



SEARCH

**REGLOBAL**

Analysis and perspective for CXOs

[Mega Trends & Analysis](#) [Opinion & Perspective](#) [Interviews](#) [Policy Watch](#) [Big Moves](#) [Tech Talk](#) [News](#)[Finance](#) [Webinars & Videos](#) [Knowledge Centre](#) ▾

State-Level Energy Storage Incentives in the US

May 6, 2024 | Finance



This is an extract from a recent issue brief “Energy Storage Incentive Rate Setting for States” prepared by Clean Energy Group and Clean Energy States Alliance. This extract focuses on several key topics for the US states to consider as they develop or update battery storage programs and incentives.

Types Of Incentives

The energy storage incentive programs considered in this report fall into three categories:

1. Rebates (payment for installing storage)
2. Performance incentives (payment for storage services provided to a utility or grid operator)
3. Combined rebates and performance incentives (an up-front payment for installing storage coupled with ongoing, periodic payment for storage services)

Various other program elements, such as low- or no-cost financing and on-bill payment options, have been used in combination with these incentive structures to support equity goals and income-eligible participation in some states. In addition, there are other types of energy storage incentives that have been tried. For example, storage may be added to existing renewable programs, such as solar incentive programs, or be made eligible for market-based programs such as utility renewable portfolio standards (RPS). Some pilot programs have even proposed giving free batteries to low-income customers. Because of the difficulty of making these other types of programs comparable to more straightforward incentives, they are not included in the comparisons for this report.

Incentive Rates and Comparisons

This report provides an incentive rate comparison of several similarly structured state energy storage incentive programs. Comparable programs considered for this report include the Connecticut Energy Storage Solutions program, the Massachusetts and Rhode Island Connected Solutions programs, the California SGIP program, and the New York Bridge Incentive Program.

Comparing the program structures and rates from these state energy storage programs yields the following conclusions:

- State energy storage incentive programs vary greatly in both program structures and incentive rates. The differences in structure—for example, rebates vs performance payments—make it very difficult to make apples-to-apples comparisons from state to state.
- It is difficult to establish consistent parallels between rates and outcomes. For example, New York offers relatively low per-kWh incentive rates, but its programs are nearly fully subscribed. By contrast, Connecticut offers relatively high incentive rates but its residential program has been under-subscribed.
- Incentive rates alone do not convey a comprehensive economic story for energy storage in a state. For example, it is easier in some regions than in others for distributed storage to sell services into regional wholesale energy markets (and in non-ISO/RTO areas, wholesale energy markets may not even exist). Also, state energy storage incentive programs may be bolstered in some cases by other state or

utility programs (for example, in Massachusetts energy storage owners may enroll in the ConnectedSolutions program while simultaneously benefitting from SMART solar+ storage incentives and Clean Peak Standard credits).

- While cost savings and revenues are significant drivers of program uptake, they are not the only drivers. For example, studies have shown that for a majority of residential customers, back-up power is the primary motivation for purchasing a battery storage system.
- A range of barriers may significantly reduce program uptake, even where incentive rates are relatively high. These can include interconnection-related costs and delays, supply chain related costs and delays, permitting and siting barriers, exclusive wholesale energy market rules, a lack of low-cost financing for energy storage systems, ineffective program marketing, regulatory barriers, utility opposition and other barriers.
- Similarly, program uptake may be enhanced by factors unrelated to incentive rates, such as supportive utilities, storage-friendly regulations, effective marketing, active third-party developers and aggregators, and the availability of low- or no-cost financing.
- Despite all these variables, numerous studies as well as experience have shown that until energy markets mature, battery prices fall, and currently non-monetizable energy storage services become monetizable, state incentives are a necessary and critical key to increasing distributed storage deployment. Very few states have seen significant BTM energy storage uptake in the absence of incentive programs.
- At the time of this report, average residential/small commercial energy storage incentive rates for the state programs examined ranged from \$350/kWh to \$1,333.33/kWh, with a mean rate of \$805/kWh.
- State policymakers should consider combined up-front and performance-based incentives.
- Low/no-cost financing should be considered, especially for income-qualifying customers. While many energy storage developers offer financing, it can be helpful for the state to provide public financing options that can be marketed to income-qualified customers and historically underserved communities (for example, low- or no-interest loans that do not require high credit scores to qualify).
- Developers and aggregators can be very helpful in enrolling customers into state incentive programs. Aggregators can help market the program, provide financing services to customers, offer leasing options, and may also offer combined solar+storage systems to customers.
- Equity provisions should be considered during the program development phase, rather than after programs are established. The authors recommend that states seek stakeholder input from community-based organisations that focus on environmental and energy justice. Further discussion of equity provisions follows.

Equity in State Energy Storage Incentive Programs

In order to achieve an equitable outcome, it is important to consider equity goals and provisions when developing state energy storage incentive programs. As is often the case when new, clean energy technologies enter the market, those communities most in need of energy storage benefits are typically the communities that will find it hardest to access these benefits. For this reason, states are increasingly prioritising equity considerations when developing storage incentive programs. Although this may seem challenging from an economic perspective, examples of successful energy storage equity programs do exist, and best practices are beginning to emerge.

Examples of energy storage equity provisions include the following:

- **Justice40 commitment/Carve-out.** Typically, a carve-out is necessary to ensure historically overburdened communities and income-eligible customers can participate in energy storage incentive programs. When sizing a carve-out, states may wish to consider adopting the Justice40 standard as recommended by the federal government.
- **Adders for income-eligible participants and commercial entities serving historically underserved communities.** Because a carve-out by itself is not sufficient to overcome the additional cost and risk barriers associated with equity projects, the authors recommend both a reserved capacity block and an additional incentive adder for historically underserved communities.
- **Front-loaded incentive payments for income-eligible participants.** The initial cost barrier to an energy storage project can be difficult or impossible to overcome for lower income communities, even with the promise of later payments or revenues; in addition, financiers often view future payments as riskier and of lower value than present payments. For these reasons the authors recommend fixed incentives/rebates be provided to equity projects up front and in full, and/or that a separate up-front equity incentive is provided to reduce the initial cost barrier.
- **Pre-development technical assistance to determine technical and economic feasibility and project optimization.** Grants for pre-development technical assistance allow equity projects to obtain technical-economic analysis which can help determine the feasibility of the project, as well as providing guidance on optimal system design, ownership structures and other key questions.
- **Optional on-bill financing.** This option can be useful for some equity customers and should be considered in combination with other financing options.
- **Community benefits requirement.** In order to support equity goals, energy storage projects must provide real benefits to the community in which the project is located and for the people it serves. The developers of equity energy storage projects should be required to demonstrate these benefits in their plans and confirm these benefits after projects are complete. Note that all benefits need not be monetary: increased energy independence, critical facility resilience, increased deployment of distributed solar PV, resilience for medically vulnerable/electricity-dependent households, workforce development and the retirement of polluting fossil fuel generators are examples of non-monetary benefits that may be important to local communities.

- Incentives for owned and leased systems. Owning clean energy resources increases property values and can provide important benefits related to energy independence. On the other hand, battery leasing programs will likely play a significant role in scaling up distributed energy resources in markets where they are available and can be an important option for some customers. To provide the broadest set of options and make battery storage widely accessible, incentives should be offered for both owned and leased systems as well as other models, such as power purchase agreements and community storage models, that satisfy equity requirements.

Commercial vs. Residential Battery Incentives

When setting incentive rates, a question that commonly arises is whether to offer the same incentive rate to commercial and residential customers, or whether to offer different rates based on system size and/or ownership. On a cost basis, there is a large difference between residential batteries and commercial batteries, with the residential systems being significantly more expensive per kilowatt. In addition to the lower per-unit cost for larger batteries due to economies of scale, commercial customers typically have a larger array of value streams available to them. For example, commercial customers can often realize energy cost savings through demand charge management and may be able to enroll larger batteries into utility demand response and/or wholesale energy market programs.

By contrast, residential customers frequently cite resilience as their primary motivation for purchasing a battery, and they typically have few opportunities to monetize battery services, unless through a state- or utility-based performance incentive program. Residential customers may also have trouble monetizing the full value of federal energy storage tax incentives. All this would argue for higher per-unit incentives for residential customers as compared with commercial customers. And in fact, many state incentive programs offer higher rates for residential and small commercial systems, and lower rates for large commercial/industrial systems.

Note, however, that residential customers often enjoy relatively low soft costs, because residential systems are fully commoditized and often come bundled with PV and related products such as financing and warranties. By contrast, commercial and larger systems are typically designed to order for a specific site and optimised for specific applications. This entails project-specific design and engineering costs that are not borne by residential customers. Furthermore, larger commercial systems may require dedicated staff time for dispatch and maintenance; and larger systems are more frequently subject to expensive and time-consuming interconnection studies and associated grid upgrade costs.

Access the complete brief [here](#)