



ADVANCED RTU CAMPAIGN ROOFTOP UNIT EVALUATION METHODOLOGY - DOE

CHALLENGE

New technologies for replacement and retrofits of existing rooftop air conditioning units (RTUs) offer tremendous savings opportunities. To take advantage of those opportunities, guidance is needed to help decision makers determine the replacement and retrofit solutions that are most economically viable for their particular circumstances.

BEST PRACTICE IMPLEMENTED

To meet this challenge, the Department of Energy (DOE) Advanced RTU Campaign (ARC) has developed a set of resources built around a streamlined RTU evaluation methodology. This methodology with supporting resources is divided into eight action-oriented steps.

1. Initial inventory of existing RTUs to gather basic information (i.e., number, size, age, general condition, etc.)
2. Preliminary screening to organize RTUs into bins for “retrofit,” “replacement,” “no action,” or “needs further analysis”.
3. Detailed inventory to gather additional information (i.e., controls, usage patterns, features, etc.)
4. Visual-based field evaluation to further refine preliminary analysis.
5. Energy and economic analysis to prioritize potential RTU improvements and to make the business case for taking action.
6. Project planning for specific RTU replacements and retrofits, which may involve working directly with a manufacturer, an Energy Service Contractor (ESCO), a full service engineering company, or an HVAC contractor.
7. Procurement specification for replacement or retrofit of RTUs that incorporates quality installation and maintenance requirements.
8. Measurement and verification (M&V) plan detailing the appropriate level of M&V for the project.

An available decision tree for RTU replacement or retrofit guides potential users through these steps clearly and succinctly to facilitate decisive cost-effective RTU performance improvement investments.

Copies of this decision tree may be obtained at:

https://www1.eere.energy.gov/buildings/commercial/pdfs/arc_rtu_decision_tree.pdf

RESULTS OF THE BEST PRACTICE

The economic potential of high efficiency RTU replacement and retrofit is significant. DOE’s ARC Rooftop Unit Evaluation Methodology is designed to ensure that users investing in this opportunity see a substantial and consistent return on investment by providing them with an informed, repeatable approach to RTU performance evaluation.

VERIFICATION OF EFFICIENCY AND/OR SAVINGS CAPTURED

This methodology is a compilation of NREL's findings from past research on high efficiency RTU replacement and retrofit, and draws heavily on feedback from industry leaders, both those designing the solutions and those investing in them. The collective methodology has only recently been published. Accordingly, there has not yet been any verification of actual savings generated.

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