



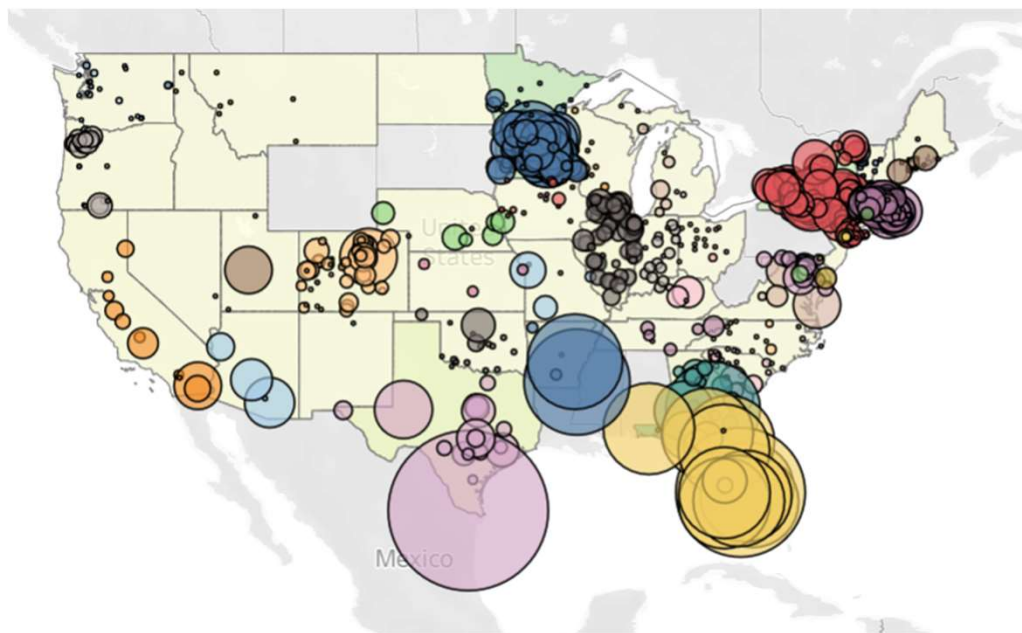
Community Solar Market Update

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Maine Governor's Energy Office, Distributed
Generation Stakeholder Group, Equity and
Access Work Session

October 18, 2022



Source: [Sharing the Sun Database Release](#)

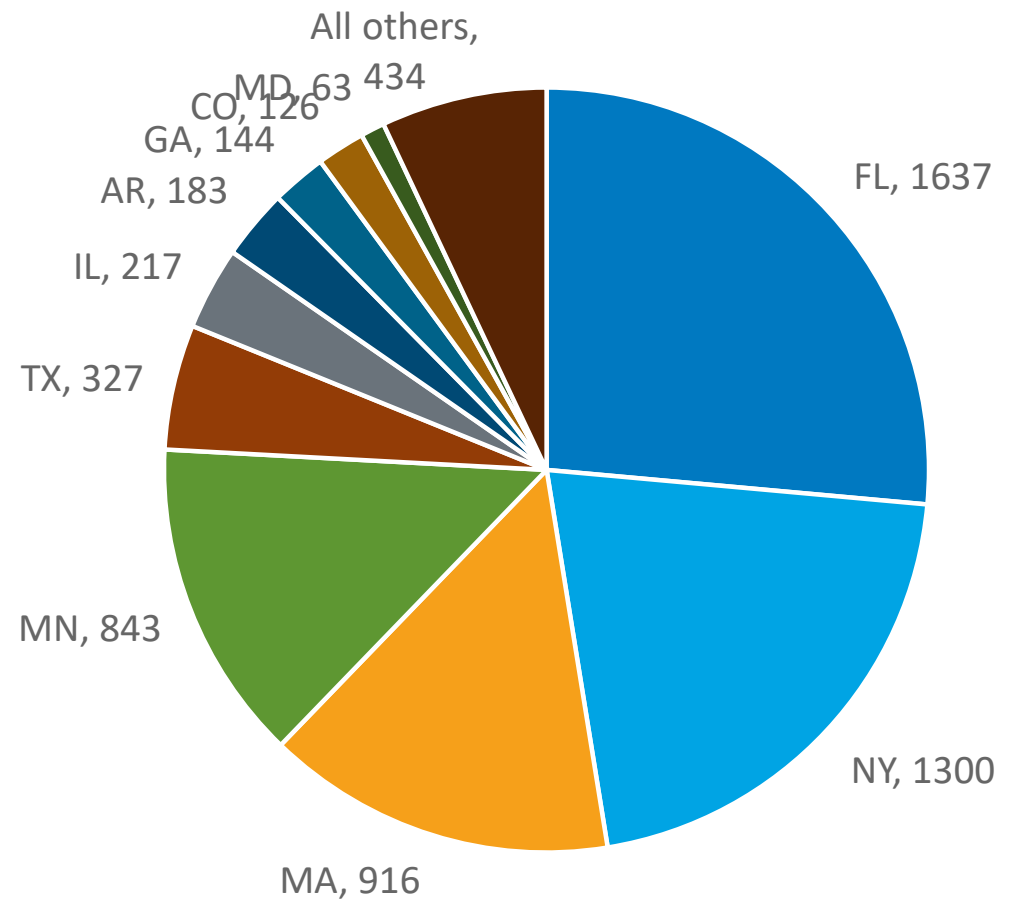
- 30 states have ≥ 5 MW of installed community solar
 - New Jersey is the latest state to break 5 MW of installed capacity, moving from 0 to 9 MW installed capacity
 - Fastest growing states in 2021 (based on % capacity) included Texas, Florida, Rhode Island, Maine, and Illinois.
- 10 states and Washington, DC have < 5 MW of installed community solar
- Some states have no installed community solar

30 states have more than 5 MW of installed community solar; more than 5.2 GW are installed across the country

Distribution of Projects Across States

Currently, community solar capacity continues to be concentrated in just a few states.

Continued growth in Florida (Florida Power & Light) as well as New York. Texas has also emerged as a leader with the development of Green Mountain Power's Go Solar offer.



At least 12 states have consumer protection requirements for community solar subscribers

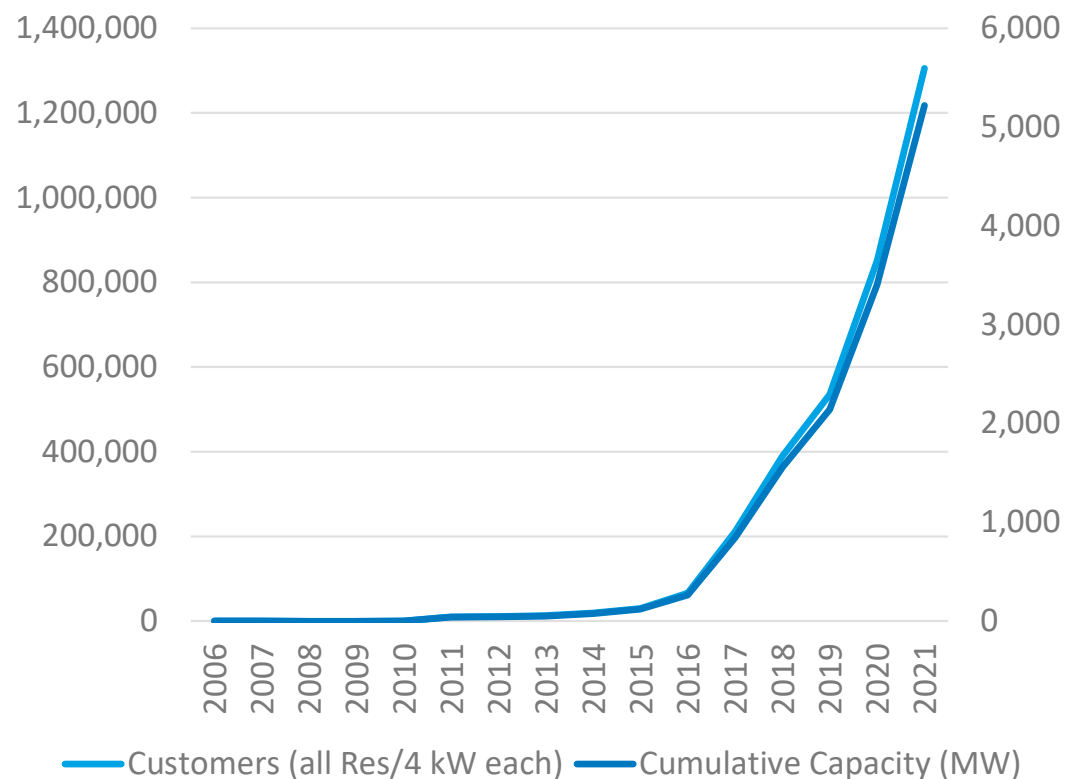
- Connecticut
- Hawaii
- Illinois
- Maine
- Maryland
- Massachusetts
- Minnesota
- New Mexico*
- New Jersey
- New York
- Oregon
- Virginia

*2020 [New Mexico law](#) requires future consumer community solar protections

- As of 2021, twelve states have some type of community solar protections for consumers
- Consider including content in the States Collaborative to ensure best practices for consumer protection are adopted

Understanding the “Equivalent Households” Served by Community Solar Projects

- By the end of 2021, community solar capacity served the *equivalent* of 1.3 million households.
 - We assume each household has a 4 kW subscription.
- *Equivalent* households increased by more than 450,000 from 2020-2021.

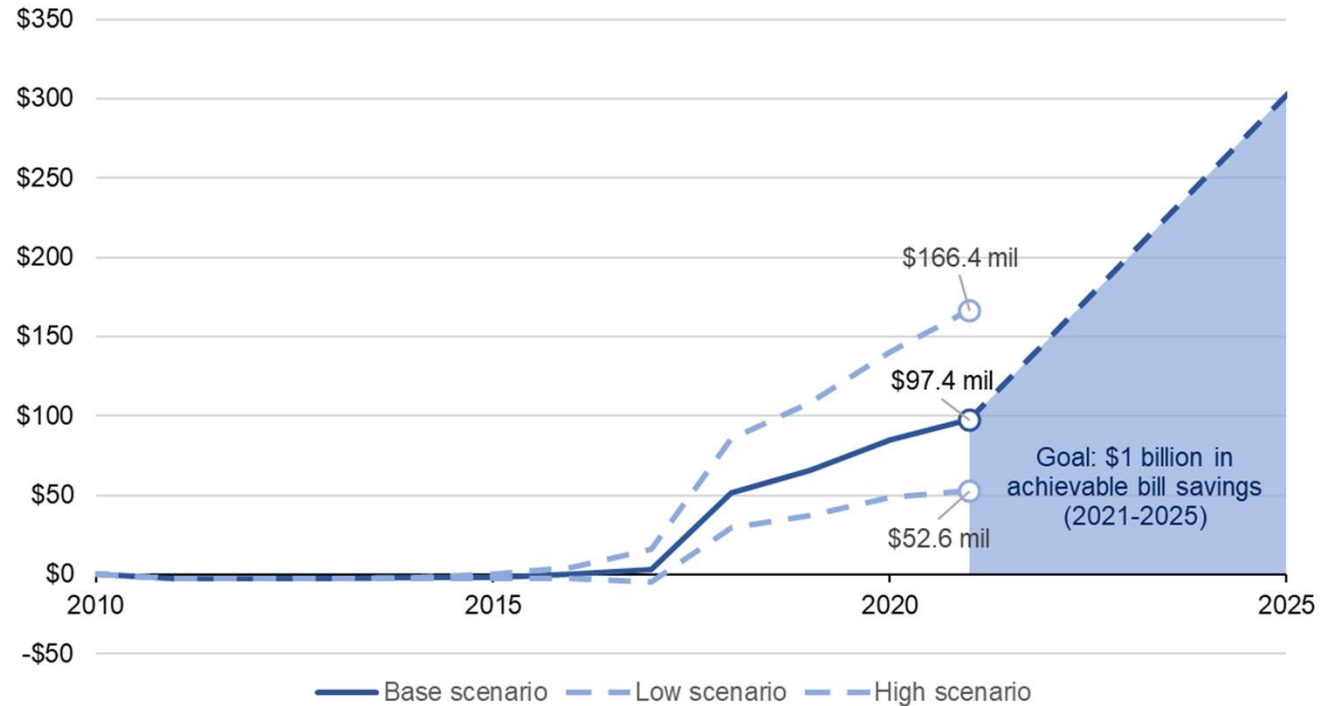


Equivalent Households: Methods

- We base “equivalent” households on a 4 kW subscription. We divide the community solar installed capacity by this subscription size to estimate the “equivalent” households.
- This estimate does not take into account that community solar also serves non-residential customers, who subscribe to larger shares than residential customers.

**Estimated Savings
are ~\$97M in 2021;
Savings will Need
to Continue to
Scale with the
Market through
2025 to meet DOE's
Target**

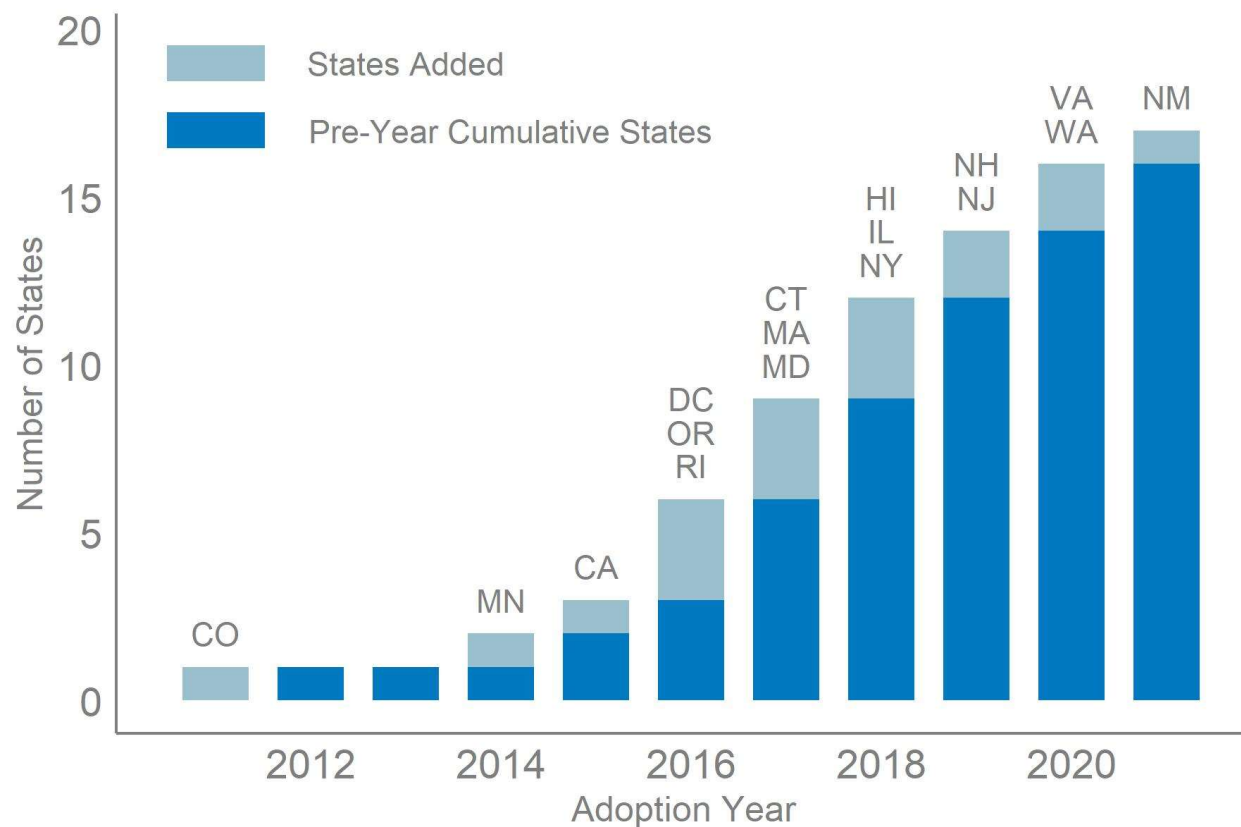
**Estimated Annual Achievable Savings of Deployed
Community Solar Capacity (\$mil per year)**



Notes: Achievable bill savings is calculated by finding the net present value (NPV) of residential community solar subscription contracts based on the assumptions and methodology developed in NREL's *Sharing the Sun* project. NPV of subscriptions are averaged for each utility, and where insufficient data is available, the state average NPV is used. Average NPV's are then converted to an annuity equivalent over 20 years (the constant revenue that would produce the same NPV). Annuity equivalents are then multiplied by project capacity (available to all rate classes). The three scenarios shown (base, low, high) assume an annual retail rate escalation factor of 2.5% (base), 1.5% (low), 3.5% (high); real discount rate of 8.4% (base), 6.4% (low), 4.4% (high); and an annual solar PV degradation rate of 0.5% (base), 0.75% (low), 0.30% (high).

**Seventeen states
and Washington,
D.C. have low- and-
moderate-income
community solar
provisions**

Delaware was the latest
state to adopt new LMI
provisions

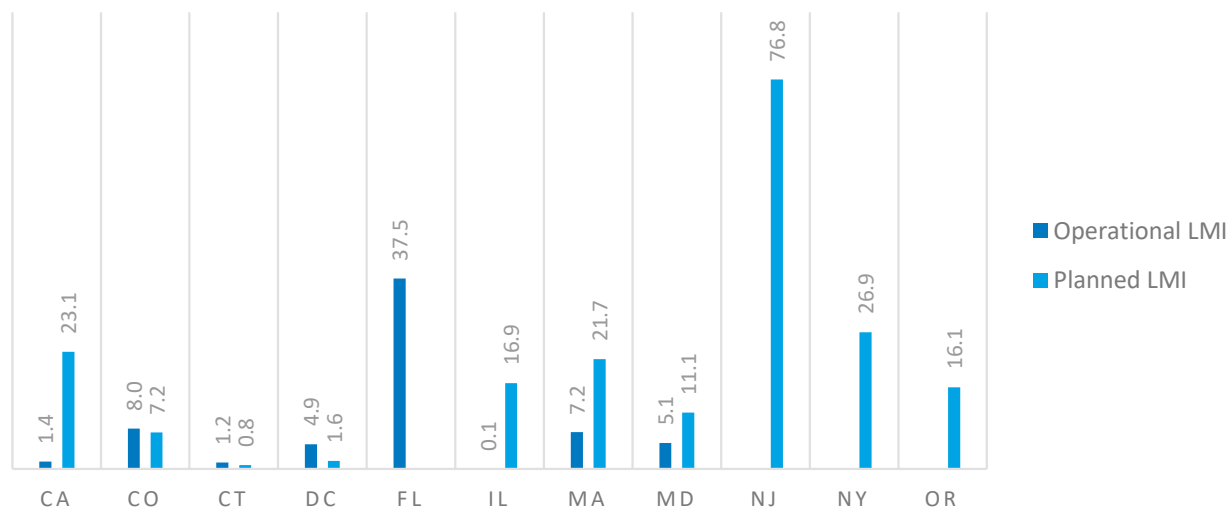


State-level LMI community solar legislation

Note: States may have multiple LMI community solar programs

**At least 65 MW-AC
of installed capacity
dedicated to LMI
subscribers.
An additional 202
MW-AC are in
planning stages.**

LMI COMMUNITY SOLAR (MW-AC)

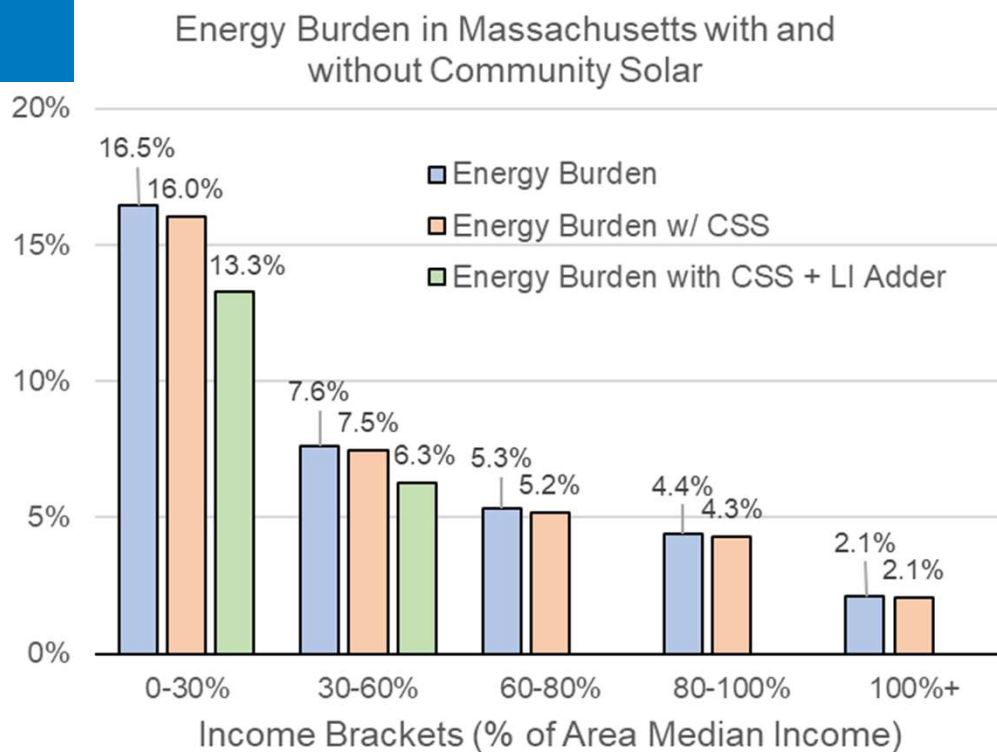


Source: NREL, unpublished

- Using a 4 kW subscription size, we estimate installed LMI community solar programs are benefiting more than 16,000 LMI households (65 MW/4 kW)
- When all 202 MW of pending LMI capacity comes online, then there would be 267 MW, serving 66,750 estimated LMI households.

Net Present Value of Community Solar in Massachusetts

- The average community shared solar subscription in Massachusetts has a net present value (NPV) of \$0.15/W
- Translated to an annuity equivalent, the average subscription yields a benefit of ~\$14/kw·yr
- To cover 100% of average electric load, the average community solar subscription reduced energy burden by ~0.5 percentage points for the lowest income bracket
- Including the MA \$0.06/kWh low-income adder to the average subscription, community solar reduces energy burden for the lowest income bracket by ~3.2 percentage points



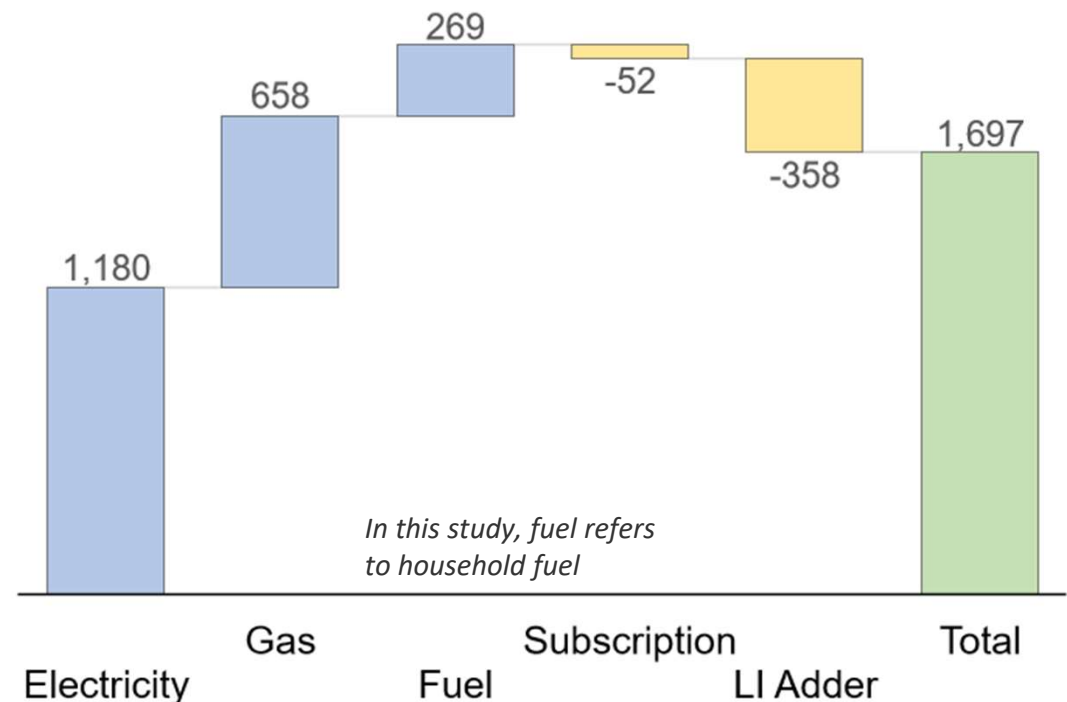
Additional data sources: DOE [LEAD tool](#), EIA-861. Energy burden is shown for the first-year of a subscription with community solar benefits shown as an annuity equivalent with a 7% discount rate. The [MA low-income adder](#) is available to projects with >50% of offtake to subscribers below 65% state median income

Note: Energy burden is defined as the percentage of gross household income spent on energy costs, inclusive of electricity, natural gas, and delivered fuels and exclusive of transportation

2.2 Example: Impact of Adder on Low-Income Bills in Massachusetts

- MA households below 30% of area median income (AMI) have average annual energy expenditures of \$2,107, including \$1,180 in electricity expenditures
- The average community solar subscription that covers 100% of electricity usage reduces ~\$52/year for low-income subscribers
- If subscriptions are from a project eligible for the \$0.06/kWh low-income adder, there is an additional average benefit of ~\$358/year
- The average subscription with the LI adder reduces average energy costs for low-income customers to \$1,697 (~19% reduction) and average electricity costs to \$770 (~35% reduction)

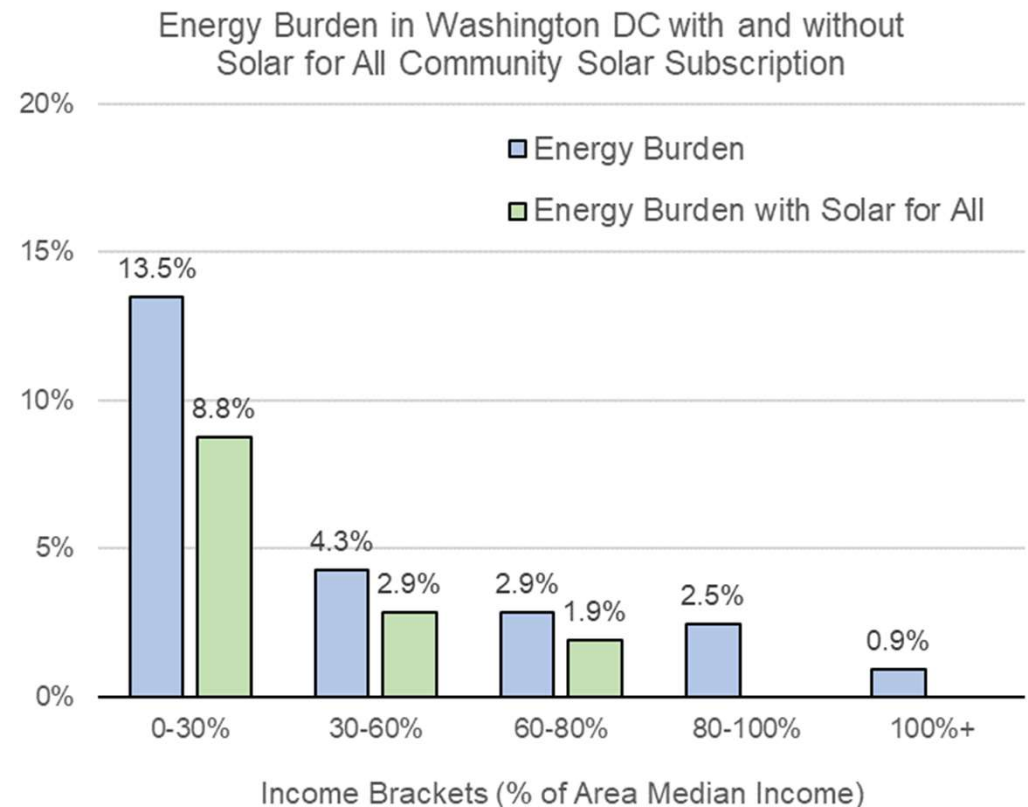
Annual Energy Expenditures: MA Household <30% AMI



Note: Fuel types are determined based on the [LEAD Tool](#). Monthly housing energy costs are based on household monthly expenditures for electricity, gas (utility and bottled), and other fuels (including fuel oil, wood, etc.) NREL | 11

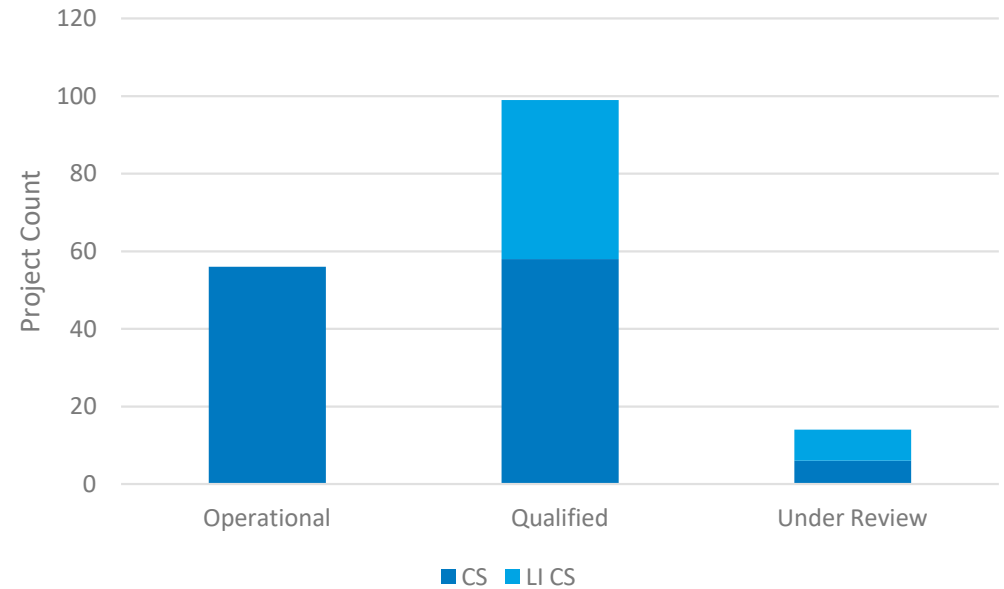
Impact of Solar for All in Washington, D.C.

- Washington, D.C.'s Solar for All Program offers free community solar subscriptions to households below 80% of AMI
- Subscriptions are set to offset approximately 50% of electricity bills
- Solar for All subscriptions reduce energy burden for the lowest income households from 13.5% to 8.8%



Value of subscriptions assumes subscriptions reduce 50% of annual electricity costs

- Under the Massachusetts SMART program:
 - 56 community solar + storage projects were **operational** as of March 2022; 23 of those projects came online in 2021 alone (none in 2022 yet)
 - An additional 99 community solar + storage projects have **qualified** for the SMART incentive
 - 41 of those projects are qualifying for the low-income adder (LI CS)
- 50 community solar and storage projects are expected to come online in New York; the [first project](#) came online in September 2020.



Source: <https://www.mass.gov/doc/smart-qualified-units-0>

Massachusetts and New York are incentivizing paired community solar and storage