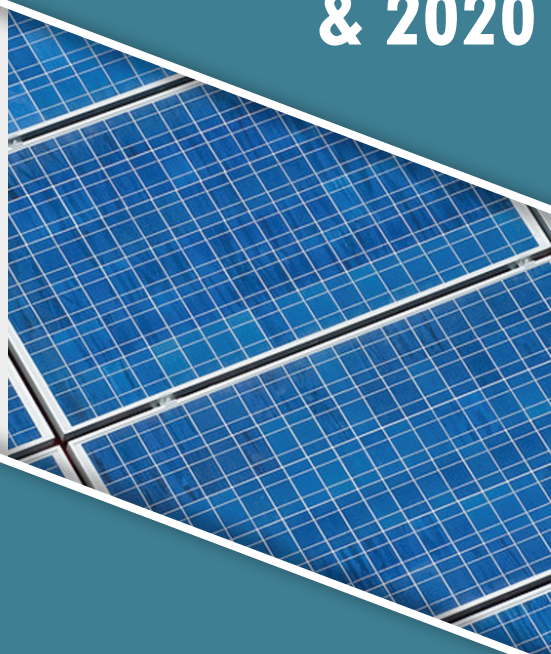


50 States of SOLAR

**Q4 2020 Quarterly Report
& 2020 Annual Review**
Executive Summary



NC CLEAN ENERGY
TECHNOLOGY CENTER

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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 of 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.

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The NC Clean Energy Technology Center also publishes the *50 States of Grid Modernization* and the *50 States of Electric Vehicles* on a quarterly basis. Executive summaries of these reports may be found [here](#). Please contact us for older issues of the 50 States of Solar.

ABOUT THE REPORT

PURPOSE

The purpose of this report is to provide state lawmakers and regulators, electric utilities, the solar industry, and other stakeholders with timely, accurate, and unbiased updates on state actions to study, adopt, implement, amend, or discontinue policies associated with distributed solar photovoltaics (PV). This report catalogues proposed and enacted legislative, regulatory policy, and rate design changes affecting the value proposition of distributed solar PV during the most recent quarter, with an emphasis on the residential sector.

The 50 States of Solar series provides regular quarterly updates of solar policy developments, keeping stakeholders informed and up to date.

APPROACH

The authors identified relevant policy changes through state utility commission docket searches, legislative bill searches, popular press, and direct communication with stakeholders and regulators in the industry.

Questions Addressed

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

- How are state legislatures, regulatory authorities, and electric 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 report series focuses on cataloging and describing important proposed and adopted policy changes affecting solar customer-generators of investor-owned utilities (IOUs) and large publicly-owned or nonprofit utilities (i.e., those serving at least 100,000 customers). Specifically, actions tracked in these reports include:

- Significant changes to state or utility **net metering** laws and rules, including program caps, system size limits, meter aggregation rules, and compensation rates for net excess generation
- Changes to statewide **community solar** or **virtual net metering** laws and rules, and individual utility-sponsored community solar programs arising from statewide legislation
- 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 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 power purchase agreements (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 case, or rulemaking proceeding. 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. Introduced legislation pertaining to a regulatory proceeding covered in this report is also included irrespective of whether it has passed at least one chamber.

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 utility cost recovery and rate design changes, such as decoupling or time-of-use tariffs. General changes in state implementation of the Public Utility Regulatory Policies Act of 1978 and subsequent amendments, including changes to the terms of standard contracts for Qualifying Facilities or avoided cost rate calculations, are also excluded unless they are related specifically to the policies described above. The report also does not cover changes to a number of other policies that affect distributed solar, including solar access laws, interconnection rules, and renewable portfolio standards. Details and updates on these and other federal, state, and local government policies and incentives are available in the NC Clean Energy Technology Center’s Database of State Incentives for Renewables and Efficiency, at www.dsireusa.org.

EXECUTIVE SUMMARY

2020 SOLAR POLICY ACTION

State and utility solar policies continued to undergo review in 2020, with nearly every state in the country considering policy or rate design changes – a trend which has continued over the past several years and is likely to continue through 2021 and beyond. Table 1 provides a summary of state actions related to DG compensation, rate design, and solar ownership during 2020. Of the 257 actions identified, the most common were related to DG compensation policies (92), community solar policies (55), and residential fixed charge and minimum bill increases (48). The actions occurred across 46 states plus DC in 2020 (Figure 1). The states that saw the most solar policy action, or the most impactful actions, during 2020 are highlighted below.

Table 1. 2020 Summary of Policy Actions

Policy Type	# of Actions	% by Type	# of States
DG Compensation Policies	92	36%	34 +DC
Community solar	55	21%	22 + DC
Residential fixed charge or minimum bill increase	48	19%	26 + DC
DG valuation or net metering study	29	11%	17 + DC
Third-party ownership of solar	20	8%	9
Residential demand or solar charge	10	4%	7
Utility-led rooftop PV programs	3	1%	3
Total	257	100%	46 States + DC

Note: The “# of States/ Districts” total is not the sum of the rows, as some states have multiple actions. Percentages are rounded and may not add up to 100%.

TOP TEN MOST ACTIVE STATES OF 2020

While nearly every state in the country took some type of action on distributed solar policy or rate design during 2020, some states were particularly active, taking many different actions or especially impactful actions. The following states stood out in 2020 for their solar policy activity:

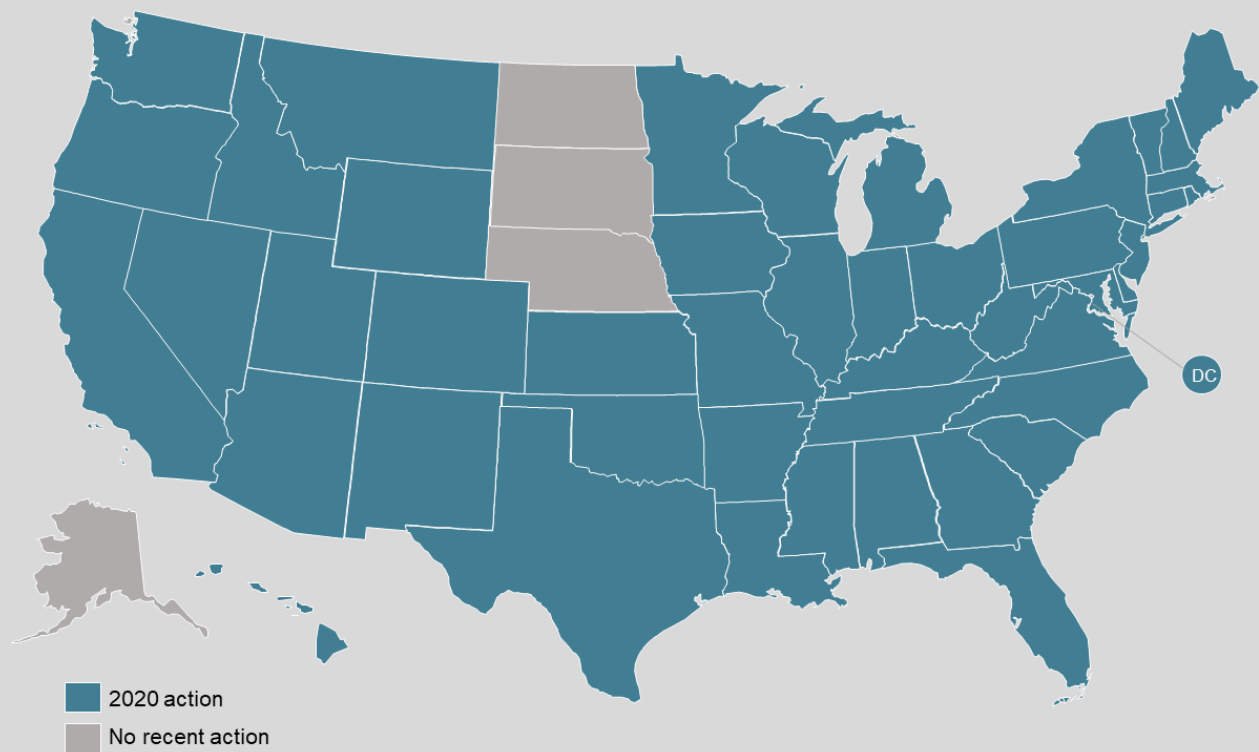
1. Virginia

Virginia lawmakers considered several bills related to net metering, community solar, and third-party ownership during the 2020 legislative session, enacting bills adopting a shared solar program, expanding third-party ownership options, increasing the net metering aggregate cap and system size limit, and establishing a plan for the development of a net metering successor tariff once the new aggregate cap is reached.

2. South Carolina

Work continued in 2020 to develop a net metering successor tariff in South Carolina, pursuant to legislation enacted in 2019. In September 2020, Duke Energy announced an agreement it had reached on a tariff design with stakeholders, and in December, Dominion Energy filed its proposed tariff design. Both tariffs include time-varying credit rates, while Duke Energy's also includes a minimum bill and Dominion's includes a monthly subscription fee based on system capacity and an increased fixed charge.

Figure 1. 2020 Action on Net Metering, Rate Design, & Solar Ownership Policies



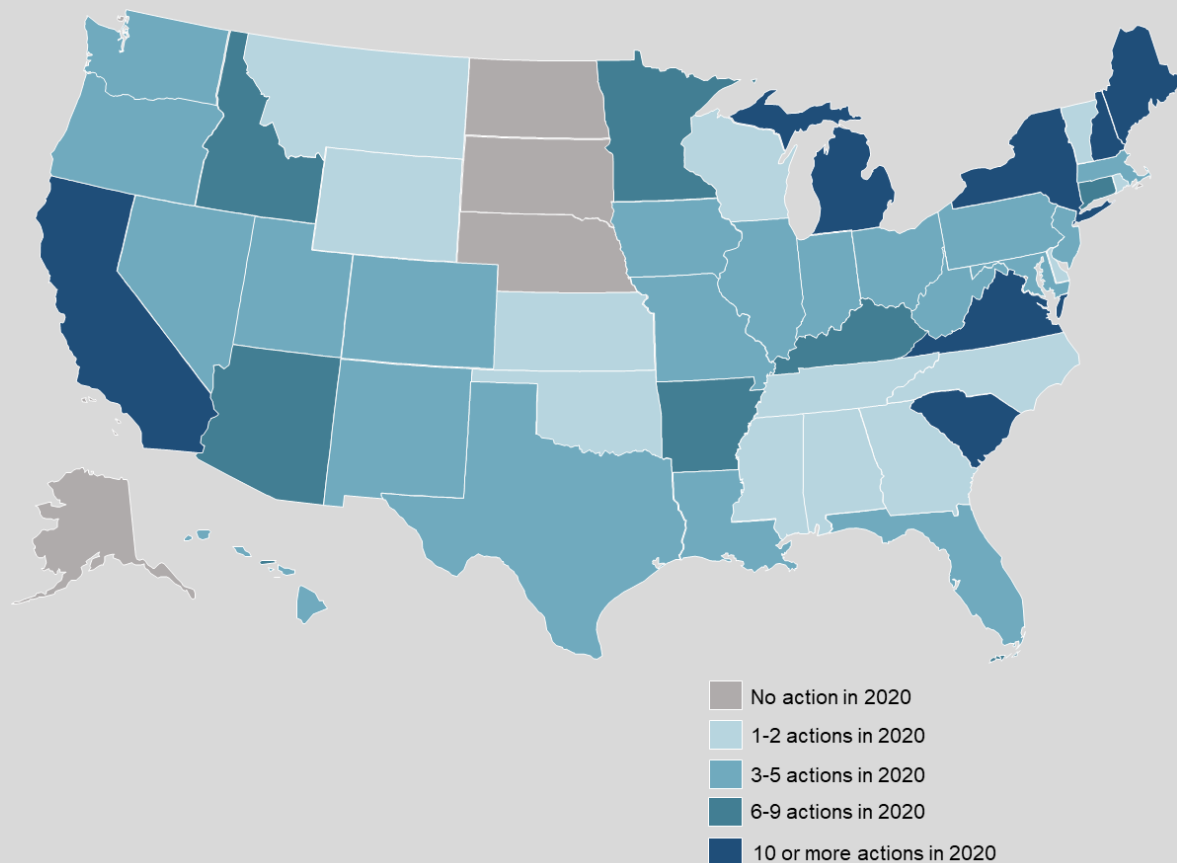
3. Arkansas

The Arkansas Public Service Commission issued a decision in June 2020 on a net metering successor tariff, maintaining retail rate net metering for the time being while authorizing a new grid charge (initially set at \$0) for larger customer-generators. The Commission will allow utilities and other stakeholders to propose alternatives beginning in 2023. Regulators also worked to implement legislation authorizing solar leasing and service agreements, and decided to open a new proceeding to consider community solar.

4. Kentucky

Kentucky Power, Kentucky Utilities, and Louisville Gas & Electric proposed net metering successor tariffs as part of their general rate case applications filed in 2020. All three utilities proposed net billing tariffs, with Kentucky Power’s using two daily netting periods and Kentucky Utilities and Louisville Gas & Electric’s tariffs using instantaneous netting. Each tariff uses avoided cost rate compensation for excess generation.

Figure 2. 2020 Solar Policy & Rate Design Action, by Number of Actions



5. New York

The New York Public Service Commission issued a decision in July 2020 establishing a net metering successor tariff for mass market projects interconnected after January 1, 2022. The tariff continues retail rate net metering with the addition of a monthly customer benefit contribution based on system capacity. The Commission also worked to establish a community benefit program for residential customers of municipalities that host major renewable energy facilities.

6. Connecticut

Connecticut regulators worked toward the development of a net metering successor tariff during 2020. The Department of Energy and Environmental Protection and the Public Utilities Regulatory Authority filed a draft value of distributed energy resources study, and several parties filed joint comments on what the successor tariff structure should include. The Authority also considered issues related to the implementation of the state's shared clean energy facility program.

7. California

The California Public Utilities Commission opened a new proceeding in 2020 for the development of Net Metering 3.0 tariffs. The Commission released a draft study examining the costs to serve net metering customers in the state. Meanwhile, the Sacramento Municipal Utility District continued a stakeholder process to develop a net metering successor tariff and released a study examining the costs and benefits of net metering.

8. Idaho

The Idaho Public Utilities Commission has been considering a number of net metering proposals from utilities. In 2020, the Commission approved Idaho Power's proposal to make new large customer-generators subject to future net metering tariff changes. Regulators also approved a change to make new customer-generators in PacifiCorp's territory subject to future net metering changes and directing the utility to conduct a study of on-site generation before tariff changes are considered.

9. Utah

In Utah, the Public Service Commission issued a decision on Rocky Mountain Power's proposed net billing tariff in October 2020, concluding a three-year process to develop export credit rates. In February 2020, Rocky Mountain Power filed its proposal, which included time-varying credit rates based on the avoided cost rate. The Commission approved higher export credit rates that vary seasonally, but not with time of day.

10. Michigan

Michigan regulators approved net metering successor tariffs for Indiana Michigan Power and Consumers Energy in 2020. The Public Service Commission previously approved an inflow-outflow tariff structure, which is being implemented in individual utility rate cases. The Commission also directed the Commission Staff to conduct a value of distributed energy resources study, with a kick-off meeting happening in the first quarter of 2021.

TOP SOLAR POLICY TRENDS OF 2020

Utilities Proposing Additional Fees Based on System Capacity

For distributed generation (DG) rate design, attention has shifted dramatically from demand charges to charges based on a customer's DG system capacity. The New York Public Service Commission approved a net metering successor tariff including a monthly customer benefit contribution based on DG system capacity. Both Evergy in Kansas and Dominion Energy in South Carolina proposed new fees based on DG system capacity during 2020.

States Adopting Unique Net Metering Successor Policies

States continue to operate as laboratories of innovation, adopting a wide array of net metering successor policy designs. In 2020, Arkansas and New York regulators opted to maintain retail rate net metering for at least certain customers and approve new monthly fees. The Utah Public Service Commission established net billing credit rates compensating customer-generators at a rate between retail and avoided cost for exported energy. Iowa lawmakers chose to move forward with a value of solar approach, with rate changes not occurring until at least 2027.

States Facing Challenges with Low-Income Community Solar Participation

Although the majority of state community solar policies include special provisions to encourage participation by low and moderate income customers, many states are still facing challenges in achieving this participation. In New Jersey, regulators are considering rule changes to streamline the income verification process, and in Oregon, the Commission delayed the requirement for community solar project managers to reach the state's low-income subscription target.

Net Metering Successor Tariffs Being Considered on a Utility By Utility Basis

In several states, regulators are considering net metering successor tariff designs on a utility-by-utility basis. In Kentucky, three utilities filed tariff design proposals in 2020 as part of general rate cases, and in Michigan, regulators approved DG tariffs for Indiana Michigan Power and Consumers Energy. In South Carolina, Duke Energy and Dominion Energy have both filed successor tariff proposals, which are significantly different. Arkansas regulators are allowing utilities to propose net metering alternatives beginning in 2023.

States and Utilities Considering Time-of-Use Crediting for Net Metering Customers

States and utilities are increasingly considering time-varying compensation for DG customers. In Utah, Rocky Mountain Power requested approval for time-varying credit rates for its net billing tariff, although the Commission did not approve the proposal. Both Duke Energy and Dominion Energy filed net metering successor tariff proposals that include time-varying crediting in South Carolina.

Utilities Continue to Propose Fewer and Smaller Residential Fixed Charge Increases

In 2020, utilities continued to propose significantly fewer residential fixed charge increases than in the last several years. Only 19 utilities proposed residential fixed charge increases, compared to 31 in 2019, 34 in 2018, 41 in 2017, and 47 in 2016. The increases being proposed are also smaller than in past years. The median increase proposed in 2020 was \$2.47, compared to \$3.00 in 2019, \$3.87 in 2018, \$4.00 in 2017, and \$4.07 in 2016.

Interest Growing in Minimum Bills as a Distributed Generation Rate Design Element

Utilities and other parties are growing increasingly interested in minimum bills as a DG rate design element, particularly as an alternative to demand charges, capacity based charges, and fixed fees. In South Carolina, Duke Energy and solar stakeholders filed a net metering successor tariff proposal including a monthly minimum bill, while Virginia regulators authorized a minimum bill for shared solar customers. In Kansas, Evergy proposed a minimum bill as an alternative to a DG capacity-based charge.

States Considering Expansion of Existing Community Solar Programs

A number of states considered the expansion of existing community solar programs during 2020. In South Carolina, regulators reviewed existing community solar programs and directed utilities to make filings for new programs. In Virginia, lawmakers enacted bills establishing a shared solar program and a multi-family shared solar program, building on the state's utility-led community solar program. New Jersey legislators also considered a bill making the state's pilot community solar program a permanent program, with the Senate passing the bill during the year.

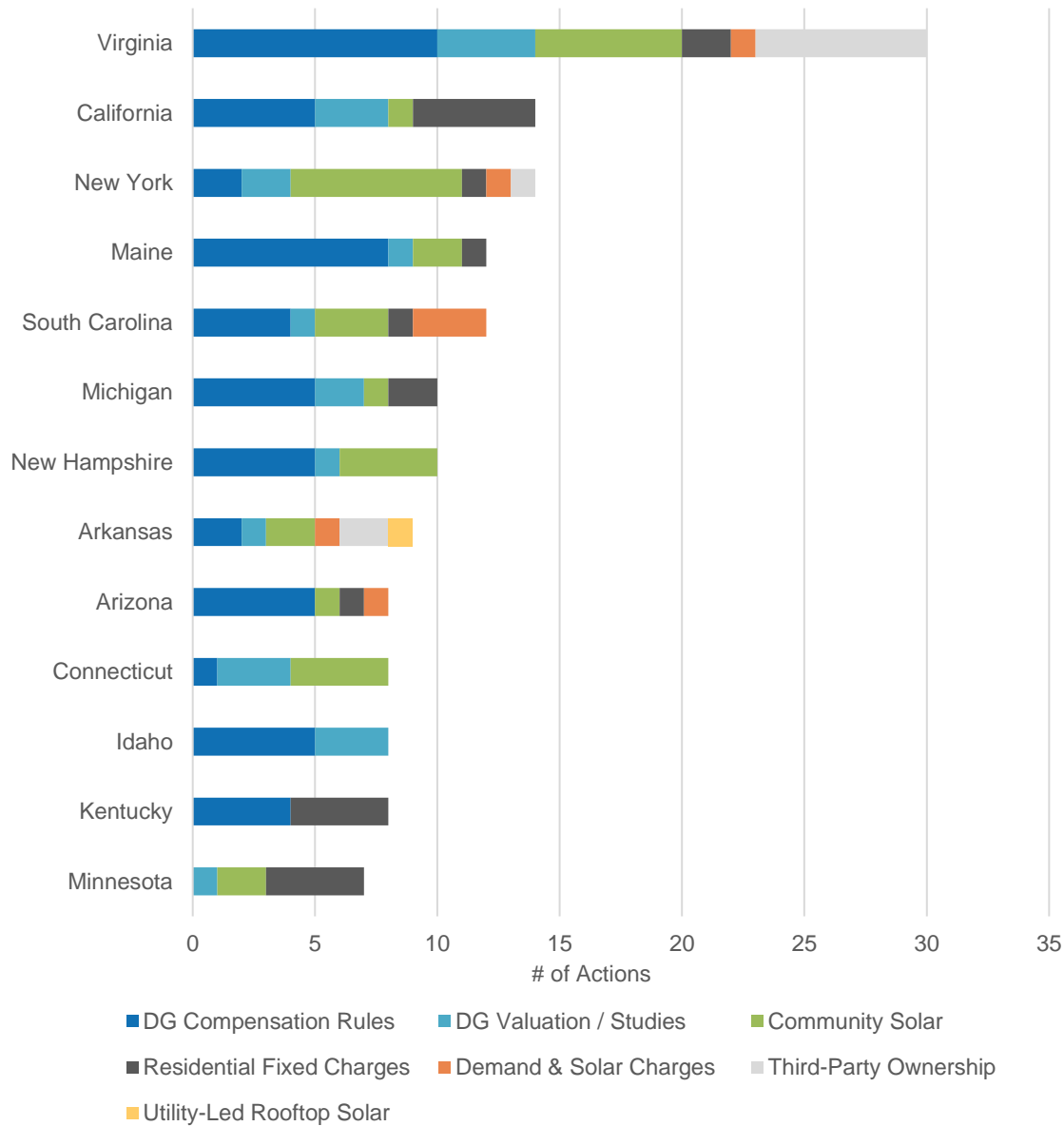
Strong Movement Away From Mandatory Residential Demand Charges

No investor-owned utility proposed a mandatory residential demand charge in 2019 or 2020, indicating strong movement away from demand charges as a rate design feature for residential DG customers. The Kansas Supreme Court also ruled in April 2020 that Evergy's mandatory DG customer demand charge was in conflict with state law. Evergy was the only investor-owned utility with a mandatory DG customer demand charge in effect.

States Establishing Timelines for Net Metering Successor Transitions

Many states are setting specific dates or aggregate capacity thresholds for the consideration or implementation of net metering successor tariffs. Virginia lawmakers enacted a bill increasing the net metering aggregate cap and directing regulators to develop a net metering successor when a certain installed capacity threshold is reached. In Arkansas, regulators authorized utilities and other stakeholders to file net metering alternatives beginning in 2023, and Iowa legislators enacted a bill directing regulators to develop a value of solar methodology for future tariffs in 2027.

Figure 3. Most Active States of 2020, by Type of Action

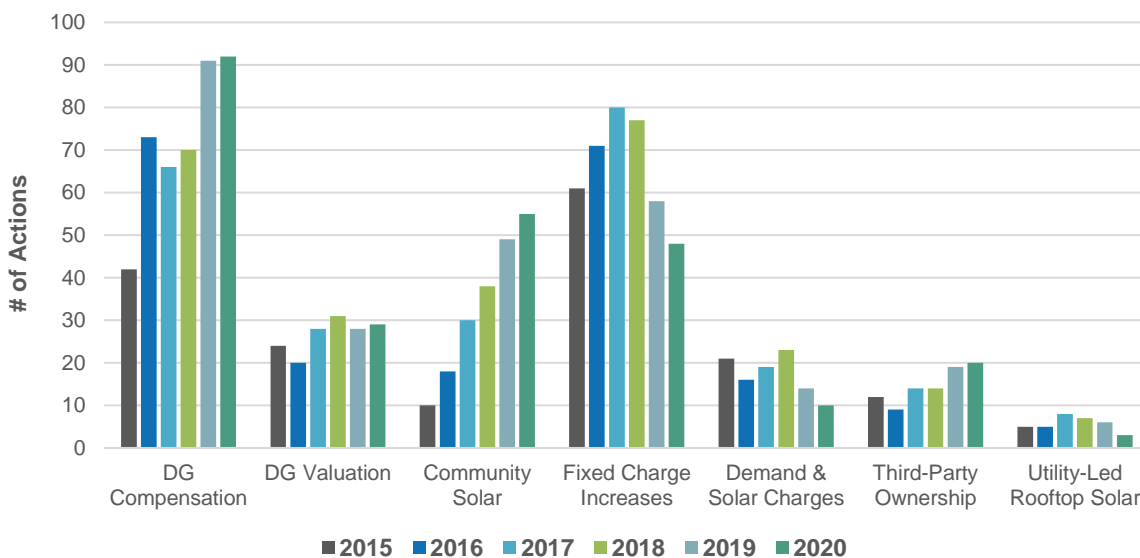


LOOKING BACK: 2015 - 2020

Despite the COVID-19 pandemic, distributed solar policy activity remained at a high level in 2020, with the total number of actions roughly on par with the last few years. States and utilities took a total of 257 actions in 2020, as compared to 265 actions in 2019, 264 actions in 2018, 249 actions in 2017, 212 actions in 2016, and 175 actions in 2015. Figure 4 shows the total number of solar policy actions taken in each year, by category, while Figure 5 displays the number of states taking action in each category. Note that several actions were considered over multiple years.

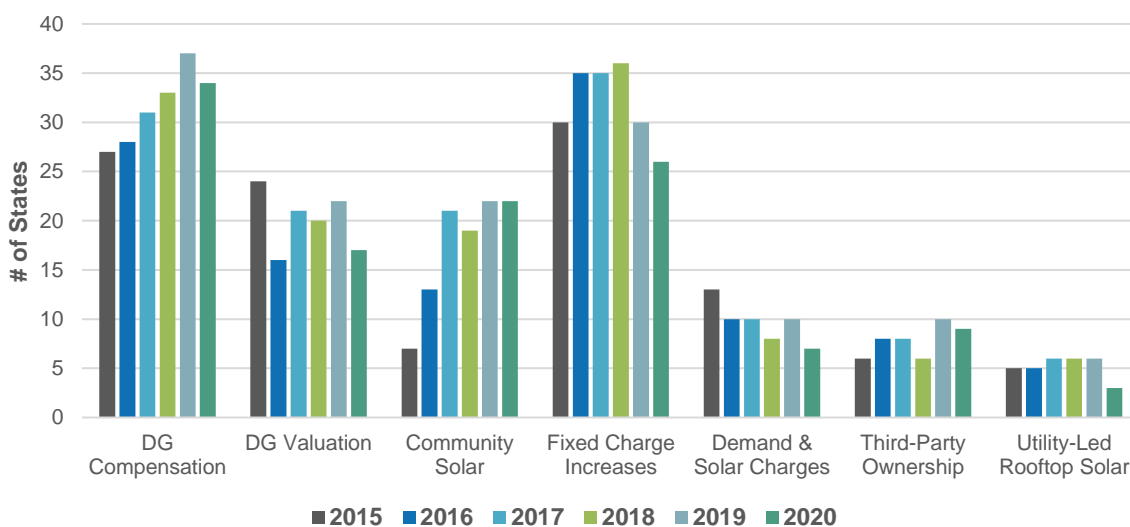
In 2020, distributed generation (DG) compensation, DG valuation, community solar, and third-party ownership activity increased, while actions related to residential fixed charge increases, demand and solar charges, and utility-led rooftop solar declined. The most dramatic change was in residential fixed charge actions, which decreased by 18% over 2019, continuing a strong trend of utilities proposing fewer of these fee increases.

Figure 4. Number of Solar Policy Actions 2015-2020



The number of states taking solar policy actions decreased slightly in all categories except community solar. Overall, a total of 46 states and DC took actions considering changes to distributed solar policy and rate design during the year.

Figure 5. Number of States Taking Solar Policy Action 2015-2020



OVERVIEW OF Q4 2020 POLICY CHANGES

In the fourth quarter of 2020, 39 states plus DC took a total of 140 actions related to distributed solar policy and rate design (Figure 6). Table 2 provides a summary of state actions related to DG compensation, rate design, and solar ownership during Q4 2020. Of the 140 actions identified, the most common were related to DG compensation rules (51), followed by community solar (34), and residential fixed charge and minimum bill increases (26).

Table 2. Q4 2020 Summary of Policy Actions

Policy Type	# of Actions	% by Type	# of States
DG compensation rules	51	36%	26 + DC
Community solar	34	24%	18
Residential fixed charge or minimum bill increase	26	19%	19 + DC
DG valuation or net metering study	16	11%	12 + DC
Residential demand or solar charge	7	5%	5
Third-party ownership of solar	4	3%	4
Utility-led rooftop PV programs	2	1%	2
Total	140	100%	39 States + DC

Note: The "# of States/ Districts" total is not the sum of the rows, as some states have multiple actions. Percentages are rounded and may not add up to 100%.

TOP FIVE SOLAR POLICY DEVELOPMENTS OF Q4 2020

Five of the quarter's top policy developments are highlighted below.

Utah Regulators Issue Net Metering Successor Tariff Decision

In October 2020, the Utah Public Service Commission issued a decision approving a new export credit rate for Rocky Mountain Power's net billing tariff. Rocky Mountain Power had proposed time-varying credit rates ranging from 1.3247 cents per kWh to 2.6293 cents per kWh, but the Commission approved flat credit rates of 5.969 cents per kWh for summer and 5.639 cents per kWh for winter.

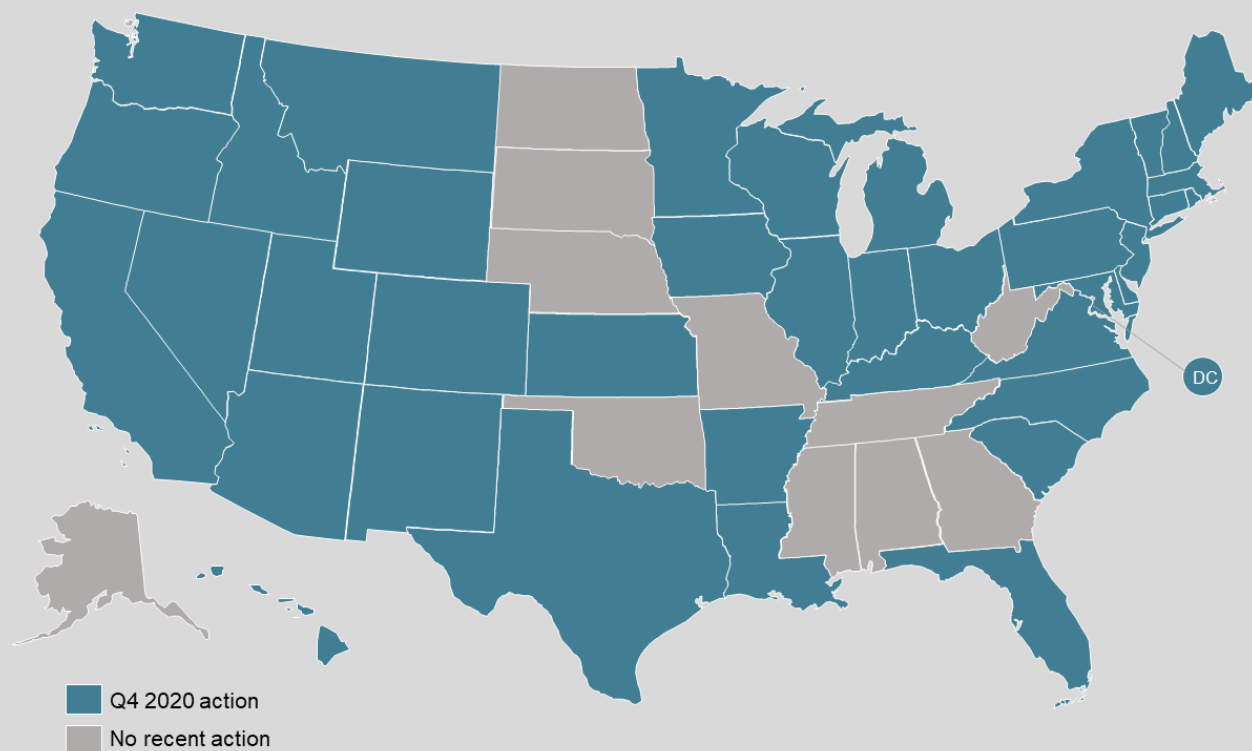
Kentucky Utilities and Louisville Gas & Electric Propose Net Metering Successor

As part of general rate cases filed in November 2020, Kentucky Utilities and Louisville Gas & Electric filed net metering successor tariff proposals. The utilities are proposing a net billing tariff compensating customer-generators for energy exported to the grid at the avoided cost rate (2.173 cents per kWh). Existing customers will be grandfathered under the current tariff for 25 years.

Dominion Energy Files Solar Choice Tariff Proposal with South Carolina Regulators

Dominion Energy filed its net metering successor tariff proposal (Solar Choice Metering Tariff) with South Carolina regulators in December 2020. The tariff uses a net billing structure, with a 15-minute netting period and time-varying credit rates. The tariff also includes a monthly subscription fee based on DG system capacity and increased basic facilities charges.

Figure 6. Q4 2020 Action on DG Compensation, Rate Design, & Solar Ownership Policies



Evergy Files Distributed Generation Rate Design Proposal in Kansas

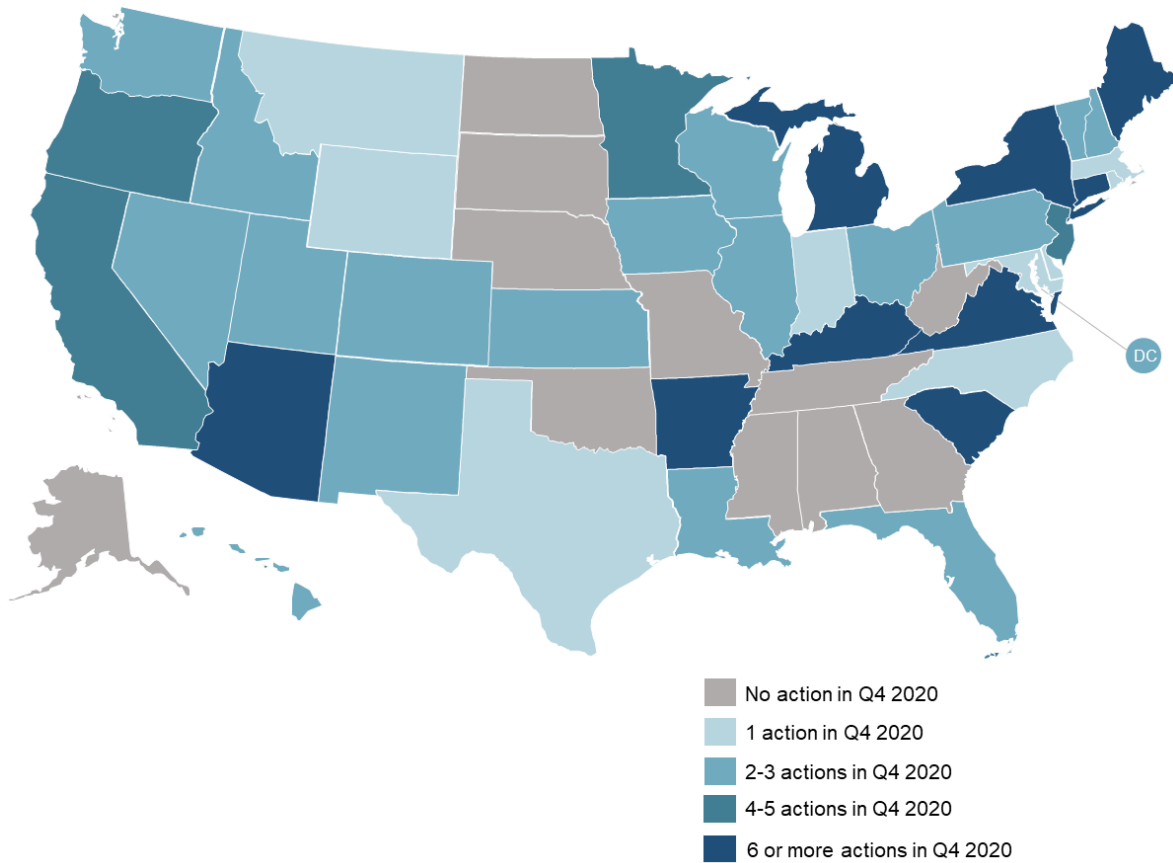
In October 2020, Evergy filed its rate design proposal for distributed generation (DG) customers, following the Kansas Supreme Court's ruling against its DG customer demand charge. Evergy is requesting approval for a grid access fee based on DG system capacity. The utility also proposed an alternative rate design, which is a \$35 monthly minimum bill. The Commission Staff is recommending approval of the alternative rate design.

Virginia Regulators Approve Shared Solar Program Rules

Pursuant to legislation enacted earlier in the year, the State Corporation Commission adopted final shared solar program regulations in December 2020. The rules cap the

program at 150 MW, with 30% of capacity reserved for low-income customers. The Commission will determine the subscriber bill credit rates each year, as well as a minimum bill for participants. The Commission also adopted final rules for shared solar projects at multi-family dwellings.

Figure 7. Q4 2020 Action on Solar Policy & Rate Design, by Number of Actions



FULL REPORT DETAILS & PRICING

FULL REPORT DETAILS

Content Included in the Full Quarterly Report:

- Detailed policy tables describing each pending and recently decided state and utility action regarding:
 - Net Metering
 - Distributed Solar or DG Valuation
 - Community Solar
 - Residential Fixed Charge and Minimum Bill Increases
 - Residential Solar Charges (Demand Charges, Standby Charges, & Grid Access Charges)
 - Third-Party Ownership
 - Utility-Led Rooftop Solar
- Links to original legislation, dockets, and commission orders for each policy action
- Summary maps of action for each policy category above
- Excel spreadsheet file of all actions taken during the quarter and separate Powerpoint file of all summary maps available upon request
- Qualitative analysis and descriptive summaries of solar policy action and trends
- Outlook of action for the next quarter

WHO SHOULD PURCHASE THIS REPORT

The 50 States of Solar allows those involved in the solar and electric utility industry to easily stay on top of legislative and regulatory changes. The report provides a comprehensive quarterly review of actions, an undertaking that would take any one business or organization weeks of time and thousands of dollars in staff time. At a cost of \$500 per issue (or \$1,500 annually), the 50 States of Solar offers an invaluable time and financial savings. With direct links to original sources for all actions, customers may stay on top of legislative and regulatory developments between quarterly reports.

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- Identify new market opportunities, as well as changing and risky markets
- Stay on top of state policy developments relevant to your business
- Give your own team a head start in tracking legislative and regulatory proceedings

Investor-Owned and Public Power Utilities

- Learn about the approaches being taken by other utilities facing similar challenges
- Stay on top of relevant state policy developments
- Utilize an objective source of information in legislative and regulatory proceedings

Investors and Financial Analysts

- Identify new investment opportunities and emerging areas of growth, as well as risky investments
- Access rate data that is often buried in regulatory filings

Advocacy Organizations

- Learn about the diverse solar policy and rate proposals in other states
- Learn about the outcomes of other state's policy and rate decisions
- Utilize an objective source of information in legislative and regulatory proceedings

Researchers and Consultants

- Access valuable data requiring an immense amount of time to collect first-hand
- Identify research needs to inform solar policy and rate design proceedings
- Cite an objective source in your own research and analysis

PRICING

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All-Tech Subscription <i>(Includes 50 States of Solar report, 50 States of Grid Modernization report, & 50 States of Electric Vehicles report; plus biweekly legislative & regulatory tracking; policy data sheets, & quarterly webinars for solar, grid modernization/energy storage, & electric vehicles)</i>	\$10,500	N/A

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