

Mainstreaming Renewables

Description:

As the renewable energy industry has matured, technology has improved, and global production of generating equipment has increased. Renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). A 2019 Bloomberg New Energy Finance [report](#) predicts that renewable resources will generate at least 60% of total global electricity and 43% of U.S. electricity by 2050. With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices. For these reasons, it is in the interest of policymakers to ensure that their states are well positioned to benefit from the transition to clean energy resources.

Discussion of the Policy:

To reduce barriers to customer and utility participation in the renewable energy market, policymakers might consider several options.

Customer-Oriented Policies

1. **Interconnection** – Interconnection is the process of “plugging renewable energy systems into” the grid. Interconnection standards apply to both customer-sited and utility-scale systems; however, the focus of most interconnection standards are customer-sited systems. Generally, customers want a clear, streamlined, affordable, and predictable system for connecting to the grid. Without clear interconnection standards, the process customers must follow can be burdensome and expensive.
2. **Net metering** – Net metering is one of the most important renewable energy policy tools for supporting distributed generation (DG) – electricity generation near the user, such as rooftop solar panels, instead of centralized generation from power plants. [Net Metering](#) allows customers to produce onsite electricity and sell excess generation to the utility at a set credit per kilowatt hour (kWh), which creates an incentive for private investment in DG. With net metering, power customers are billed only for the “net” power consumed over their generation, while they are credited for excess electricity delivered to the grid. Net metering arrangements not only allow the grid to operate like a battery for the customer, but they also contribute clean generation to the energy mix. A key provision of net metering is that the customer is not “paid” for power, but “credited” against their use. This is important for tax reasons, as revenue to a customer is taxable, while crediting for power is not. Net metering policies can apply only to generation that is produced on the customer-side of a single meter (like a solar panel); however, for customers like agricultural facilities, there may be multiple meters serving multiple loads and systems generating electricity at multiple sites. For these customers, aggregated net metering policies allow credit to be applied using aggregated generation and demand.
3. **Streamlined permitting** – For DG, “soft costs,” including permitting expenses for installers, can drive up costs for consumers to connect renewable energy projects to the grid. Streamlining this process can save costs and reduce time for both installers and consumers. Installation of renewable energy systems requires interconnection to the grid and engineering and installation of electrical components. As a result, there are important permitting steps that need to be followed to ensure safety. As the industry has matured, some standard systems have become established. These enable a streamlined permitting process and cost savings to participants. States might consider establishing either statewide standards for streamlined permitting processes, or resources to support local governments that voluntarily implement a streamlined program. States and communities interested in developing streamlined processes should consult utilities and other stakeholders

to ensure that appropriate safety standards will continue to be met. State financial incentives, including tax credits or loans, can be tied to systems that are established within a designated streamlined permitting jurisdiction.

4. **Shared Renewables** – Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies where they live or work. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the project or the generation provided by the system. Shared renewable programs rely on “virtual net metering” where shared systems are off-site from the customer, but the customer receives credits from the shared system as if it were on site. Virtual net metering is different from a power purchase agreement (PPA), which pays the customer for the proportion of power they produce. Because virtual net metering is treated as a credit on the customer’s bill, the customer can avoid the tax implications of a PPA payment - which can adversely affect the economics of the system and may come as a surprise to the participant.
5. **Corporate Procurement** – Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy and are signing large renewable energy contracts with utilities and other suppliers to meet these targets. The [Corporate Renewable Energy Buyers’ Principles](#), a list of principles developed by seventy corporate signatories, provides a framework for what multinational companies need when buying renewable energy from the grid. States can include corporate renewable purchase commitments in integrated resource or other long-term plans that utilities submit to regulators to plan for resource needs, over multiple decades. By integrating these renewable purchase commitments into the planning process, regulators can avoid over-building resources and stranding generation assets.

Utility-Oriented Policies

6. **Accelerating and Amending Renewable Portfolio Standards:** One of the oldest and most successful advanced energy policy tools, renewable portfolio standards (RPSs) usually set a target for a specific percentage of renewable electric generation to be achieved by a specific date. While these policies have various target dates and percentages (for example 25% by 2025), states can revisit existing policies to increase targets and/or accelerate target dates to spur the development of renewable resources, to save ratepayers money. Additionally, states might add one or more carve-outs to further incentivize the development of DG.
7. **Emissions Standards:** As the next step in a progression from successful RPSs, states can consider adopting an emissions standard. These standards are designed to drive emission reductions either through 1) a carbon portfolio standard or 2) a market-based approach. Both types of approaches can take a technology neutral stance that drives emissions down with a combination of renewables, traditional fuels, efficiency, and technological advances. These policies can also address other concerns such as pollution, asthma risk, environmental justice, and water use. A portfolio emissions standard sets emissions reduction targets to be achieved over time. This can be implemented through the utility planning process or by establishing a maximum allowable rate of emissions per unit.

Market-based approaches can take the form of an emissions trading regime or a tax. Under a market-based approach, a state or a group of states might set a certain emissions reduction target, for example, 40% below 1990 levels by 2030. This reduction is achieved by the distribution of annual emission allowances that decrease over time until the goal is met. Allowances can be bought and sold on a market that allows utilities and other emitting firms flexibility in reaching total emissions goals. Revenue generated by these markets can be used to support the development of renewable energy, energy storage, and energy efficiency programs. There are emissions trading markets in operation today that states can join. The other pathway to reaching emissions targets is through a tax on fossil fuel use that can be used to generate revenue to fund emissions reductions policies and technologies and to incentivize the reduction of emissions over time. One of the advantages of a market-based program is that these are designed to reduce emissions in the most economically efficient manner possible.

8. **Clean Peak Standards:** Clean peak standards aim to increase the share of clean energy resources in use during peak demand and reduce energy bills over time. These goals can be met through:
- planning and procurement requirements that focus on peak demand,
 - moratoriums on the construction of new peaking units,
 - phasing out existing units,
 - incentives – including carve-outs in states with RPSs – for clean energy resources delivered during peak times, and/or,
 - establishing a new clean peak standard that sets a target for clean energy deliveries during peak times.

In combination, these initiatives can increase available clean energy for dispatch during peak hours, reduce peak demand, and increase efficiency, all while reducing energy bills for consumers.

Example State Programs:

States, local governments, and electric utilities offer a variety of incentives to support the process of mainstreaming renewables.

- Net Metering: [California Program](#)
- Streamlined permitting: [SolSmart Program](#)
- Shared Renewables: [Colorado's Low-Income Community Shared Solar Project](#)
- Emissions Standards:
 - [California Emissions Standards](#)
 - [Regional Greenhouse Gas Initiative](#)

More Information:

- Interconnection: [IREC Model Interconnection Procedures](#)
- Clean Peak Standards: [Strategen Report on Clean Peak Standards](#)
- Corporate Procurement:
 - [Energy Sage. Corporate Renewable Energy Procurement: An Overview](#)
 - [The Business Renewables Center](#)

For additional information on this topic, please review the *Clean Energy Policy Guide for State Legislatures*, specifically Chapters 1, 4, and 6, available at: <http://cnee.colostate.edu/cleanenergypolicyguide/>

This information is also available on the Clean Energy Legislative Academy Resources page at: <http://cnee.colostate.edu/academyresources/>