

# 50

# STATES OF SOLAR

**Q4 2023 Report & 2023 Annual Review**  
**Executive Summary**



**NC CLEAN ENERGY**  
TECHNOLOGY CENTER

**DSIRE** insight

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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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# 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](http://www.dsireusa.org).

# EXECUTIVE SUMMARY

## 2023 SOLAR POLICY ACTION

State and utility solar policies continued to undergo review in 2023, 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. Table 1 provides a summary of state actions related to DG compensation, rate design, and solar ownership during 2023. Of the 273 actions identified, the most common were related to DG compensation policies (97), community solar policies (65), and residential fixed charge and minimum bill increases (63). The actions occurred across 47 states plus DC and Puerto Rico in 2023 (Figure 1). The states that saw the most solar policy action, or the most impactful actions, during 2023 are highlighted below.

**Table 1. 2023 Summary of Policy Actions**

Policy Type	# of Actions	% by Type	# of States
DG Compensation Policies	97	36%	31 + DC, PR
Community solar	65	24%	23 + DC
Residential fixed charge or minimum bill increase	63	23%	35 + DC
DG valuation or net metering study	21	7%	12 + DC, PR
Third-party ownership of solar	12	4%	6
Residential demand or solar charge	11	4%	8
Utility-led rooftop PV programs	4	1%	4
<b>Total</b>	<b>273</b>	<b>100%</b>	<b>47 States + DC, PR</b>

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 2023

While nearly every state in the country took some type of action on distributed solar policy or rate design during 2023, some states were particularly active, taking many different actions or especially impactful actions. The following states stood out in 2023 for their solar policy activity:

### 1. Arkansas

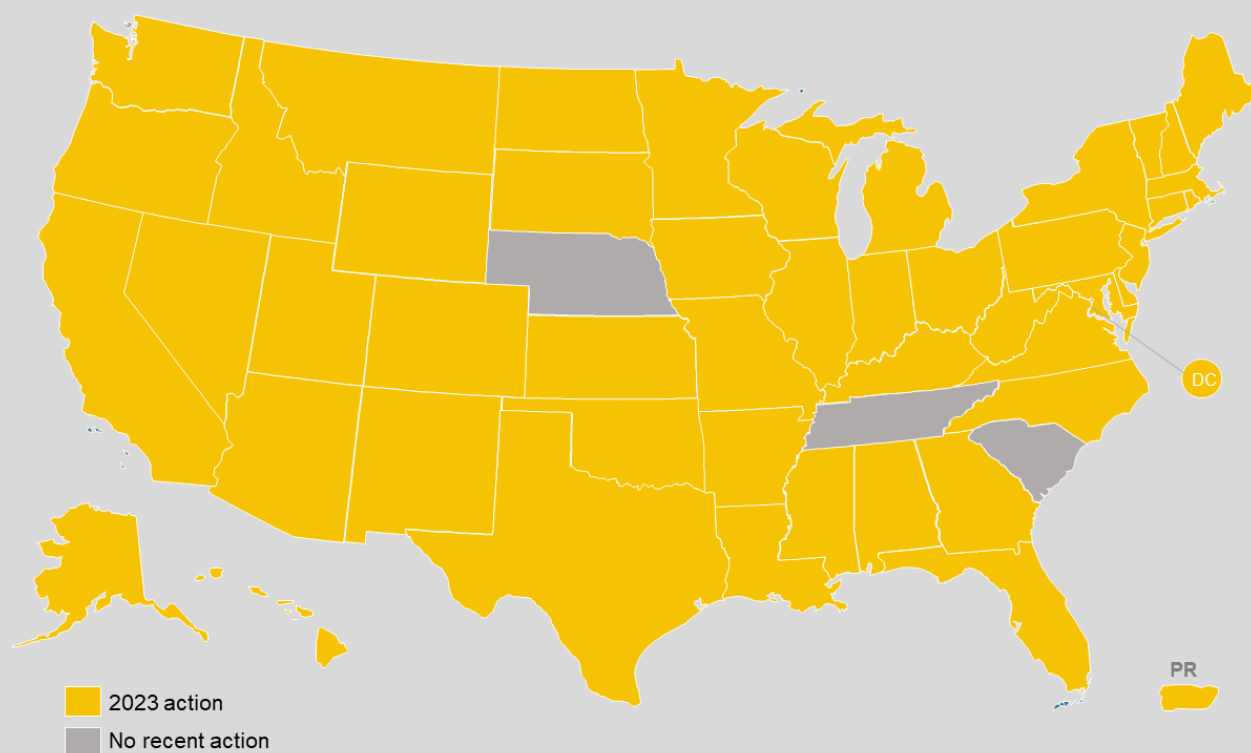
Arkansas lawmakers enacted legislation during 2023 requiring the transition to a net metering successor tariff. Regulators worked to implement this legislation through the remainder of 2023, approving new distributed generation compensation tariffs to take effect in October 2024 that

utilize a net billing structure and compensate excess generation at the avoided cost rate. Utilities also have the option of utilizing a net metering structure with an added grid charge.

## 2. North Carolina

The North Carolina Utilities Commission approved Duke Energy’s proposed residential and non-residential solar choice tariffs during 2023, as well as a residential bridge tariff. The solar choice tariffs include time-varying retail rate credits, with the residential tariff also including additional fees and a minimum bill. The North Carolina General Assembly also considered legislation to increase the state’s cap on solar leasing, but this language was ultimately amended out of the bill.

**Figure 1. 2023 Action on Net Metering, Rate Design, & Solar Ownership Policies**



## 3. Wisconsin

Wisconsin regulators considered net metering reforms proposed by Madison Gas & Electric and Wisconsin Power & Light during the year, ultimately rejecting the utilities’ proposed changes to compensation. Following these cases, the Wisconsin Public Service Commission opened a new proceeding to investigate net metering changes and undertake a cost-benefit analysis or value of solar study. Regulators also reviewed petitions for declaratory rulings regarding the legality of solar leasing and third-party power purchase agreements.





credit rate calculations. Later in the year, state lawmakers enacted a bill increasing the aggregate cap for each utility's DG program to 10% of average in-state peak load.

## **6. California**

California's NEM 3.0 policy took effect during 2023, with an appeals court also dismissing a challenge to these rules. The California Public Utilities Commission also issued a decision on virtual net metering, which adopts a modified version of the NEM 3.0 tariff. Additionally, the Commission considered the development of a new community solar program, while the state's major utilities filed proposals for income-based residential fixed charges.

## **7. Hawaii**

The Hawaii Public Utilities Commission issued an order approving the designs for HECO's new smart distributed energy resource (DER) tariff and bring your own device tariff, which will take effect in March 2024. The smart DER tariff will include both export and non-export riders; the export rider will include time-varying compensation rates, with initial export rates locked in for seven years. The Commission also issued a decision on the implementation of the utility's advanced rate design tariffs, which will include a grid access charge.

## **8. Maryland**

Maryland lawmakers enacted legislation in 2023 establishing a permanent community solar program for the state. The bill requires that community solar facilities deliver 40% of their output to low- and moderate-income (LMI) subscribers and that subscription rates for LMI subscribers be set at 90% of the bill credit value. Legislators also enacted a bill modifying crediting of monthly net excess generation for net metering customers.

## **9. Minnesota**

In Minnesota, state lawmakers enacted legislation creating a successor community solar garden program for facilities approved after January 2024. The new program will have an aggregate annual capacity limit of 100 MW for 2024-2026, 80 MW for 2027-2030, and 60 MW in 2031 and thereafter. The new program will also require at least 30% of a facility's capacity to be subscribed to by low- and moderate-income customers. Regulators also considered the future of the residential adder for Xcel Energy's existing community solar gardens program.

## **10. New Jersey**

The New Jersey Board of Public Utilities issued an order creating a permanent community solar program in 2023. The order establishes an aggregate capacity limit of 225 MW for 2024, with allocations for each utility. At least 51% of each project's capacity is required to serve low- and moderate-income subscribers, and consolidated billing is to be implemented by 2025. State lawmakers also enacted legislation establishing a remote net metering program.

# TOP SOLAR POLICY TRENDS OF 2023

## **Transitioning to Net Billing for Distributed Solar Compensation**

In 2023, states continued of trend of moving toward net billing structures for distributed solar compensation. California implemented its net billing tariff, while regulators in Arkansas and Idaho approved transitions from net metering to net billing. Hawaii regulators also approved the next iteration of HECO's distributed energy resource tariffs, which will include an option with a net billing structure.

## **Incentivizing Solar for Low- to Moderate-Income Customers**

States are increasingly taking dedicated steps to facilitate solar adoption for low- to moderate-income (LMI) customers. States submitted applications for the U.S. Environmental Protection Agency's \$7 billion Solar for All program during the year, which will provide incentives for income-qualified customers to go solar. A number of other states approved community solar incentives for LMI subscribers, and California regulators approved an adder for LMI customers participating in virtual net metering.

## **Utilizing Time-Varying Credit Rates for Distributed Generation**

States and utilities are increasingly using time-varying credit rates in distributed generation programs. North Carolina regulators approved a new time-of-use net metering tariff for Duke Energy, while the Hawaii Public Utilities Commission approved time-varying export credit rates for HECO's new smart distributed energy resource tariff. California implemented time-varying credit rates as part of its NEM 3.0 tariff.

## **Moving Away from Distributed Generation Fee Proposals**

Over the last several years, the majority of utility proposals to implement additional fees for distributed generation customers have been rejected by regulators, and this trend continued into 2023, with regulators in Michigan and Wisconsin denying approval for new charges. This year also showed a significant decline in the number of utilities proposing new fees, with only one utility filing a request for a new charge during the year.

## **Expanding and Redesigning State Community Solar Programs**

Policymakers or regulators in Maryland, Minnesota, and New Jersey all approved rules for the next iterations of their states' community solar programs during 2023. In Maryland and New Jersey, the new rules are for permanent community solar programs to succeed and expand upon pilot programs. All three programs include annual aggregate capacity allocations, as well as specific provisions to promote low- to moderate-income customer participation. Regulators in California are also considering the design for a new community solar program.

## **Influencing Project Siting in Community Solar Rules**

A number of states are addressing siting issues in community solar program design, particularly with rules that either limit eligible sites for projects or offer incentives or bid preferences for projects sited in certain locations. Maryland's new community solar program will allow projects to exceed certain size limits if they're built on specified site types, like rooftops, brownfields, or industrial areas. New Jersey's community solar program only allows projects at particular site types.

## **Increasing System Size and Aggregate Capacity Limits for Distributed Generation Programs**

Lawmakers in several states enacted legislation increasing system size limits or aggregate capacity limits for distributed generation programs like net metering. West Virginia legislators increased the state's net metering project size cap, while Michigan lawmakers enacted a bill increasing the aggregate cap for each utility's distributed generation program. North Carolina regulators approved an increase in the commercial system size limit for Duke Energy.

## **Applying Unused Net Excess Generation Credits to Low-Income Customers**

A trend across a number of states has been to allow or require unused net excess generation credits to be applied to low-income customer accounts. In Colorado, Black Hills Energy filed revisions to its net metering tariff allowing customers to donate their banked energy to low-income customers. Similarly, in Maine, legislation enacted during the year requires unused and expired net energy billing credits to be used for low-income assistance.

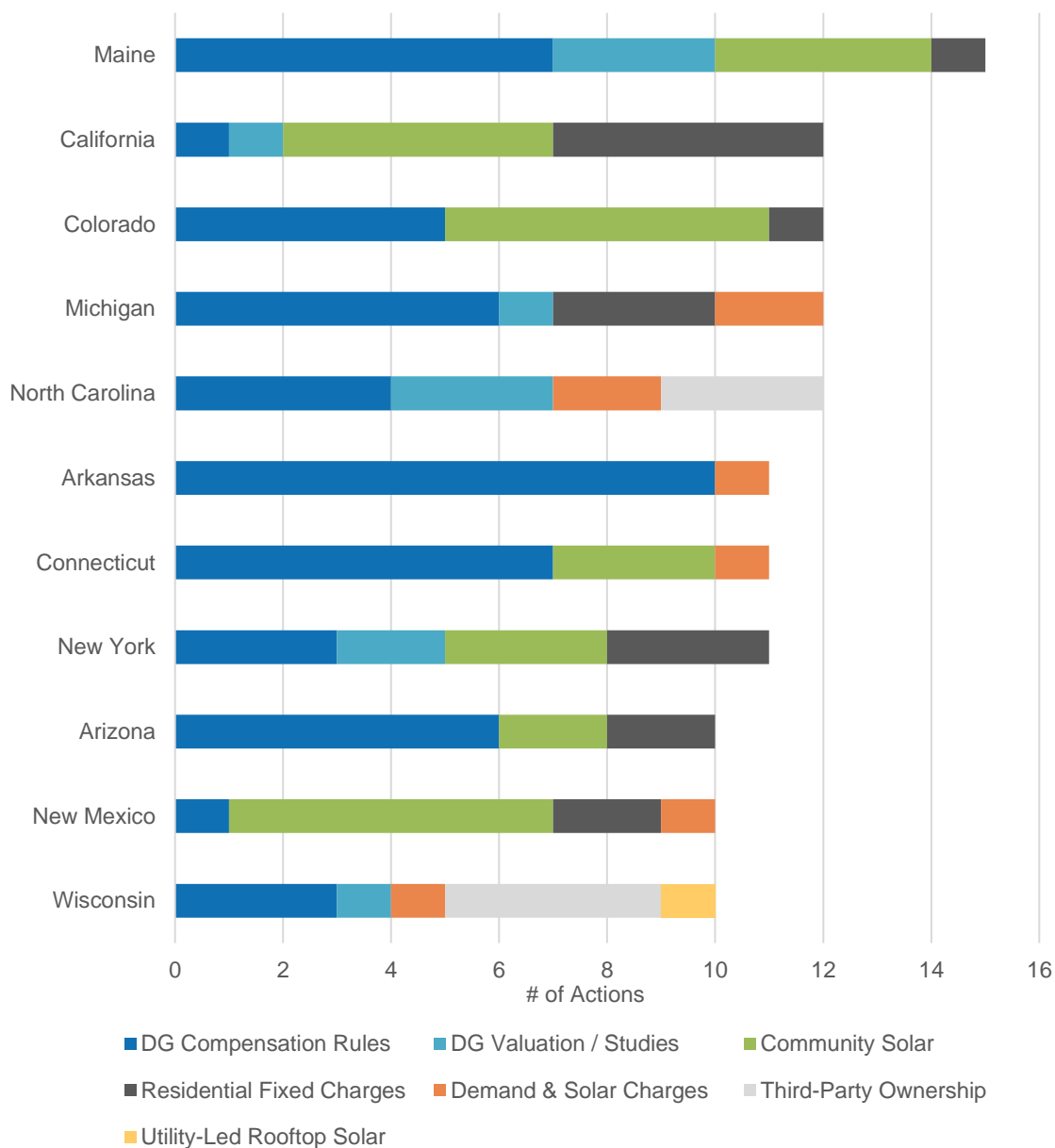
## **Designing Programs for Solar Paired with Energy Storage**

States and utilities are now frequently designing distributed generation programs in a way that promotes the pairing of solar with battery storage. North Carolina regulators approved a time-varying net metering successor for Duke Energy, along with a new "Power Pair" incentive for solar-plus-storage. Hawaii's new distributed energy resource tariffs will also encourage paired systems, while several states have begun offering incentives for customer-owned storage.

## **Utilities Initiating Net Metering Successor Tariff Proposals**

Utilities in a few states filed net metering successor tariff proposals without a state directive to do so in 2023. In West Virginia, Monongahela Power and Potomac Edison included proposed reforms within a rate case application. Two Wisconsin utilities – Madison Gas & Electric and Wisconsin Power & Light – also filed net metering successor proposals within rate cases this year. Meanwhile, Idaho Power filed proposed changes in Oregon to align its distributed generation tariffs across its Idaho and Oregon service territories.

**Figure 3. Most Active States of 2023, by Type of Action**

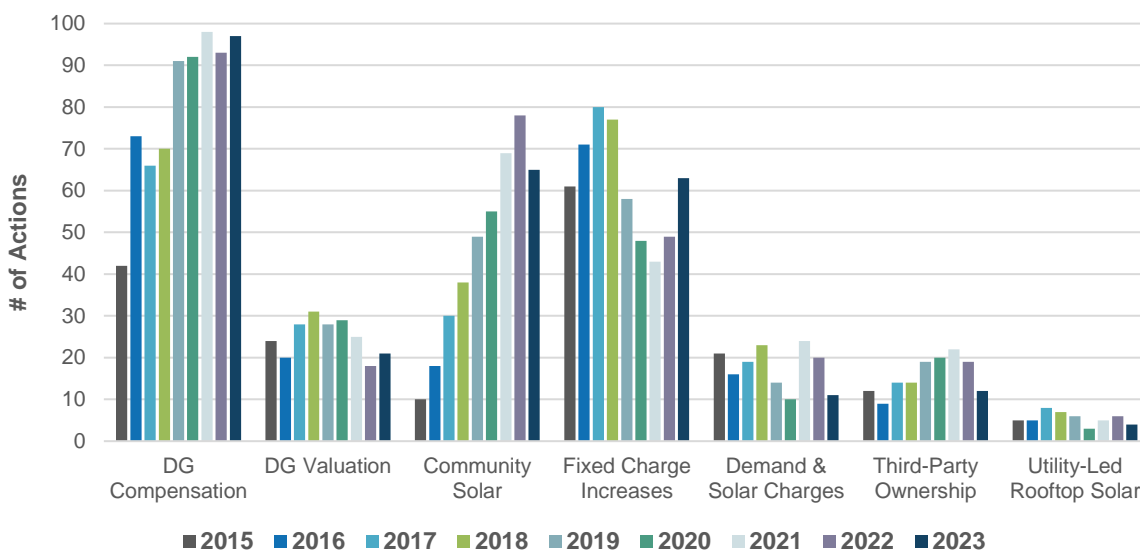


## LOOKING BACK: 2015 - 2023

State and utility action on distributed solar policy and rate design dipped slightly, while remaining very busy in 2023, with 273 actions taken by states and utilities, as compared to 285 actions in 2022, 286 actions in 2021, 257 actions in 2020, 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.

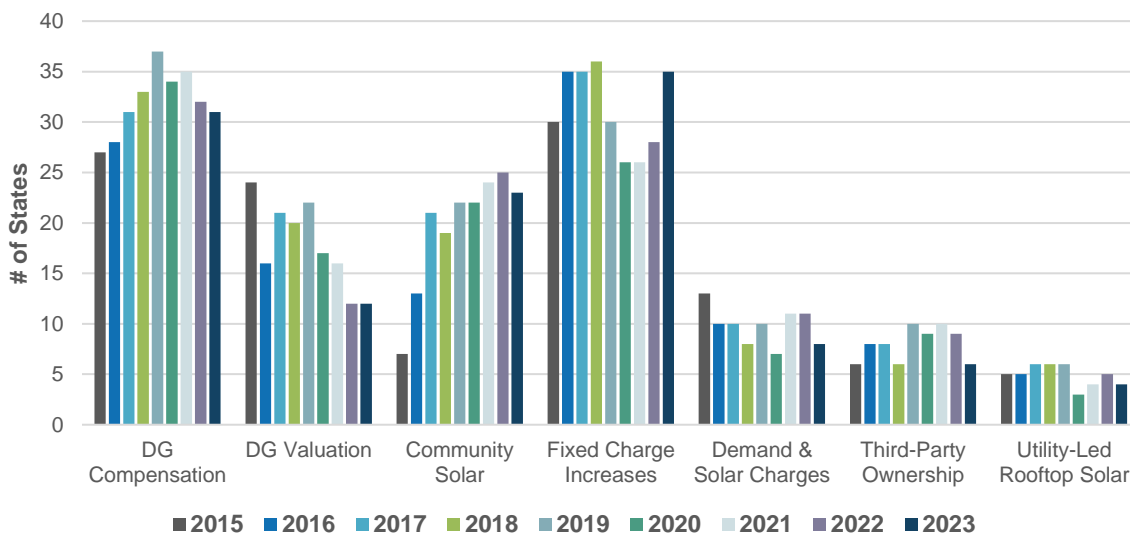
In 2023, activity in DG compensation, DG valuation, residential fixed charge increases ticked upward, while activity in other categories declined. Net metering activity has remained very high for the last five years, while community solar activity showed some decline for the first time. Residential fixed charge increases are showing a rebound after decreasing for several years.

**Figure 4. Number of Solar Policy Actions 2015-2023**



The number of states taking solar policy actions declined or held steady in all categories except residential fixed charge increases. Overall, a total of 47 states, plus DC and Puerto Rico, took actions considering changes to distributed solar policy and rate design during the year.

**Figure 5. Number of States Taking Solar Policy Action 2015-2023**



## OVERVIEW OF Q4 2023 POLICY ACTION

In the fourth quarter of 2023, 41 states plus DC and Puerto Rico took a total of 147 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 2023. Of the 147 actions cataloged, the most common were related to DG compensation rules (44), followed by residential fixed charge and minimum bill increases (43), and community solar (36).

**Table 2. Q4 2023 Summary of Policy Actions**

Policy Type	# of Actions	% by Type	# of States
DG compensation rules	44	30%	24 + DC, PR
Residential fixed charge or minimum bill increase	43	29%	28 + DC
Community solar	36	24%	19 + DC
DG valuation or net metering study	14	10%	10 + DC, PR
Third-party ownership of solar	5	3%	3
Residential demand or solar charge	3	2%	3
Utility-led rooftop PV programs	2	1%	2
<b>Total</b>	<b>147</b>	<b>100%</b>	<b>41 States + DC, PR</b>

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 2023

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

### Idaho Public Utilities Commission Approves Net Metering Successor for Idaho Power

In December 2023, the Idaho Public Utilities Commission approved a net metering successor tariff for Idaho Power, which uses a net billing structure with a real-time netting interval and excess generation credits based on an avoided cost rate. The credit rate includes avoided energy, avoided generation capacity, avoided transmission and distribution capacity, avoided line losses, and integration costs.

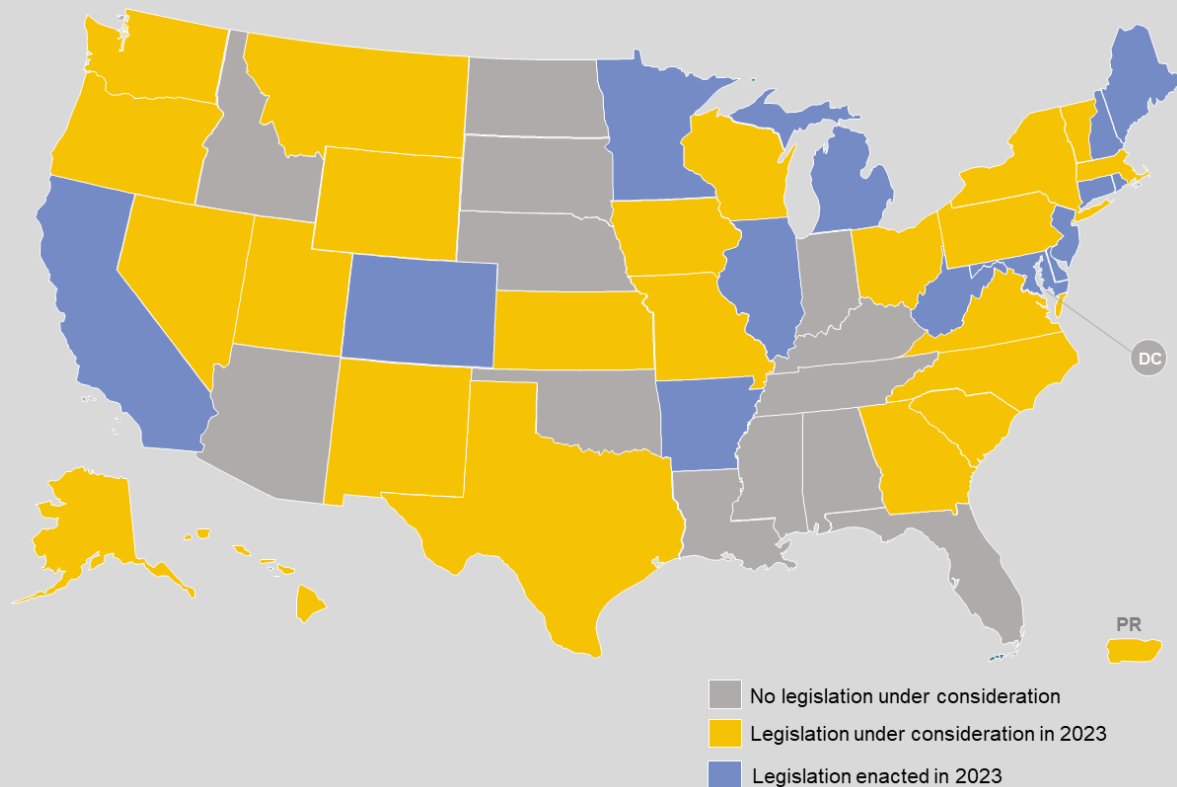
### Wisconsin Regulators Reject Proposed Net Metering Reforms and Open New Investigatory Proceeding

Wisconsin regulators issued decisions rejecting net metering reforms proposed by Madison Gas & Electric and Wisconsin Power & Light, which would have included reductions in net metering credit rates. Following these cases, the Wisconsin Public Service Commission opened a new proceeding to investigate net metering changes and undertake a cost-benefit analysis or value of solar study.



take effect in March 2024. The smart DER tariff will include both export and non-export riders; the export rider will utilize time-varying compensation rates, with initial export rates locked in for seven years.

**Figure 7. DG Compensation, Rate Design, and Solar Ownership Legislation Under Consideration in 2023**



### Michigan Lawmakers Increase System Size and Aggregate Caps for Distributed Generation Program

Michigan legislators enacted S.B. 271 in late November 2023, which increases the aggregate distributed generation cap for each utility to 10% of the in-state peak load. The bill also increases the maximum allowable system size under the program from 150 kW to 550 kW. Additionally, the legislation increases the load-based system size cap from 100% of consumption to 110%.



# 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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- Give your own team a head start in tracking legislative and regulatory proceedings

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- 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

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<i>legislative &amp; regulatory tracking; policy data sheets, &amp; curated monthly policy updates)</i>		
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