

# RTU Replacement to HRV+Variable Capacity Heat Pumps Emerging Technology Field Test

## *BPA seeks utilities to participate in RTU Replacement to HRV + Variable Capacity Heat Pumps Emerging Technology Field Test*

Bonneville Power Administration (BPA) is seeking a limited number of utilities to participate in an Emerging Technology (ET) Field Test. This ET Field Test could fully fund up to 4 Rooftop Unit (RTU) Replacements to Heat Recovery Ventilation plus Variable Capacity Heat Pumps (HRV + VCHP), using simplified grants and custom project incentives. This ET Field Test will research cost effectiveness, with the intent of informing a region-wide offering in 2018.

Please consider participating in this ET Field Test and help fill the pipeline with a new conservation measure. If effective, ET Field Test grants may be used to explore other promising emerging technologies. ET Field Tests will ideally pay the full project cost, while allowing utilities to claim savings as self-funded custom projects.

## What

These new HVAC systems will include high efficiency Heat Recovery Ventilation (HRV) units to recover heat from exhaust-air, and efficiently provide code-required ventilation. The HRV unit sits on the roof, replacing the existing RTU and may use the existing ductwork, while a variable capacity heat pump system will provide space heating and cooling. By separating the ventilation from the heating and cooling system, NEEA's early proof of concept work predicts HVAC savings between 40 and 80%.

## Where

NEEA is currently performing field tests on offices and restaurants, and other good applications include buildings with long operating hours and varying occupancies.

## Why

- Help your customers save energy with reduced capital cost,
- Be a leader in Emerging Technology research,
- Claim self-funded savings,
- Help the region meet Power Plan targets, and
- Help develop a region-wide offering.

## Non-Energy Benefits

In addition to the significantly lower energy use and peak demand, additional non-energy benefits include noticeably improved indoor air quality, greater occupant comfort, much simpler and less expensive maintenance (filter changes and HRV core cleaning), alarm notification capability, and greatly reduced greenhouse gas emissions. Indirect benefits may include increased building occupancy rates, increased rental rates, reduced tenant absenteeism, and increased total building asset value.

For additional information, utilities are encouraged to contact their Energy Efficiency Representative or Erik Boyer, at [ebboyer@bpa.gov](mailto:ebboyer@bpa.gov), 509-822-4586.



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## Available Funding

A total of \$160,000 is available for eligible projects with a maximum of \$40,000 for any project. BPA anticipates up to four projects will be funded, depending on interest and available funding.

## Project Eligibility

Only BPA Customer Utilities can apply.

The building needs to have electricity use data available for a minimum of 12 months prior.

Existing RTUs need to meet the following requirements:

- Serve commercially occupied spaces with varying occupancies,
- RTUs range in size between 2 and 10 tons,
- RTUs do not currently have demand controlled ventilation (DCV),
- Electric resistance heat or heat pump (no gas heat)
- Currently operate a minimum of 3,000 hours of per year, and
- Are in good working order.

RTU Replacements must:

- Use a variable capacity heat pump system to provide space heating and cooling,
- HRV must have:
  - a sensible effectiveness ratio of 85% or greater, to meet ventilation loads,
  - variable speed fans,
  - integrated Demand Control Ventilation (DCV) and other advance control strategies, and
  - economizer capability.
- Be installed and programmed by a licensed contractor per the manufacturer's specifications, and
- Application submitted by August 3, 2017.

## Application Process

Interested BPA customer utilities must submit a commitment letter, and project application to Erik Boyer, at [ebboyer@bpa.gov](mailto:ebboyer@bpa.gov), 509-822-4586. Utilities are encouraged to contact Erik Boyer prior to applying. Following initial project screening, a procurement strategy will be developed.

## Selection Criteria

Awards will be made based on the project(s) meeting the eligibility criteria, the provided cost information, the project location, and regional applicability. Preference will be given to the following project types.

- Facilities with longer hours of operation,
- Variability of loads, and
- Regional applicability.

BPA reserves the right to negotiate the project scope to meet available funding limits.

## Roles and Responsibilities

The utility is responsible for identifying projects and working with BPA to verify they meet the project eligibility requirements. The utility will be responsible for coordination with the facility owner to ensure BPA can perform measurement and verification (M&V).

BPA will help with the custom project proposals. BPA will provide funding for the RTU Replacement Retrofits. BPA will provide the measurement and verification. BPA will perform all energy savings analysis associated with the installations.

## For More Information Contact

Your Energy Efficiency Representative or Erik Boyer, at [ebboyer@bpa.gov](mailto:ebboyer@bpa.gov), 509-822-4586.