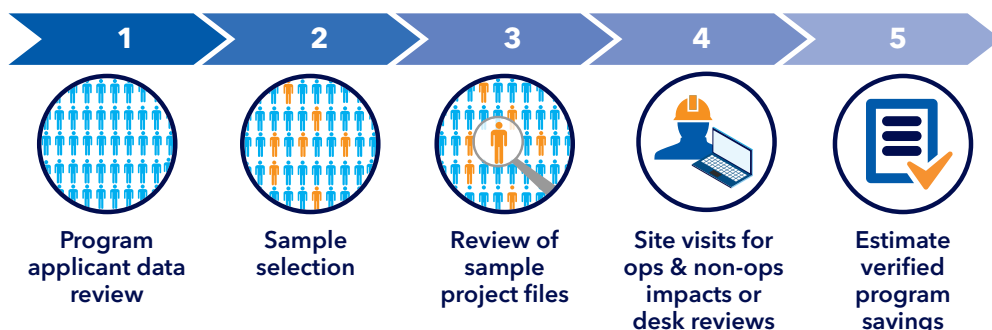


RHODE ISLAND ENERGY C&I CUSTOM ELECTRIC INSTALLATIONS IMPACT EVALUATION - 2018 AND 2019 PROGRAM YEARS

DNV quantified annual electric energy (kWh) savings for custom electric projects completed during the program years (PY) 2018 & 2019. The three-year rolling average realization rate is calculated using results from PY2016, PY2018, & PY2019. Due to the Pandemic, both PY2018 and PY2019 were studied together, and the results are delivered in this report. Also due to the pandemic, the study had to rely on PY2016 historical operation adjustment factors combined with the PY2018 and PY2019 operation-adjusted sampled sites to account for non-pandemic operation factors

APPROACH

These projects generally use site-specific customized engineering analysis to generate savings rather than deemed savings estimates. The sampled sites included both retrofit and new construction measures consisting of lighting and non-lighting projects in RI. Lighting and Non-lighting projects are studied separately due to the stability of lighting calculations when compared with non-lighting estimates. This study verified and re-estimated electric energy savings for the sample of projects through site specific inspection, monitoring and analysis.



KEY TERMS



Full M&V evaluated site, PY2018 (15 sites), PY2019 (14 sites): A site that included both operational and non-operational impacts and involves onsite measurements using power, time-of-use meters or validated trend data and measure verification.

Non-ops evaluated site, PY2018 (5 sites), PY2019 (9 sites): Evaluations don't include measurements or calculations of any operational characteristics of the installed measures but include verification of technology and quantities through onsite visits.

Desk reviewed site, PY2018 (2 sites), PY2019 (1 site): The evaluation does not include verifications or measurement but an in-depth assessment of tracking analysis for parameters such as baselines, methodology and checking of any tracking or administrative errors.

Realization Rate (RR): Ratio between evaluated and tracking savings. If RR = 100%, tracking estimated savings were verified and consistent with onsite findings.

KEY FINDINGS

	50M kWh lighting savings 95% combined lighting RR	PY2016 19M kWh, RR 100%, n=3	PY2018 13M kWh, RR 94%, n=9	PY2019 18M kWh, RR 91%, n=8
	 47M kWh non-lighting savings 81% combined non-lighting RR	PY2016 21M kWh, RR 69%, n=8	PY2018 13M kWh, RR 78%, n=14	PY2019 13M kWh, RR 104%, n=15

RECOMMENDATIONS & CONSIDERATIONS

- DNV recommends Rhode Island Energy to include a verification step to ensure that savings values recorded in the database accurately reflect the savings supported by the calculations included with the project documentation before the final incentive payment is made to avoid any missing project files and supporting information.
- DNV recommends evaluating lifetime savings and reporting them at the site level in all future custom electric evaluations. This is to prepare for reporting the new lifetime savings goal as Rhode Island Energy transitioned away from annual savings goals to lifetime savings goals beginning in PY2021.
- Rhode Island Energy should consider some research to be done into the baseline/ISP rate at which customers test for and repair leaks in their compressed air system, and based on the findings from that research, consider how that may impact program design and outreach for compressed air leak repairs, as well as to measure life for compressed air leak repairs.
- Consider implementing more frequent and rigorous post-installation commissioning for complex building management system (BMS) measures. The evaluation found several instances where controls sequences are not operating as described in the project documentation. This has been a significant source of non-lighting operational discrepancies in most BMS-installed sites.

Installed measures

- Lighting
- HVAC
- Refrigeration
- Energy management systems
- Operation & maintenance
- Process equipment
- Compressed air
- and more