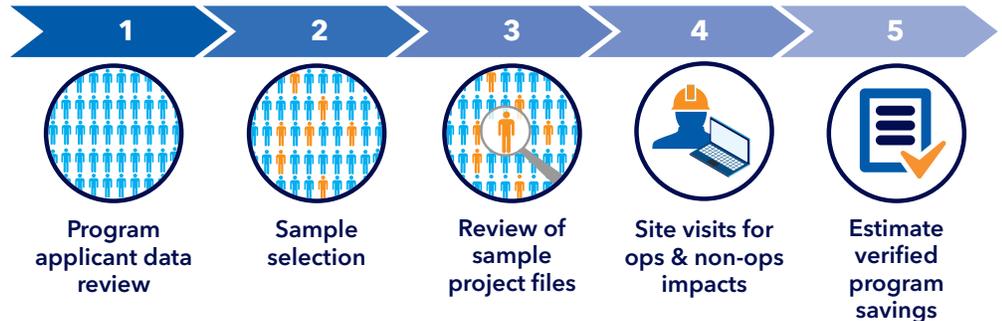


RHODE ISLAND ENERGY C&I CUSTOM ELECTRIC INSTALLATIONS IMPACT EVALUATION - 2023 PROGRAM YEAR

DNV quantified annual electric energy (kWh) savings for custom electric projects completed during the program year (PY) 2023. Those results were then used to calculate a three-year rolling average realization rate using results from PY2021, PY2022, and PY2023.

APPROACH

These projects generally use site-specific customized engineering analysis to generate savings rather than deemed savings estimates. Like the PY2022 study, this year's study calculated savings and realization rates (RR) for non-lighting projects only. This study also verified and re-estimated electric energy savings for the sample of projects through site-specific inspection, monitoring, and analysis. A total of 10 sites were evaluated from the PY2023 population with full M&V.



KEY TERMS

Full M&V evaluated site: A site that included both operational and non-operational impacts and involved on-site measurements using power, time-of-use meters, or validated trend data and measure verification.

Non-ops: The non-operational results, which include discrepancies from baseline, methodology, administrative, technology, and quantity adjustment factors.

Ops: The operational results, which include discrepancies from HVAC interaction and operation adjustment factors.

KEY FINDINGS

46.1M kWh annual energy savings (2021+2022+2023). The three-year rolling RR is 85.5% based on these individual results.

PY2021	PY2022	PY2023
RR 88.4% (n=10) 26.1M kWh savings	RR 78.3% (n=10) 13.9M kWh savings	RR 89.6% (n=10) 6.1M kWh savings

RECOMMENDATIONS

- This study's RI three-year rolling non-lighting (85.5%) realization rate results shall replace the previous realization rates used by RI Energy beginning in PY2026. RI Energy should continue using 95.4% (from the previous evaluation) RR for lighting. The results from this study should be combined with the next round of custom electric impact evaluation.
- DNV recommends that regressive baselines be well documented in applicant documentation, including in measure life determination and documents when exceptions are made, such as with previous program participation. In PY2023, three sites employed a regressive air compressor baseline. A regressive baseline is a baseline that uses a less efficient piece of equipment in the system it replaces to estimate savings.
- DNV recommends that all submittals and final as-built plans for building envelope measures (wall insulation, roof insulation, windows, doors) be included in project closeouts.
- DNV recommends that implementers verify the rated heating and cooling capacities of installed equipment and ensure that accurate equipment capacity values are used or adjusted in savings estimation tools. Additionally, implementers should perform a post-installation site-specific adjustment on calculation models with metered data as appropriate.
- DNV recommends RI Energy continue evaluating lifetime savings and reporting them at the site level in all future custom electric evaluations. A standard three-year rolling LSAF was calculated for the second time in this study (Year 4).
- DNV recommends that project implementers include a list in all savings analysis spreadsheets detailing the key assumptions and inputs used for the project savings analysis, and that they regularly review and update all baseline assumptions to reflect current Rhode Island Building Code and ASHRAE standards, especially for new construction projects or projects that use a standard calculator with code values ingrained in the calculator.

Installed measures

- Building shell
- HVAC
- Refrigeration
- Domestic hot water
- Energy recovery ventilator
- Process lighting
- Compressed air
- Transformers