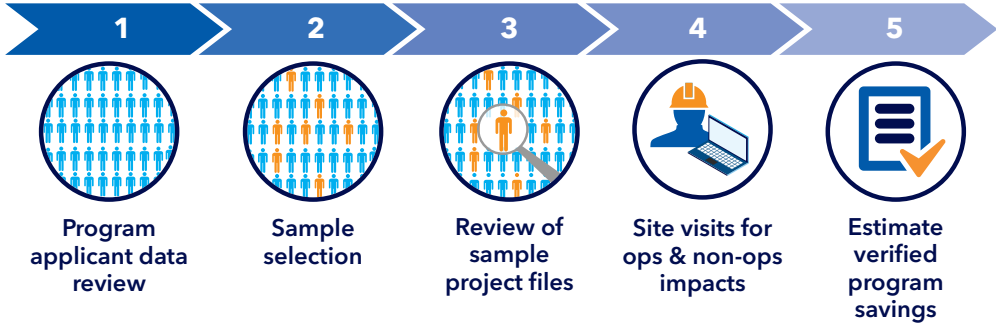


RHODE ISLAND ENERGY C&I CUSTOM ELECTRIC INSTALLATIONS IMPACT EVALUATION - 2022 PROGRAM YEAR

DNV quantified annual electric energy (kWh) savings for custom electric projects completed during the program year (PY) 2022. Those results were then used to calculate a three-year rolling average realization rate using results from PY2020, PY2021, and PY2022.

APPROACH

These projects generally use site-specific customized engineering analysis to generate savings rather than deemed savings estimates. Like the PY2021 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 PY2022 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

50.6M kWh annual energy savings (2020+2021+2022). Three-year rolling RR is 81.4% based on these individual results.

PY2020	PY2021	PY2022
RR 68.6% (n=15) 10.7M kWh savings	RR 88.4% (n=10) 26.1M kWh savings	RR 78.3% (n=10) 13.9M kWh savings

RECOMMENDATIONS

- This study's three-year rolling non-lighting (81.4%) realization rate results shall replace the previous RRs used by RI Energy beginning in PY2025. RI Energy should continue using a 95.4% (from the previous evaluation) RR for lighting.
- DNV recommends that advanced control measures that utilize custom express tools are reviewed carefully to utilize site-specific strategies.
- DNV recommends that RI Energy updates the 2014 National Grid Baseline document that was being used to implement projects in PY2022. DNV specifically recommends, for large ammonia refrigeration systems, updating the minimum condensing temperature from 65°F to 70°F and standardizing VFDs on evaporatively cooled condenser fans.
- DNV recommends that large retrofit projects reliant on pre-existing conditions include operational data to calibrate the pre-retrofit energy calculations. This can be done with power metering, trend data, or even VFD screen readouts.
- DNV recommends RIE update the savings estimates for cleaning condenser and evaporator coil measures through more rigorous review of ex-ante calculations or pre/post metering, including developing typical diversity factors of different grocery store refrigeration systems.
- DNV recommends updating the measure life of door gasket measures from five years to one year due to the high replacement rate of door gaskets. This is based on documentation in the Regional Technical Forum (RTF) in the Pacific Northwest.
- DNV recommends that RIE revise the SEMP review process to include periodic meetings with RIE and the TA vendor to discuss ongoing RCx measures and review savings analysis methodology in more detail. This would improve the quality of savings by providing feedback to the site on an ongoing basis.

Installed measures

- Coil cleaning
- HVAC
- Refrigeration
- Energy management systems
- Roof Top Units
- Process equipment
- Compressed air
- and more