



Commonwealth of Massachusetts
**DEPARTMENT OF HOUSING &
COMMUNITY DEVELOPMENT**

Charles D. Baker, Governor ◆ Karyn E. Polito, Lt. Governor

Public Housing Notice 2016-11

To: All Local Housing Authority Executive Directors

From: Sarah Glassman, Director, Division of Public Housing & Rental Assistance

Subject: Contracting for Air Source Heat Pumps with LEAN administrators (i.e. Action, Inc. and ABCD)

Date: May 17, 2016

1. About Air Source Heat Pumps (ASHPs) Installation Grants

The Low Income Energy Affordability Network (LEAN), also commonly referred to as the Low Income Multi-Family program, has been funded by the utility companies to install energy efficient and cost effective ASHPs at LHAs. The installation is administrated through two major entities – Action, Inc. (in NGrid territory) and ABCD (in EverSource and EverSource West territory). ASHPs are most likely to be offered to LHA’s for developments with electric-heat and very high electric bills. About 900 systems have been installed at LHAs to date. ASHPs can provide significant savings on electric usage/costs. However, we have learned that close attention needs to be paid to the design, installation, and maintenance of these systems to avoid potential performance issues.

The purpose of this notice is to enable LHAs to have sufficient background to most effectively work with the LEAN administrators so that this technology is effective to the full extent it is designed to be. The primary message is this:

Please invite DHCD staff to participate as partners in each stage of LEAN-funded ASHP projects – design, contracting and installation. Additionally, we’d like the LHAs to be aware of the maintenance requirements that will be required in order to maintain proper operation of the system.

Typically LEAN installations are contracted directly between the LHA and the LEAN administrator. Because these installations are not part of DHCD’s capital planning process, our architects, engineers, project managers, and construction advisors are usually not aware of the installation unless there is a performance issue. In order to proactively prevent performance issues, **DHCD is requesting that the LHA immediately notify DHCD – John Donoghue and Betsy Harper - when an ASHP project is initiated by**

LEAN. This way DHCD engineers can weigh in on technical matters during the design process, assist with quality-assurance during installation, and help with maintenance plans once the units are installed.

2. How Developments are Selected for ASHP Installations

The LEAN administrators will determine whether or not ASHPs are a cost-effective alternative to electric baseboard heat based on a cost-effectiveness analysis that they will calculate when they become aware of a development with very high electric bills. There are four elements that will determine eligibility:

- a. **The development must have had a recent LEAN energy audit** – i.e. in 2011 or later. If a development has not had a recent energy audit, the LHA may apply to the program via the web portal: www.leanmultifamily.org
- b. **The LHA’s electric bills must be sufficiently high to pass the LEAN cost-effective screen.** LHAs with electric costs of >\$100 per unit per month (PUM) are most likely to be considered. Betsy Harper, DHCD’s Sustainability Program Developer, has pre-identified for LEAN the majority of the state-aided developments with PUMs >\$130. If an LHA wants to verify its electric PUM, it can be seen on the HAFIS Energy Report. In addition, any development with an electric PUM >\$100 is flagged under the Sustainability section of the CIP.
- c. **The development needs to have removed (or have funding and a plan to remove) any Federal Pacific electrical panels.**
- d. **The LEAN administrator determines that the system will have a benefit/cost ratio > 1.0.**

3. ASHP Design

The primary DHCD contacts at the design phase are John Donoghue, Engineer, and Betsy Harper, Sustainability Program Developer. The LHA should contact one of these people when contacted for an evaluation for ASHP cost-effectiveness by the LEAN administrator or its designated contractor (e.g. RISE Engineering or ClearResult).

Contact information:

John Donoghue: john.p.donoghue@state.ma.us (617-573-1158)

Betsy Harper: betsy.a.harper@state.ma.us (617-573-1244)

Thereafter, John Donoghue will participate in the walk-through – the critical point at which the design is typically agreed to. Several critical design details that John will weigh in on are outlined in the attached Appendix “Design Guidelines and Standards – 23.80.00 Air Source Heat Pumps.”

The LHA should continue to copy John Donoghue on all communications with the LEAN administrator as the design is developed and preliminary cost-effectiveness analyses are evaluated.

If you have already commenced a project and have not contacted DHCD, please make contact immediately to initiate the process.

As with all capital projects, the installation of ASHPS should meet the Design Guidelines and Standards established by DHCD. If the installer is unwilling to accommodate some requests, funding may be available to support other design criteria required by DHCD (e.g. shields to protect the outdoor condensers from water drip).

4. ASHP Contracting

Depending on the complexity of the design, John Donoghue and/or the LHA's Construction Advisor (CA) will attend the bidders' walk-through. Once a winning bid is chosen and a contract is offered to the LHA, the LHA should email a copy of the draft contract to Betsy Harper (as notification, not approval).

5. ASHP Installation

The LHA should invite its DHCD Construction Advisor to the pre-construction meeting. The CA will continue to be available to the LHA on an as-needed basis throughout construction. Should any problems arise, we recommend the LHA contact the CA as early as possible.

During installation, the contractor is responsible for providing operating manuals and training to the tenants of each unit as they are installed. If the LHA would like additional training, it can request the LEAN administrator to have a manufacturer's rep provide group training.

In apartments which have a single head and a common wall with a fan, the resident should be encouraged to leave open the door between the bedroom and the living room when possible. This will promote good air flow between both rooms and make for a more consistent temperature between rooms.

In order to accurately track the savings of the ASHPs, it is critical that the LHA email Betsy Harper with the start and completion dates of the installation.

6. ASHP Maintenance

While ASHPs have a reputation of high reliability, the LHA will be responsible for performing the following maintenance tasks:

- a. **Filter cleaning:** Maintenance staff needs to clean internal filters in the indoor fan coil unit **twice** each year. Ideally one of these cleanings should be close to the start of the cooling season. Filters pop out easily and should be rinsed under warm water.
- b. **Check for water pooling early in the cooling season:** At the time of filter cleaning closest to the start of the cooling season, the interior fan coil unit should be checked to make sure

drainage to the refrigerant line is operating correctly. This has not been a problem to date, but is a recommended step.

- c. **Exterior condenser cleaning:** The interior of the condenser needs to be kept free of grass clippings, leaves, dirt, excessive pollen or other materials. The condenser should be located in a place that will be primarily free of this debris. However, if debris is entering the unit, it should be sprayed down with a hose once a year during the shoulder or summer months.
- d. **Exterior condenser check post major snow or ice storms:** DHCD recommends that shields be installed on condensers which are subject to roof water drainage. These shields will deflect the drip of water from the front of the grill. In the case of high winds, the water might be blown inside the unit and freeze the unit. In this scenario, if icicles form on the tip of the fan paddles and grills, they should be broken (using a thin object such as a ruler or screwdriver) to restore operation of the unit. Preventive shielding is critical to making sure this doesn't become a systematic problem.

In the case of snow storms with greater than 2' snow accumulation, the LHA may need to verify that the unit has not become covered and need snow to be shoveled away from the front of any condenser mounted on a 2' stand.

- e. **Condenser coils:** The exterior coils should be inspected every two years for leaks or other damage.

The ASHP technology is fairly new to the state-aided portfolio and DHCD wants to make sure that we are all taking steps to ensure good system performance. We look forward to providing you support throughout the process if you are offered this opportunity by either of the LEAN administrators. If you have any questions or concerns about this notice, ASHPs, or LEAN, please direct them to Betsy Harper at betsy.a.harper@state.ma.us. Both John Donoghue and Betsy Harper will be present at MassNAHRO to answer questions.