ARC-Lite Retrofit Emerging Technology Field Test

Project Goal and Background

BPA is seeking Public Utility customer participation in an Advanced Rooftop-Unit Control (ARC) –Lite Retrofit Emerging Technology (ET) Field Test. BPA’s goal is to verify the electrical savings associated with ARC -Lite Retrofits.

ARC -Lite Retrofits reduce the energy use of packaged rooftop units that provide heating, ventilation and air-conditioning. ARC -Lite Retrofits add a variable speed drive to the supply-air fan, and a controller that reduces fan speed to preset levels according to the operating modes. It is a simplified, less expensive version of the full Advanced Rooftop-Unit Control (ARC) – Retrofits that BPA has already field-tested. The cost effectiveness of ARC -Lite Retrofits will be verified, by validating the energy savings.

BPA’s overall goal is to enable, validate and increase the amount and persistence of energy savings achieved through ARC -Lite Retrofits in the Northwest. To achieve this goal, additional research is required to measure and verify ARC -Lite Retrofit energy savings.

Available Funding

A total of $100,000 is available for eligible projects. The ARC-Lite Field Test funding will cover the total retrofit cost, as well as all costs associated with the measurement and verification system, data subscription fees and energy savings analysis. BPA will not fund more than 30 Advanced Rooftop-Unit Control (ARC) –Lite Retrofits in this Field Test.

Project Eligibility

Only BPA Public Customer Utilities can apply and the maximum ARC – Lite Retrofit ET Field Test funding is $50,000 for any one Customer Utility participant.

Rooftop units eligible for ARC – Lite Retrofits must:

- serve commercial spaces that are not grocery stores,
- operate continuously during occupied hours,
- have a minimum of 5 tons of direct-expansion, mechanical cooling,
- have gas or electric heating,
- have an operational economizer, and
- are scheduled to operate a minimum of 3,000 hours of per year.
Timeline

2/5/2015    Utility Brown Bag
3/11/2015   Applications Due 4pm (PST)
3/6/2015     Utility proposals selected
3/31/2015   Anticipated Award to Utility
4/1/2015    ET Field Test Research project starts
9/15/2015   All ARC – Lite Retrofits must be complete
9/30/2016   Final Reports Received

Roles and Responsibilities

The utility is responsible for identifying project locations and verifying that they meet the project eligibility requirements. The utility will be responsible for providing feedback on the ARC – Lite Retrofit ET Field Test. The utility must be able to dedicate two staff hours per month for project coordination and reporting, for the period between the funding award and the final report. Reporting includes project status and installation information. The final report shall include a copy of the installation invoice, a screen shot of the M&V data and instructions to access the M&V data.

Project Description

A licensed contractor shall install each ARC –Lite Retrofit per manufacturer specifications and all applicable codes and safety regulations. The retrofit must provide multi-speed supply fan control to preset levels based on the operating mode. The contractor shall also install a measurement and verification system that provides one year of data, at one minute sampling intervals, on the following points:

1. Fan status
2. Cooling status
3. Heating status
4. Fan Speed
5. Fan Power
6. Fan Fault status

Metered data must be accessible during the one year monitoring period.

Application Process

Interested BPA customer utilities must submit an application for each proposed building location. The application consists of:
• One ARC- Lite Retrofit Building Application form
  ![ARC-Light Retrofit ET Field Test Application form](ARC-Light_Retrofit_ET_Field_Test_Application.pdf)

• One Rooftop Unit Detail Sheet for each RTU to be retrofit, filled out by licensed contractor
  ![Rooftop Unit Detail Sheet](RTU_Detail_Sheet.pdf)

• Contractor Installation quote - include and identify equipment, labor, data subscription for one year of metering and data services, and any other applicable costs.

Interested BPA customer utilities are encouraged to combine multiple applications (one for each building) into one package when submitting. BPA may award only a portion of a package, but each approved individual Building application will be funded in full (i.e. if approved, all retrofits at one location, will be funded in full, even if other locations in the package are not approved.)

Submit applications to the Contracting Officer, Wesley Saway, via email at wjsaway@bpa.gov

**Selection Criteria**

Awards will be made based on the project(s) meeting the eligibility criteria, project cost, and the diversity of building types. Preferred building types are: gyms, restaurants, dry-good retail stores and offices. A maximum of 3 awards will be made for each building type (gyms, restaurants, dry-good, retail stores and offices), selected first by the RTU heating type and secondly by the lowest cost. Preferred RTU heating types are 1) electric resistance, 2) heat pump, and 3) gas or other heat.

**For more information contact**

Mira Vowles (503-230-4796, mkvowles@bpa.gov) or your Energy Efficiency Representative.
Exhibit A: BPA Simplified Grant Clauses

REGULATIONS APPLICABLE TO BPA FINANCIAL ASSISTANCE (4-1)  
(BFAI 4.10) (JUL 13)

The Bonneville Power Administration's financial assistance function is managed and executed solely in accordance with the Bonneville Financial Assistance Instructions (BFAI). The BFAI is available without charge on the Internet at http://www.bpa.gov. Copies are available from the Head of the Contracting Activity - DGP, Bonneville Power Administration, P.O. Box 3621, Portland, OR 97208. Subscriptions are not available.

NONDISCRIMINATION IN FEDERALLY ASSISTED PROGRAMS (4-2)  
(BFAI 4.10) (SEP 04)

The recipient shall comply with 10 CFR Chapter II, Section 600.39 which provides that "...no person shall on the ground of race, color, national origin, sex, handicap, or age be excluded from participation in, be denied the benefits of, be subjected to discrimination under, or be denied employment, where the main purpose of the program or activity is to provide employment or when the delivery of program services is affected by the recipient's employment practices, in connection with any program or activity receiving Federal assistance from ..." BPA.

EXAMINATION OF RECORDS (4-3)  
(BFAI 4.10) (SEP 04)

(a) The recipient shall maintain books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of this award. The Financial Assistance Officer or a representative shall have the right of access to any books, documents, papers, or other records of recipients and subrecipients which are pertinent to the award, in order to make audits, examinations, excerpts and transcripts.

(b) Such material shall be made available at the office of the recipient, at all reasonable times, for inspection, audit or reproduction, until the expiration of 3 years from the date of final payment under this award or for such longer period, if any, as is required by applicable statute. If any litigation, claim, negotiation, audit or other action involving the records has been started prior to the expiration of the 3 year period, the records must be retained until completion of the action and resolution of all issues which arise from it, or until the end of the regular 3 year period whichever is later.

REQUIREMENT FOR AUDIT (4-21)  
(BFAI 4.10)(JAN 13)

The recipient shall comply with the provisions of OMB Circular A-133 and apply provisions of the circular concerning program levels requiring audits and audit scope. If an audit is required, a copy of the audit report shall be sent to the BPA Internal Audit Staff, Mail Stop DN-7, Bonneville Power Administration, P.O. Box 3621, Portland, OR 97208, and other distribution of the report as required by the circular.