

**Mitsubishi Electric Trane HVAC US LLC**

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DATE: September 17, 2019

TO: Emily Cushman  
Program Manager  
Efficiency Maine Trust  
168 Capitol Street, Suite 1  
Augusta, ME 04330-6856

FROM: Rick Nortz  
Senior Manager, Utility & Efficiency Programs  
Mitsubishi Electric Trane HVAC, US

SUBJ: Request for Information (RFI EM-006-2020) on Beneficial Electrification

Dear Ms. Cushman;

First off, Mitsubishi Electric Trane HVAC U.S. (METUS) would like to commend the efforts of Efficiency Maine over the last 6 years. The dedication and passion of your team has created “Market Transformation” of heat pumps in Maine.

The recent declaration of a 100,000 heat pump goal by 2025 means that the transformation needs to accelerate to another level. The following comments are a response to the RFI referenced above.

**Barriers to Market Transformation:**

**Awareness**

Awareness is the primary driver of sales of ductless heat pumps. Mitsubishi Electric has determined through its own “lead generation” advertising that leads cost 2-3 times more in areas of low awareness, as areas of high awareness.

From the study completed for NEEA ([MPER7 Report](#)), they determined that the number one reason that consumers made the decision to purchase a DHP was “Word of Mouth”. This is the seventh report done for NEEA and every year, the results are the same. “Word of Mouth” is a primary driver. From our experience, the top three objections from consumers are price, aesthetics and the understanding that heat pump technology actually works when it is cold. Word of Mouth helps to overcome all three of these objections.

**Recommendation:**

- Co-op Marketing program with contractors, distributors and manufacturers to raise awareness in Maine.
  - Examples of programs to look at for guidance include NYSERDA and New Jersey Clean Energy Program. Both programs have a 50/50 cost share per year, up to \$50,000.

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- Develop a program to facilitate word of mouth. PSEG-LI introduced a referral program that gives \$100 for every heat pump referral that leads to a sale.
- Conduct awareness building campaigns and events, like NYSERDA and MassCEC have done in the past. Keep manufacturers aware, so that they can advertise in the same markets at the same time, if they want.

### **Education**

When most homeowners think of heating systems, the first thing that comes to mind are oil/gas/propane boilers and furnaces. Most of the time, the only person that brings up a Ductless Heat Pump (DHP) is the contractor. DHP's are viewed primarily as an air conditioning system, not a heating system. Education can address this.

- There are three groups of people that need to be targeted:  
Consumers:
  - a. Help to understand the technology.
  - b. Help understand the benefits of weatherization.
  - c. Help to understand the payback.
- Contractor
  - Help understand the benefits of installing DHP's.
  - Help understand the business case to dedicate resources to installing DHP's.
- Architects and Engineers
  - Help educate the design of residential and commercial buildings to use DHP's and VRF.

### **Recommendation:**

1. Create a training Co-op program, similar to what NYSERDA does in New York. NYSERDA will do a 50% cost share on any training activity (events, training centers, etc...) up to \$50,000 per year for manufacturers and distributors.
2. EM should host collaborative training events for DHP's and VRF equipment. Utility/Efficiency Program sponsored educational training advances the knowledge base of contractors to familiarize and consider alternative and more efficient product solutions for their customers. These events also help create an opportunity to do contractor enrollment into programs.

### **Labor Shortage**

There is a severe labor shortage for the highest volume dealers. We estimate that the top 20-30 contractors in your program probably do 75% of all of the rebates. With over 450 participating contractors on your website, there are plenty of companies out there with qualified employees. The real problem is that only 20-30 of these companies have built a business around installing DHP's. The other 420 companies do many things and falsely think it is more profitable to do the other things, than to install DHP's.

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To solve the labor shortage, two things need to happen.

1. Get more companies to dedicate their resources to the installation of DHP's.
2. Get younger workers into the workforce.

### Recommendation

1. Develop a program that supports manufacturers in their training efforts of contractors, similar to recommendation in education section above.

### **INCENTIVE PROGRAM BEST PRACTICES**

Below are ideas that the team at METUS have put together from our experience working with efficiency programs around the country. Many of the ideas listed are already being implemented, and those will be pointed out.

- Create separate measure for inverter single zone ducted heat pumps and multi-zone ducted/mixed heat pumps. The current program for EM eliminates many of these options due to the requirement for 12 HSPF. Ducted single zone systems are in the 9-11 HSPF range and do not qualify. Multi-zone ducted and mixed combinations are in the 9-10 range and do not qualify either. These are still excellent options to help reduce the consumption of fossil fuels and often are the best strategy to create whole home replacement strategies.
- Provide an alternate HSPF minimum for larger single zone heat pumps (>24kbtu) installed in commercial settings (HSPF 10.0), and a low ambient cooling-only unit (-20F operating range) incentive for 24 hr cooling specific applications including server rooms, elevator shafts and indoor agricultural applications. (SEER 20)
- Cold climate bonus: Should offer extra incentives if it meets this criteria
  - Determine appropriate Cold Climate Specification to adopt, based on region. Sources include NEEP, NEEA, Energy Star, etc...
  - Criteria to evaluate include COP @ 5°F, heating capacity @ 5°F, etc...
    - For example, see Energy Star proposed requirements for Moderate and Hot Climates, and Cold Climates (Note that cold climate HSPF requirement is >9).

**Table 3: Energy-Efficiency Criteria for Certified Residential ASHPs**

For purposes of ENERGY STAR certification, an ASHP model must be designated as either Moderate and Hot Climate or Cold Climate and meet the associated requirements in Table 3.

Product Type	Moderate and Hot Climate			Cold Climate				
	SEER	EER	HSPF	SEER	EER	HSPF	COP @ 5°F	Percentage of Heating Capacity @ 5°F
ASHP Split Systems	≥ 16.00	≥ 12.50	≥ 8.50	≥ 16.00	≥ 11.50	≥ 9.00	1.75	80%
ASHP Single Package Equipment <sup>1</sup>	≥ 16.00	≥ 12.00	≥ 8.20	≥ 16.00	≥ 11.00	≥ 9.00	1.75	80%

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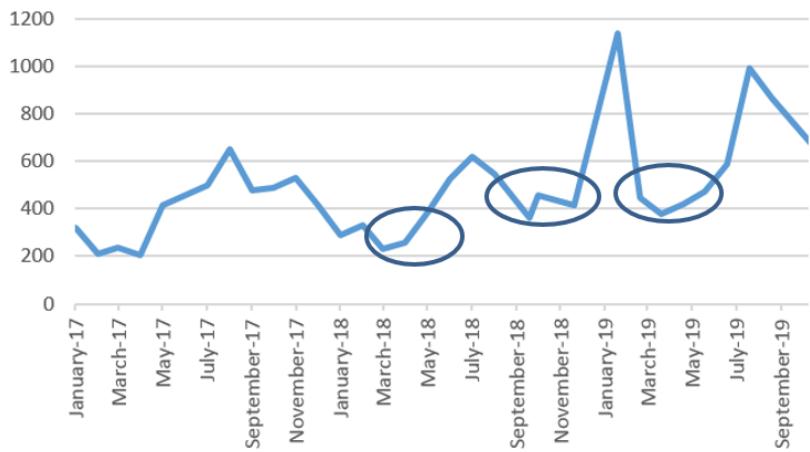
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- Offer bonus for a whole-home solution. If a system is 90%-110% of the Manual J, then offer a whole-home bonus. *Massachusetts has two programs available for this type of installation. A state program and a MassCEC program.*
- Involve engaged manufacturers to review program design discussion early before launch to identify program shortcomings or possible problems and provide best practices feedback. They can also make links back to Distributors, who are the direct link to contractors.

## Early Retirement

- Summer and winter peak periods are the busiest seasons for contractors. It is difficult to increase program participation beyond their capacity. Program participation can increase by focusing on slower periods (shoulder seasons) when equipment failures do not occur. Shoulder season emphasis should be a focal point for program design and increase program attribution.
- Very few programs have early retirement options causing customers to make limited educational decisions in their immediate need for equipment replacement. Suggested solutions include:
  - Align Tune-up Programs with Early Retirement and create an attractive model.
  - Spiff Contractors and Customers for incentives on annual service contracts to pitch early retirement.
  - Limit spiff to contractors from September to December and March to May. This would give contractors more incentive to install heat pumps during their slower times. See chart below showing the cyclical nature of installations/rebates.

Efficiency Maine Rebates Since 2017



- Program should focus marketing campaigns for all the above objectives during shoulder months. Consider double incentive, which should translate to more attributed savings to the program or a low interest limited time financing period.
- Likewise, for commercial buildings, create programs that take advantage of the natural replacement cycles and that are already built into their budgets. The time to encourage a commercial building to convert to heat pumps is during this planned replacement.

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### Financing

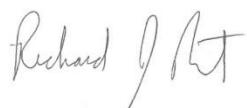
- Financing options create greater opportunities to participate in the program. Often times a financing option is a much better solution to meet the needs of the customer's ability to make a more efficient equipment choice. The financing option should be significantly lower than market rate ie <5%. EM has such a program for their customer base. Consider a program that addresses the LMI Community with loan backstops and lower interest rates (similar to the very popular MassSave 0% financing program).
- Leasing is also a very attractive model for heat pump installations. Successful models utilize an on-bill mechanism. See some example below.
  - American Council for Energy Efficient Economy (ACEEE) report On-Bill Energy Efficiency. [See details here.](#)
  - Pay As You Save (PAYS) – On-bill tariff for low-income customers. [See details here.](#)

### Other ideas:

- Rates: Work with the Utilities to create special heat pump electric rates that serve to encourage customers to convert to electric.
- Work with the State of ME toward the Electrification of all state buildings.

Thank you for the opportunity to share ideas with Efficiency Maine. If you have any questions, my contact information is below.

Sincerely,



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