



Northeast Regional Energy Efficiency Database (REED) 2021 data update (fiscal year 2023)

September 2024

The U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy (DOE), prepared this report. By law, our data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. Government. The views in this report do not represent those of DOE or any other federal agencies.

Northeast Regional Energy Efficiency Database (REED) 2021 data update

Electric and natural gas utilities and state energy efficiency (EE) organizations offer incentives that are an important component of evolving state and local EE policies. To understand how these incentives affect energy consumption and technology choices in buildings, we incorporate nonfederal EE incentives for a variety of end-use technologies into our [National Energy Modeling System's \(NEMS\) Residential Demand Module \(RDM\)](#) and [Commercial Demand Module \(CDM\)](#). We use NEMS to produce long-term projections of energy use within the United States.

The RDM and CDM represent consumer choice among various energy-consuming equipment in buildings, ranging from technologies that meet federal minimum EE standards to more efficient alternatives. These modules subtract incentives (equipment subsidies or rebates) from installed costs for [equipment or appliances](#) that meet or exceed ENERGY STAR® specifications in their respective technology choice menus. This approach lowers the relative cost of high-efficiency equipment.

To enhance our representation of state and utility EE programs in NEMS, we contracted with the Northeast Energy Efficiency Partnerships (NEEP) to characterize these programs in the Northeast in fiscal year 2023. As part of this contract, NEEP updated its Regional Energy Efficiency Database (REED) to include 2021 incentive data for the District of Columbia and eleven states in the New England, Middle Atlantic, and South Atlantic Census Divisions. REED provides information on several metrics for energy efficiency programs, including:

- Annual and lifetime energy savings
- Peak demand savings
- Program expenditures
- The cost of saved energy
- Program funding sources
- Avoided CO2 emissions

REED incentive data are available to the public by request on NEEP's [REED website](#). As part of this contract, NEEP also updated the [Supporting Information](#) report. The report provides information about each state in the REED database, which now includes 2021 data. The report also provides details about program administrators and reporting procedures as well as evaluation, measurement, and verification practices. It also provides information about NEEP's energy savings assumptions and equations underlying the REED database.

NEEP highlights the [REED update key takeaways and trends in energy efficiency](#) as part of the [Regional Energy Data Dive](#) blog series.

You can cite the contract report as a report by the Northeast Energy Efficiency Partnerships (NEEP) prepared for the U.S. Energy Information Administration (EIA).

Appendix



To: U.S. Energy Information Administration (EIA)
Courtney Sourmehi
Erin Boedecker

From: Northeast Energy Efficiency Partnerships (NEEP)
Erin Cosgrove
Luke Miller

Date: August 1, 2024

Re: NEEP REED Project— Final Report

Introduction

The following is the final report of work NEEP completed for the Regional Energy Efficiency Database (REED) project for the U.S. Energy Information Administration (EIA) under Order Number 89303021PEI000086.

REED Program Year 2021 Data Collection

NEEP kicked off its data collection process by sending data requests to all parties that have previously completed data forms in past years of REED data collection. In addition to the 2021 data, NEEP gathered program year 2022 electric data from the New England states (these states are marked with an asterisk). NEEP reached out to the following 12 jurisdictions to obtain program year 2021 energy efficiency data:

- Connecticut*
- Delaware
- District of Columbia
- Maine*
- Maryland
- Massachusetts*
- New Hampshire*
- New Jersey
- New York
- Pennsylvania
- Rhode Island*
- Vermont*

In addition to reaching out to individual states, NEEP receives electric energy efficiency data for the New England states (Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut) from the Independent System Operator—New England (ISO-NE). ISO-NE collects annual program data to inform its annual Energy-Efficiency Forecast. NEEP has had a cooperative arrangement with ISO-NE since REED began in 2013.



Manual Data Collection

NEEP finalized its data collection process by manually collecting data from states and utilities. In these cases, data needed to be collected by NEEP because the parties did not respond to NEEP's data requests or directed NEEP to collect the data. This process included continuing data collection in the newer REED states, Pennsylvania and Delaware. We also had to manually collect data from the Burlington Electric Department because it no longer provides data to ISO-NE. Other states in which NEEP manually collected data are listed below with links to the data sources:

- Massachusetts natural gas programs: Massachusetts Energy Efficiency Advisory Council (MA EEAC) [Reporting Dashboards](#)
- Maine natural gas programs: [Efficiency Maine Annual Reports](#)
- Maryland electric and natural gas programs: annual program administrator reports available at Maryland Public Service Commission: [Case Number 9648 \(2021\)](#)
- New York electric and natural gas programs (New York State Energy Research and Development Authority [NYSERDA] Clean Energy Fund programs) and New York utility programs: Open New York and [New York State Clean Energy Dashboard](#)
- Pennsylvania electric programs: annual electric program administrator reports available on the [Act 129 website](#)
- Vermont Burlington Electric Department (BED) electric and fossil fuel programs: [BED Energy Efficiency Utility Annual Reports](#)

After collecting the program year 2021 data from each jurisdiction, we added the data to an Excel workbook that includes the REED program savings and expenditures data collected for program years 2011 through 2021. The workbook includes an Introduction worksheet that provides basic descriptions about the types of data included in the workbook and a comprehensive worksheet that contains the program-level data for all years and all states.

NEEP delivered final versions of the REED Workbook and [Supporting Information Report](#) to EIA. The final versions are available by request on NEEP's [REED web page](#).

Breaking Out Total Expenditures

Two of the jurisdictions covered in REED reporting—New York and the District of Columbia—both report total expenditures on all programs, not separated by electric spending versus fossil fuel spending. However, they do report savings by fuel type. New York reports savings split into electric, natural gas, and other fuels; whereas the District of Columbia reports just electric and natural gas savings. Because of this structure, NEEP has calculated an estimate of spending in each fuel category by multiplying the total program expenditures by the proportion of total savings in each fuel category.

Negative Values in REED

As in previous REED Workbooks, some states report negative values for some program expenditures and savings. Some of these negative values arise from interaction effects between changes in various energy



efficiency measures (for example, when inefficient lightbulbs are replaced with efficient LED lights, lightbulbs produce less waste heat, and the other heating sources, which may use fossil fuels, in the home must produce more heat). For this round of REED, the New York dataset contains negative values, and they may arise from similar interaction effects.

Improvements to REED Data

In addition to completing the data collection process, NEEP made various improvements to the REED preparation spreadsheet in the final REED Workbook. NEEP has built formulas into the internal REED Workbook preparation sheet that calculate emissions reduction data and transmission and distribution losses based on state-level emissions factors and transmission loss data from EIA (from [EIA's State Electricity Profiles](#)). The transmission loss data allows us to calculate generation-level savings by multiplying meter-level savings by (1+state T&D loss factor). The emissions factor data allows us to calculate avoided emissions information that is more accurate by multiplying megawatt hours of electricity saved times each pollutant (carbon dioxide, nitrogen oxides, and sulfur dioxide) emission factor. This calculation provides greater accuracy in reporting these data points than the previous ISO-level emissions factor and transmission and distribution loss factor data.

Supporting Information Report

NEEP also updated the REED [Supporting Information Report](#). This process involved updating existing information to reflect the 2021 and 2022 program years, where available, confirming the accuracy of state information in the report, and adding new information that provides helpful context for readers of the REED Workbook (for example, legislation concerning energy efficiency programs in more states). The Supporting Information Report also includes the updated EIA state-level emissions factors and transmission and distribution loss factors. NEEP also updated numerous links to ensure the Supporting Information Report links to the most current state data. We have streamlined the presentation and delivery of the information in the state pages within the report; we standardized the names and headings to convey consistent information on all included states and their respective energy efficiency programs. Each section contains the following information:

- Program administrators
 - Funding sources for energy efficiency programs
 - Energy efficiency resource standards, where applicable
- Reporting or evaluation, measurement, and verification practices
- Key plans, reports, and savings assumptions
- Evaluation processes

REED Data Requests

As part of its contract, NEEP fields requests for the REED data and tracks data on the requestors, such as the reason for the request and organization they represent. Over the course of this REED cycle, the requesters have represented consultancies, energy efficiency program administrators, students, engineers, and other energy professionals. The requesters generally wanted to use the REED data for academic research on energy efficiency



programs and deepening their own analyses of energy efficiency programs for related work products. The total number of requests for REED data during this cycle was 11.

REED Blog Post

NEEP also [published a blog on the newly released REED Workbook](#), highlighting some examples of analysis that REED users can perform with the data. The blog aims to convey helpful use cases of the REED data to grow the REED user base and let others know that the new REED data is published and available. We also promoted this blog through our newsletters to NEEP allies and partners.