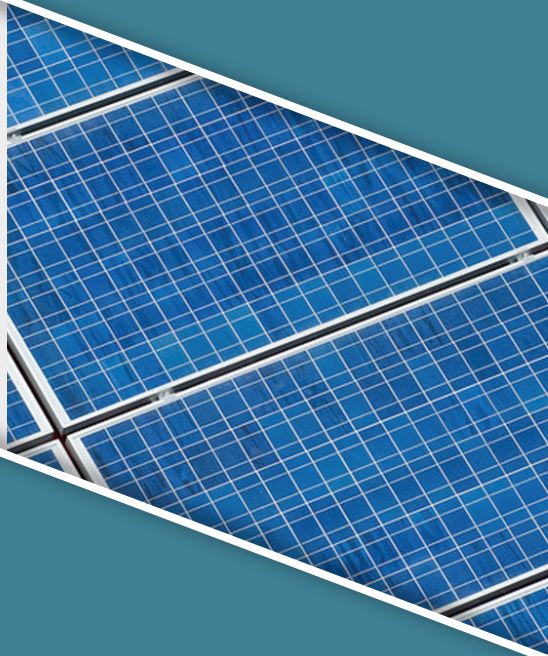


50 States of SOLAR

Q2 2021 Quarterly Report
Executive Summary



AUTHORS

Autumn Proudlove
Brian Lips
David Sarkisian

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.

CONTACT

Autumn Proudlove (afproudl@ncsu.edu)

PREFERRED CITATION

North Carolina Clean Energy Technology Center, *The 50 States of Solar: Q2 2021 Quarterly Report*, July 2021.

COVER DESIGN CREDIT

Cover design is by [Capital City Creative](#).

COVER PHOTO CREDIT

Photo by Wayne National Forest. "Wayne National Forest Solar Panel Construction." July 15, 2009. CC-BY 2.0. Retrieved from <https://www.flickr.com/photos/waynenf/3725051641>

Photo by North Carolina Clean Energy Technology Center. "Training Class – PV Installation." April 25, 2014.

DISCLAIMER

While the authors strive to provide the best information possible, neither the NC Clean Energy Technology Center nor NC State University make any representations or warranties, either express or implied, concerning the accuracy, completeness, reliability or suitability of the information. The NC Clean Energy Technology Center and NC State University disclaim all liability of any kind arising out of use or misuse of the information contained or referenced within this report. Readers are invited to contact the authors with proposed corrections or additions.

PREVIOUS EDITIONS AND OTHER 50 STATES REPORTS

Full editions of and annual subscriptions to the **50 States of Solar** may be purchased [here](#).

The 50 States of Solar is a quarterly publication. Previous executive summaries and older full editions of *The 50 States of Solar* are available [here](#).

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

OVERVIEW OF Q2 2021 POLICY ACTION

In the second quarter of 2021, 42 states plus DC took a total of 179 actions related to distributed solar policy and rate design (Figure 1). Table 1 provides a summary of state actions related to DG compensation, rate design, and solar ownership during Q2 2021. Of the 179 actions cataloged, the most common were related to DG compensation rules (60), followed by community solar (38), and residential fixed charge and minimum bill increases (30).

Table 1. Q2 2021 Summary of Policy Actions

| Policy Type | # of Actions | % by Type | # of States |
|---|--------------|-------------|-----------------------|
| DG compensation rules | 60 | 34% | 27 |
| Community solar | 38 | 21% | 21 |
| Residential fixed charge or minimum bill increase | 30 | 17% | 18 + DC |
| Residential demand or solar charge | 19 | 11% | 9 |
| Third-party ownership of solar | 15 | 8% | 7 |
| DG valuation or net metering study | 14 | 8% | 11 + DC |
| Utility-led rooftop PV programs | 3 | 2% | 3 |
| Total | 179 | 100% | 42 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 Q2 2021

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

South Carolina Regulators Approve Solar Choice Metering Tariff Designs

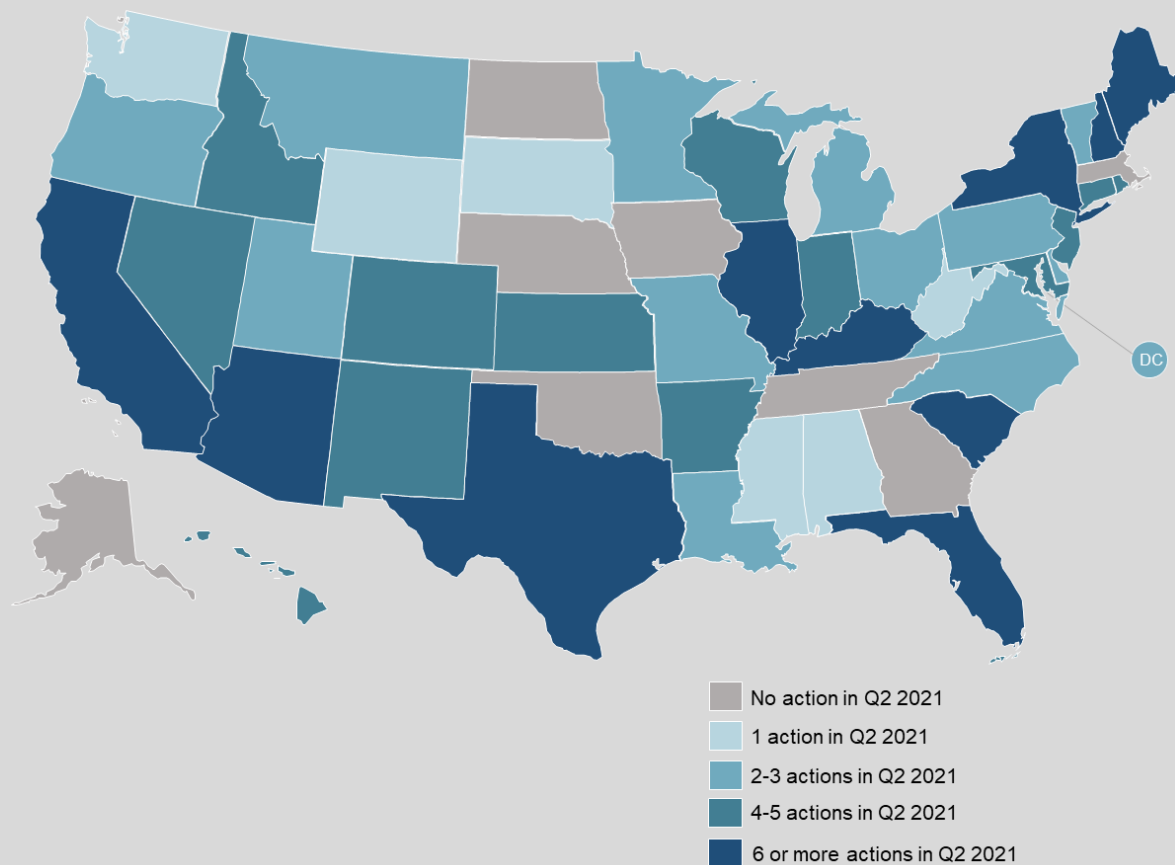
In May 2021, the South Carolina Public Service Commission approved net metering successor tariff ("Solar Choice Metering Tariff") designs for Dominion Energy and Duke Energy. Both Dominion Energy's and Duke Energy's tariffs include monthly time-of-use netting and a minimum bill, while Duke Energy's tariff also includes a non-bypassable charge based on system size and a grid access fee for systems over a certain size.

Kentucky Public Service Commission Issues Net Metering Decision

The Kentucky Public Service Commission ruled on Kentucky Power's net metering successor tariff proposal in May 2021, largely rejecting the proposed design and maintaining monthly

netting instead. The Commission reduced the credit rate for monthly net excess generation from the retail rate to 9.746 cents per kWh for residential customers. Kentucky regulators are also set to address net metering successor proposals from Kentucky Utilities and Louisville Gas & Electric in September 2021.

Figure 1. Q2 2021 Action on DG Compensation, Rate Design, & Solar Ownership Policies, by Number of Actions



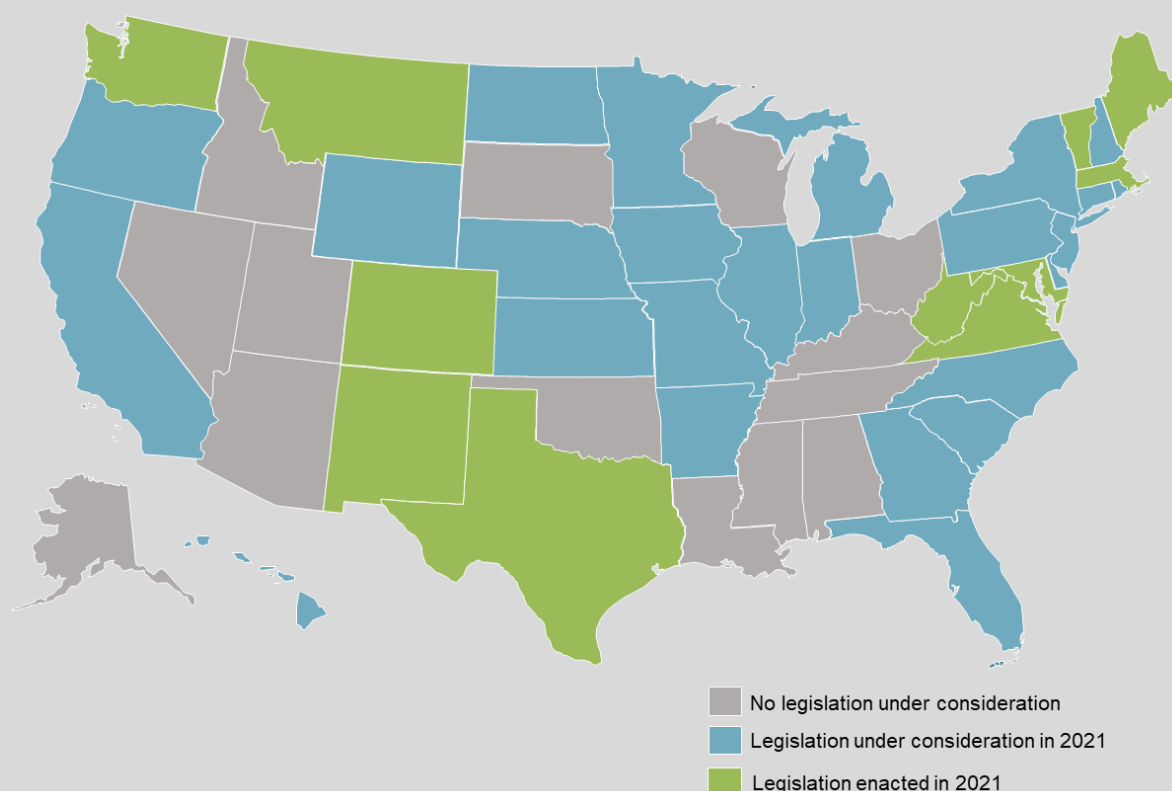
HECO Utilities Propose New Distributed Energy Resource Programs

In Hawaii, the HECO utilities proposed two new distributed energy resource programs for residential and commercial customers in May 2021. The Standard Program includes a time-variant export rider and a non-export rider. The Advanced Program features a bring-your-own device program with grid services compensation in addition to the Standard Program riders. The Advanced Program also offers a rooftop rental program with the utility installing systems in front of the meter and participants receiving bill credits.

Sacramento Municipal Utility District Proposes Net Metering Successor

The Sacramento Municipal Utility District (SMUD) presented its net metering successor tariff proposal to its Board of Directors during Q2 2021. The tariff would take the form of net billing, with instantaneous exports credited at 7.4 cents per kWh, regardless of time of day or season. The proposed changes also include a one-time interconnection fee, an optional residential critical peak pricing rate, and a low-income virtual net metering program.

Figure 2. DG Compensation, Rate Design, and Solar Ownership Legislation Under Consideration in 2021 (as of 7/19/2021)



Pedernales Electric Cooperative Considers Net Metering Changes

In Texas, the Pedernales Electric Cooperative Board of Directors recently considered changes to its net metering program, including a move to time-varying credit rates, a \$5.15 per kW demand charge, and an interconnection fee. At a July 2021 meeting, the Board approved a lower interconnection fee and decided to further study the issue of net metering credits and rate design.

THE BIG PICTURE: INSIGHTS FROM Q2 2021

Regulators Evaluating Time-Varying Credit Rates for Net Metering Customers

Regulators in a growing number of states have been evaluating the use of time-varying credit rates for net metering customers. During Q2 2021, the South Carolina Public Service Commission approved net metering successor tariffs for Dominion Energy and Duke Energy, which both feature time-of-use netting and credit rates. In Hawaii, the HECO utilities also proposed new distributed energy resource programs that include time-varying credits for exported energy. Pedernales Electric Cooperative in Texas recently considered a move to time-varying credit rates for net metering customers, but opted to study the issue of credit rates further before making a implementing a change. In New Mexico, regulators approved a new optional residential time-of-day rate that will allow net metering customers to participate and receive time-varying credit rates.

Utilities Designing Distributed Generation Programs to Encourage Storage

States and utilities are taking an increasingly holistic view to distributed energy resource (DER) program design, particularly as more customers choose to pair their generating systems with battery storage. In Hawaii, the HECO utilities filed proposals for new DER programs, including a bring-your-own-device program that allows any DER, whether it is load-consuming or energy-producing, to enroll and receive economic incentives for allowing the utility to control the device. The Sacramento Municipal Utility District proposed a new “Solar and Storage Rate” as its net metering successor, which includes a reduced export credit rate, an optional critical peak pricing rate, and battery storage incentives. Utilities’ net metering 3.0 proposal in California includes specific requirements for solar-plus-storage systems, and legislation recently enacted in Vermont authorizes regulators to adopt rules governing storage systems paired with net metering facilities.

States Continue to Focus on Community Solar for Low-Income Customers

Much of the community solar activity in 2021 has continued to center on encouraging access for low-income customers. Legislation passed in Delaware would require at least 15% of each community solar facility’s capacity to serve low-income customers, and a bill passed by the Rhode Island State House would require at least 35% of project capacity or savings to be allocated to low or moderate income customers. In Washington, lawmakers enacted a bill that authorizes the Utilities and Transportation Commission to approve discounts for low-income customers to participate in community solar programs, and the Sacramento Municipal Utility District proposed a new virtual net energy metering program for multi-family affordable housing. In New York, the New York State Energy Research and Development Authority and National Grid filed a joint petition for an Expanded Solar for All program that would provide community solar and associated guaranteed bill savings to low-income customers.

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.

Solar Installation and Manufacturing Companies

- 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

Visit <https://www.dsireinsight.com/subscriptions/> to purchase the full 50 States of Solar Q2 2021 Report or learn more about our additional subscription offerings.

| Subscription Type | Annual Subscription | Single Report |
|---|---------------------|---------------|
| 50 States of Solar Report | \$1,500 | \$500 |
| Single-Tech Subscription (Solar) <i>(Includes 50 States of Solar report, plus comprehensive biweekly legislative & regulatory solar tracking, policy data sheets, & curated monthly policy updates)</i> | \$4,500 | N/A |
| All-Tech Subscription <i>(Includes 50 States of Solar report, 50 States of Grid Modernization report, & 50 States of Electric Vehicles report; plus comprehensive biweekly legislative & regulatory tracking; policy data sheets, & curated monthly policy updates)</i> | \$10,500 | N/A |

Customers purchasing an annual subscription, receive complimentary access to all past editions of the report. Previous editions of the 50 States of Solar are offered at a discounted rate upon request. Contact us to learn more.

NON-PROFIT / GOVERNMENT DISCOUNT

A 20% discount is now available for non-profits and government entities. Please [contact us](#) for more information.

COMPLIMENTARY COPIES FOR POLICYMAKERS

We offer complimentary copies of the 50 States of Solar to **policymakers and regulators only** (limited to federal and state legislators and staffers, utility commissioners, utility commission staff, state consumer advocate office staff, and state energy office staff). [Contact us](#) to receive a complimentary copy of the most recent report.

CUSTOMIZED SOLUTIONS

The NC Clean Energy Technology Center also offers customized policy research and analysis services. Contact us to learn more.