

2019 Rhode Island Greenhouse Gas Emissions Inventory

Updates to Electricity Sector GHG Accounting

The *2016 Rhode Island Greenhouse Gas Emissions Inventory* was published in December 2019 and included a new methodology to estimate GHG emissions from electricity consumption. Originally developed by the Massachusetts Department of Environmental Protection (MassDEP), the new methodology was a significant improvement over the Environmental Protection Agency’s (EPA) State Inventory Tool. In ongoing efforts to improve the GHG emissions inventory, we aligned our electricity sector accounting practices with the Connecticut Department of Energy and Environmental Protection (CTDEEP). After extensive review and sensitivity analysis, this improvement ensures all renewable energy certificates (RECs) are used to calculate GHG emissions. For more information about RECs, visit the EPA’s [website](#).

Background on the Original Methodology

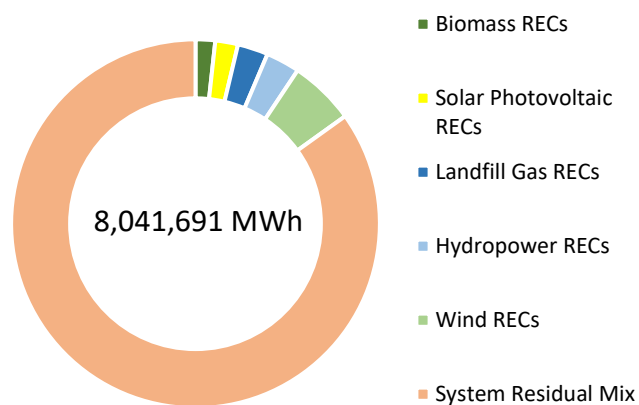
MassDEP’s original methodology can be simplified in three steps:

1. Analyze megawatt hours of electricity from **energy certificates**.
2. Analyze megawatt hours of electricity from **electric generation**.
3. Omit overlapping megawatt hours and calculate emissions for a total.

Each state has an electric power load, which is a unique combination of electricity served by two components. Energy certificates, colloquially known as RECs, are the first component. Each REC represents one megawatt hour of electricity that is claimed by a state/province. The second component of the load is the system mix, which includes electricity from a plethora of generators in New England and New York.

First, megawatt hours served by RECs in New England are gathered from the New England Power Pool Generation Information System (NEPOOL-GIS). Next, megawatt hours served by the system mix in New England and New York are collected from the U.S. Energy Information Administration. The regional system mix is used to obtain a unique emissions factor for New England. Since the regional system mix captures every megawatt hour on the grid, there will be double counting if REC and system mix megawatt hours overlap. Thus, system mix megawatt hours from NEPOOL-GIS are omitted from each state’s load served by RECs. Rhode Island’s load served by RECs is subtracted from the state’s overall load to obtain the state’s load served by the system mix. Finally, the New

Sources of Megawatt Hours for R.I. Electricity Consumption



* Megawatt hours generated from wood RECs and digester gas RECs are too small to appear on this chart.

Quantitative estimates may be subject to change. Annual inventories allow the Department to track progress towards Act on Climate mandates but are not considered official until published in a triennial summary.

England emission factor is then multiplied by Rhode Island’s load served by the system mix to obtain a statewide emission total.

Explanation of Adopted Updates

In October 2021, CTDEEP proposed an amendment to the original methodology that more accurately reflects where RECs are settled. In the original methodology, RECs were pooled into a hypothetical “bank” and apportioned to states based on load size. Based on this, the New England state with the largest load size would receive the largest share of RECs. CTDEEP observed this trend annually based on how RECs were assigned.

The State of Connecticut previously agreed to settle a higher quantity of RECs from the Millstone Nuclear Power Station. For all Millstone RECs to appear in Connecticut’s electric sector, the updated methodology would need to ensure all Millstone RECs were counted only in Connecticut. CTDEEP’s update certifies that **all RECs that are settled or reserved in the state they are assigned to and are counted in that state only**. There is no REC “bank” and no apportioning of RECs based on an individual state’s load size. RECs are simply counted towards the state they are settled or reserved in. Additionally, CTDEEP revised how the regional system mix is applied to each state’s emissions estimate.

Impact on Rhode Island’s Electricity Sector Emissions

The adoption of CTDEEP’s methodology update significantly impacts electricity sector emissions:

	2018	2019 ¹	Estimated % Difference
Original MassDEP Methodology	3.34 MMTCO ₂ e	-	-7%
New CTDEEP Methodology	2.33 MMTCO ₂ e	-	-12%
Estimated % Difference	-30%	-34%	

¹ 2019 GHG estimates will be released in the 2019 Rhode Island Greenhouse Gas Emissions Inventory.

The year-over-year decrease in Rhode Island’s electric sector emissions is attributed to the following:

1. Electric sector emissions *trended downward in 2019*, regardless of which methodology was used. CTDEEP observed a similar trend.
2. The new methodology certifies that *all RI RECs are explicitly counted as “settled”* in Rhode Island. Since REC emissions are lower than system mix emissions, overall emissions decreased.
3. Emissions decreased because CTDEEP adjusted how the regional system mix is applied to states.

Conclusion

The adoption of CTDEEP’s update corrects several shortcomings with the original MassDEP methodology. Most importantly, all RECs settled in Rhode Island are now correctly counted towards the state’s electric sector. Improvements will continue in the future, with biogenic fuel types a notable area of focus. The current methodology uses tailpipe emission factors, which count biogenic emissions (biomass, wood, etc.) higher than non-biogenic emissions (natural gas, coal, etc.). Until biogenic emissions are accounted for in the Land Use, Land Use Change, and Forestry (LULUCF) sector, the current methodology will not count net-zero electric sector emissions in 2033. We will continue to work with partners at CTDEEP and the U.S. Climate Alliance’s *net-zero initiative* on biogenic emission accounting.

Public Comment Period

Comments on updates to electricity sector accounting practices will be received through **October 31, 2022** and may be submitted [here](#) or directly to:

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Feedback on whether to incorporate this updated methodology in previous inventories is specifically appreciated. One benefit of revising previous inventories is a more accurate depiction of GHG emissions over time. Conversely, revising previous inventories is time consuming for DEM staff.