



# State Clean Energy Standards: Designing Programs for Effective Emission Reductions

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## Overview

State Clean Energy Standards (CES) set requirements for electricity sold by utilities in terms of either a percentage of carbon-free energy or greenhouse gas (GHG) emissions, or emissions reductions. CES programs represent a new approach and recent evolution of traditional renewable portfolio standard (RPS) programs, which focus on renewable energy rather than emissions outcomes specifically. CES policies can play a pivotal role in achieving climate and sustainable energy goals in the United States. Among the critical components of CES program design is the use of renewable energy certificates (RECs) to accurately account for zero-emissions generation from renewable resources.

This brief provides information for state public utility commissioners and their staff, outlining the critical role of RECs in the implementation of CES programs and policy recommendations for maximizing their effectiveness.

## What is “Load-based” Accounting?

Load-based accounting measures the emissions or fuel-source attributes of electricity that is consumed by or sold to electricity customers in the state. Unlike “source-based” accounting, which measures emissions at the generation source, load-based accounting focuses on allocating emissions or clean energy attributes to the end-user, as these attributes are not physically delivered through the grid. This means it relies on tracking mechanisms such as electricity contracts and RECs for allocation, and to ensure accuracy, prevent double counting, and align regulatory and voluntary markets for clean electricity.

## What are Renewable Energy Certificates (RECs)?

RECs are accounting instruments that represent the environmental attributes—including the fuel source and emissions—of one megawatt-hour (MWh) of renewable electricity generated and delivered to the grid. They provide the means to differentiate and track renewable electricity generation on the grid and allocate it to load. When utilities or other entities purchase RECs, they acquire the legal and verifiable right to claim the environmental attributes of renewable energy generation.<sup>1</sup> RECs are the cornerstone of renewable energy programs, ensuring transparency, verifiability, accurate accounting, and impact incremental to other programs.

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<sup>1</sup> CRS. 2023. *The Legal Basis for Renewable Energy Certificates*. v2.0. Available at: <https://resource-solutions.org/wpcontent/uploads/2015/07/The-Legal-Basis-for-RECs.pdf>.

## The Role of RECs in Load-Based Accounting

The emissions from electricity generation are determined by the fuel source or resource type (e.g., wind, coal, solar, gas, etc.). Emissions and resource type cannot be separated in terms of regulating either in-state generation or in-state consumption. Since RECs track and account for renewable energy use and delivery, they must also be used for renewable energy in load-based emissions programs, like state CES programs. Although RECs are commonly viewed as renewable energy tracking instruments, they represent all environmental attributes, including both fuel type and associated emissions. RECs appropriately convey these attributes for load-based emissions accounting programs. They prevent double counting of zero-emitting generation with neighboring states and voluntary programs, ensure the program's impact on regional clean energy and emissions, and support complementary markets and programs.

## How do RECs Support State CES programs?

1. **Verification and Compliance:** RECs are a verification instrument and a standardized mechanism for tracking renewable energy delivery and consumption. They serve as the definitive proof of renewable energy generation and support a legal retail GHG claim in the state, allowing utilities to claim and report the environmental benefits of electricity sourced from renewable technologies on behalf of their customers in a verifiable way.
2. **Preventing Double Counting:** States should require that renewable energy allocated to an LSE within CAISO's or SPP's frameworks may only count towards clean energy goals if the LSE holds the associated or equivalent RECs associated with generation in the market. This requirement would align state clean energy standards with market operations and prevent double counting.
3. **Harmonizing Accounting Frameworks:** Consistent load-based accounting of emissions and renewable energy with RECs ensures consistency across programs and regions. Emissions allocated to load should match the renewable fuel type, avoiding discrepancies and inefficiencies.
4. **Integration with Existing or Emerging Wholesale Electricity Markets:** Centralized wholesale electricity markets can coexist with load-based policies that use RECs to track emissions from renewable resources. States with load-based programs requiring the delivery of specified power and attributes create challenges for organized wholesale markets. By requiring RECs, states can align CES programs with market operations, support market efficiency, and prevent the development of inconsistent alternative tracking methods.
5. **Program Cost and Market Efficiency:** By enabling trading and flexible procurement strategies, RECs enhance market efficiency and lower compliance costs. Bundled (electricity and REC together) and unbundled (separate REC) compliance options allow utilities to meet clean energy requirements cost-effectively.
6. **Enhancing Voluntary Action and Private Investment:** Load-based accounting integrates seamlessly with the existing and growing voluntary renewable energy market, a key driver of clean energy development. The voluntary market relies on RECs to verify renewable energy claims. For instance, businesses and consumers purchasing RECs to meet their sustainability goals help bolster renewable energy demand. CES programs use RECs to identify voluntary renewable energy and foster private-sector investment by allowing voluntary demand to build on CES efforts.

## Policy Recommendations

- 1. Require REC retirement for renewable energy used for CES compliance:** To avoid double counting, ensure exclusive emissions claims for the state, and ensure that emissions reductions align with renewable energy claims, states should require that renewable energy may only be counted towards CES compliance if the associated RECs are retired.
- 2. Exclude the voluntary market from compliance:** Ensure CES frameworks recognize and preserve the integrity of voluntary renewable energy markets, which are critical for attracting private investment. States should not allow RECs sold to and purchased by voluntary buyers (e.g., through utility voluntary green power programs) to be counted toward CES compliance. This will preserve the impact of the voluntary market and sustain voluntary demand and investment in clean energy in the state.
- 3. Enhance REC tracking systems:** The development of all-generation certificate tracking systems would expand the scope of REC systems and their benefits to include all fuel types, enabling comprehensive emissions accounting. New England and the Mid-Atlantic regions are already served by comprehensive, all-generation certificate tracking systems. These systems provide states with the most sophisticated data related to electricity generation and use.
- 4. Promote regional coordination:** States should collaborate to harmonize CES implementation and REC systems across regions, leveraging shared resources to minimize costs and administrative burdens.
- 5. Support coordination between wholesale markets and REC tracking systems:** Advocate for wholesale market operators to share their market data, including GHG attribution data, with the regional REC tracking system, and for the REC system to integrate this data. This would provide states with the information needed to preserve exclusive retail claims.

## Conclusion

RECs are an important component of any effective CES program. By enabling transparent and verifiable tracking of renewable energy and associated emissions, RECs support compliance, regional consistency, market efficiency, and private investment. State public utility commissions should prioritize REC integration into CES and load-based accounting frameworks to ensure program credibility and achievement of state climate and sustainable energy goals.

## Further Reading

- CRS. 2022. *Guide to Electricity Sector Greenhouse Gas Emissions Totals*. Available at: <https://resource-solutions.org/wp-content/uploads/2022/11/Guide-to-Electricity-SectorGreenhouse-Gas-Emissions-Totals.pdf>.
- Jones, T. 2017. *Two Markets, Overlapping Goals: Exploring The Intersection of RPS and Voluntary Markets for Renewable Energy in the U.S.* Clean Energy States Alliance. Available at: <https://resource-solutions.org/wp-content/uploads/2017/08/RPS-and-Voluntary-Markets.pdf>.