPUC) issued an order making major changes to residential rate design for PG&E, SCE, and SDG&E residential customers. While deferring further consideration of any fixed charges to a later date, CPUC adopted a minimum bill for the utilities' tariffs for 2015-2017 "as part of a gradual transition to a rate structure that includes TOU rates, flatter tiers, and fixed charges." This minimum bill remains in effect until the IOU's General Rate Case Phase 2 has approved a new minimum bill or a fixed charge.	Docket No. 1206013

Hawaii 	Maui Electric Company Inc. (MECO), Hawaiian Electric Company Inc. (HECO), Hawaii Electric Light Company Inc. (HELCO)	$18 (MECO) $17 (HECO) $20.50 (HELCO)	$25	*Pending*	In June 2015, Hawaiian Electric Co. submitted a new rooftop solar plan that included an increase in residential customer monthly minimum bills. The company's previous Distributed Generation Integration Plan (DGIP) that contained proposed fixed charge increases and solar charges was deemed to be insufficient by the Public Utilities Commission in an order issued in March.	"Hawaiian Electric Companies Propose New Options to Support Continued Growth of Rooftop Solar" [13] Docket No. 2014-0192

* Denotes that the utility uses a daily minimum charge for residential customers instead of a monthly minimum charge. All daily charges are converted into monthly charges for this table using the following formula: [(365 days/year)*($[minimum charge]/day)]/(12 months/year) = $[minimum charge]/mon

THIRD-PARTY OWNERSHIP

State third-party solar ownership laws—or the lack thereof—can be a financing barrier for distributed solar. Florida, Kentucky, North Carolina, Oklahoma, and South Carolina currently disallow third-party solar PPAs, and the legality is unclear in about 20 other states.[14]

While no additional states enabled third-party ownership in Q3 2015, there are pending decisions in Delaware, North Carolina, and New Hampshire to clarify the regulatory treatment of third-party entities seeking to offer solar PPAs. In Florida, an ongoing ballot initiative would create a constitutional amendment legalizing third-party PPAs.

Figure 7. Action on Third-Party Solar Ownership (Q3 2015)

Table 9 Solar Third-Party Ownership Updates (Q3 2015)

State	Description	Eligible Sector(s)	Source
Florida 	A ballot initiative that would legalize third-party sales for all Florida customers via an amendment to the state constitution was launched in January 2015. In Q3 2015, the Florida Supreme Court, which must approve the specific ballot language, heard oral arguments. Four Florida IOUs and the state Attorney General oppose the ballot initiative. A group advancing their own solar ballot initiative to counter the initial ballot initiative was formed in Q2 and has received enough petition signatures for its own Florida Supreme Court review. A total of 683,149 verified signatures are required by February 1, 2016, for either ballot initiative to appear on the November 2016 ballot.	Residential, Commercial, Industrial (All)	"Florida Utilities, AG Want State Supreme Court to Block Solar Ballot Initiative"[15] Consumers for Smart Solar Website Floridians for Solar Choice Website
Delaware 	In August 2015, Vivint Solar petitioned the Public Service Commission for a declaratory order to clarify that Vivint Solar would not be regulated as a "public utility" under Delaware regulations in offering third-party PPAs and solar leases to residential customers.	Residential	Docket No. 15-1358
New Hampshire 	In August 2015, Vivint Solar filed a petition with the New Hampshire Public Utilities Commission for a declaratory ruling to clarify whether or not the company will be regulated as a public utility, competitive electric power supplier, or limited producer of electrical energy by offering residential third-party PPAs and solar leases. Vivint argues in its filing that it should not be regulated as any of these.	Residential	Docket No. DE 15-303

North Carolina 	In June 2015, non-profit organization NC WARN submitted a request for a declaratory ruling to the North Carolina Utilities Commission regarding the organization's proposed power purchase agreement with a church located in the state. North Carolina statute generally defines an entity selling electricity as a "public utility." The Commission has yet to issue a ruling.	Non-Profit Entities	Docket No. SP-100 Sub 31 NC General Statutes § 62-3(23)

UTILITY-LED ROOFTOP SOLAR

Utility-led residential rooftop solar programs are an emerging trend. In these programs, utility-owned solar systems are installed on customer roofs. These programs provide an opportunity for utilities to participate directly in the distributed solar market, though they have been met with controversy in some states.[16]

The financial value to customers varies widely across programs. In Arizona, for example, Tucson Electric Power offers to convert the electric accounts of solar customers to a fixed charge account, where customers pay a flat monthly fee based on their existing energy consumption. The monthly fee will be fixed for 25 years, insulating the customer against future rate increases. In Georgia, conversely, the state's largest utility has begun selling customer-sited solar systems through its unregulated business arm, offering a customer value very similar to that of third-party ownership options.

States where actions were taken on utility-led rooftop solar in Q3 2015 are shown in Figure 8 below.

Figure 8. Action on Utility-led Rooftop Solar (Q3 2015)

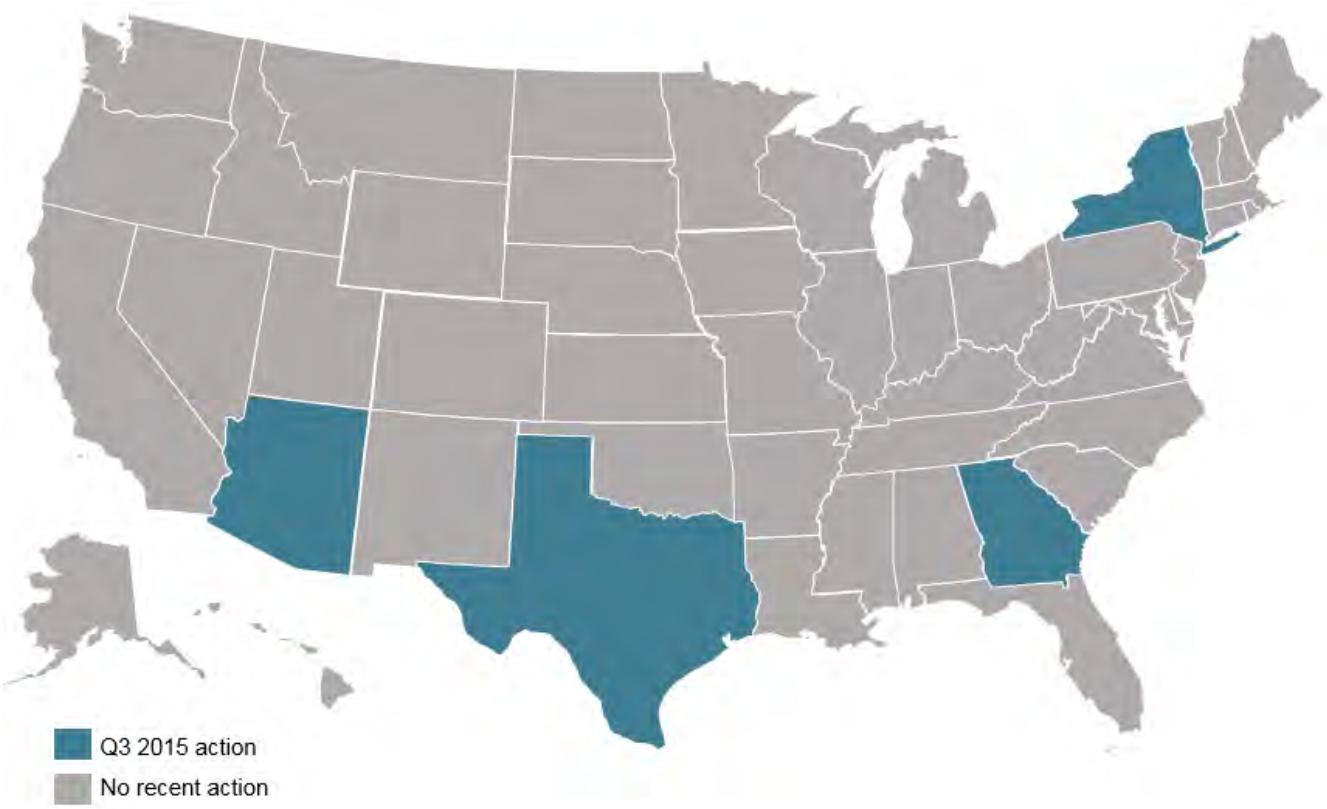


Table 10. Utility-Led Rooftop Solar Program Updates (Q3 2015)

State	Utility	Description	Source
Arizona 	Tucson Electric Power	TEP began accepting applications for its Residential Rooftop Solar program in July 2015. It accepted 200 applications on July 1, another 200 in September, and plans to fill the remaining of the 600 approved spots in October. TEP also applied to expand the size of the program to an additional 1,000 applicants in a filing in July 2015. It is petitioning to use the program to meet compliance obligations under the Renewable Energy Standard and Tariff.	Docket No. E-01933A-15-0239
Georgia 	Georgia Power	Georgia Power's unregulated business arm, Georgia Power Energy Services, began selling and installing solar systems in July pursuant to H.B. 57 taking effect.	"Georgia Power to Offer Solar Sales, Installation Services July 1"[17] www.GeorgiaPower.com/Solar
New York 	Consolidated Edison	ConEdison Solutions, the unregulated subsidiary of the New York IOU Consolidated Edison, announced it will move into the rooftop solar market in the Empire State through a partnership with solar developer SunPower. ConEd will own the rooftop systems and offer a 20-year lease that will provide electricity at below the retail rate from a host's rooftop at no upfront cost to the homeowner. ConEd Solutions will handle the financing, installation, and any ownership responsibilities associated with the SunPower modules it will use.	ConEdison Solution Announcements

New York (continued) 	Consolidated Edison	The Reforming the Energy Vision (REV) proceeding in New York requires IOUs to file demonstration projects. Con Edison has partnered with SunPower and Sunverge on a proposed Clean Virtual Power Plant demonstration project. The proposal would allow Con Edison to operate a fleet of residential solar + storage units to provide grid services. Under the proposal ConEdison would offer the package to customers at a competitive rate and own the storage asset. The project is awaiting PSC approval.	Con Edison Clean Virtual Power Plant REV Project
Texas 	CPS Energy	CPS Energy is now accepting applications for pre-enrollment in its SolarHostSA 10-MW pilot program. CPS Energy will own the solar panels installed on residential and commercial customer rooftops and credit the customer $0.03 per kWh generated by the system. Austin-based installer PowerFin Partners will conduct the installations. There is no upfront cost for participating customers.	SolarHostSA.com

Q4 2015 SOLAR POLICY OUTLOOK

Q4 2015 will include significant action on key pending distributed solar policies, perhaps most critically on the future of net metering policies in a number of states.

- In October, the Hawaii Public Utilities Commission issued a decision, making it the first state in the nation to end its net metering policy (see the forthcoming Q4 edition of *The 50 States of Solar* for more details).
- Final decisions on net metering successor tariffs are expected in California and Nevada.
- Arizona regulators will be examining the cost-of-service and value of solar for distributed generation customers in a generic docket.
- Massachusetts is poised to enact a new solar policy this legislative term, with possible changes including an increase in net metering caps and changes to net metering and virtual net metering compensation rates.
- The Vermont Public Service Board is required to propose new net metering rules by January that would apply once net metering at a utility reaches 15% of peak load.[18]
- Current commissioners on the Mississippi Public Service Commission have until December 31, if they want to adopt net metering rules during their term.

A number of utility proposals for monthly fixed charge increases or additional charges for solar customers are scheduled for a final decision in Q4. If recent trends continue, utilities will increasingly look to recover more of their costs from fixed monthly charges rather than variable charges and propose changes to net metering or distributed generation customer tariffs that ensure cost recovery from solar customers.

ENDNOTES

[1] Kann, Shayle, MJ Shiao, Cory Honeyman, Nicole Litvak, Jade Jones, Leandra Cooper, Tom Kimbis, Justin Baca, Shawn Rumery, and Aaron Holm. *U.S. Solar Market Insight: Year In Review* [executive summary]. GTM Research and SEIA, 2015. http://www.greentechmedia.com/research/ussmi

[2] Kann, Shayle, MJ Shiao, Cory Honeyman, Nicole Litvak, Jade Jones, Leandra Cooper, Tom Kimbis, Justin Baca, Shawn Rumery, and Aaron Holm. *U.S. Solar Market Insight: Year In Review* [executive summary]. GTM Research and SEIA, 2015. http://www.greentechmedia.com/research/ussmi

[3] Trabish, Herman K. "What the Solar Market Looks Like Now, and Where It's Headed. *Utility Dive*, March 26, 2015. http://www.utilitydive.com/news/what-the-solar-market-looks-like-now-and-where-its-headed/379048/

[4] Kaminsiky, Jason and Justin Baca. "U.S. Solar Electricity Production 50% Higher Than Previously Thought." Greentech Media, June 30, 2015. http://www.greentechmedia.com/articles/read/us-solar-electricity-production-50-higher-than-previously-thought

[5] Litvak, Nicole. "U.S. Residential Solar Financing 2015-2020" [brochure]. *GTM Research*. July 29, 2015. http://www.greentechmedia.com/research/report/us-residential-solar-financing-2015-2020

[6] Trabish, Herman K. "Why Utilities across the Nation Are Embracing Community Solar." *Utility Dive*, January 22, 2015. http://www.utilitydive.com/news/why-utilities-across-the-nation-are-embracing-community-solar/354164/

[7] Campbell, Becky, Daisy Chung, and Reane Venegas. *Expanding Solar Access through Utility-led Community Solar: Participation and Design Trends from Leading U.S. Programs*. Solar Electric Power Association, September 2014. http://www.solarelectricpower.org/media/214996/community-solar-report-ver5.pdf

[8] Residential Energy Efficient Property, 26 U.S.C. § 25D (2011).

[9] Kind, Peter. (2013, January). *Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business*. Edison Electric Institute, January 2013. http://www.eei.org/ourissues/finance/documents/disruptivechallenges.pdf

[10] Barnes, Chelsea. *Aggregate Net Metering: Opportunities for Local Governments.* U.S. Department of Energy SunShot Initiative Solar Outreach Partnership, July 2013. http://communitypowernetwork.com/sites/default/files/Aggregate-Net-Metering-2013.pdf

[11] Coughlin, Jason, Jennifer Grove, Linda Irvine, Janet F. Jacobs, Sarah Johnson Phillips, Leslie Moynihan, and Joseph Wiedman. *A Guide to Community Solar: Utility, Private, and Non-Profit Project Development*. National Renewable Energy Laboratory, November 2010, p. 2.

[12] Lazar, Jim and Wilson Gonzalez. "Smart Rate Design For a Smart Future." Regulatory Assistance Project, July 2015. http://www.raponline.org/document/download/id/7680

[13] Hawaiian Electric Companies. "Hawaiian Electric Companies Propose New Options to Support Continued Growth of Rooftop Solar." June 29, 2015.

http://www.hawaiianelectric.com/heco/_hidden_Hidden/CorpComm/Hawaiian-Electric-Companies-propose-new-options-to-support-continued-growth-of-rooftop-solar?cpsextcurrchannel=1

[14] NC Clean Energy Technology Center. "3rd party solar PV power purchase agreement (PPA)." Database of State Incentives for Renewables and Efficiency, July 2015. http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2015/01/3rd-Party-PPA_0302015.pdf

[15] Walton, Robert. "Florida Utilities, AG Want State Supreme Court to Block Solar Ballot Initiative." *Utility Dive*, June 12, 2015. http://www.utilitydive.com/news/florida-utilities-ag-want-state-supreme-court-to-block-solar-ballot-initia/400657/

[16] Advanced Energy Economy. "STATE: Utility-Owned Rooftop Solar Could Be A Game Changer – But Is It Fair?" August 7, 2014. http://blog.aee.net/state-utility-owned-rooftop-solar-could-be-a-game-changer-but-is-it-fair

[17] "Georgia Power to Offer Solar Sales, Installation Services July 1." MarketWatch. June 30, 2015. http://www.marketwatch.com/story/georgia-power-to-offer-solar-sales-installation-services-july-1-2015-06-30?reflink=MW_news_stmp

[18] Wilson, Right. "After Rapid Growth, Vermont Close to 'Net Metering' Energy Cap." Portland Press Herald, October 25, 2015. http://www.pressherald.com/2015/10/25/after-rapid-growth-vermont-close-to-net-metering-energy-cap/