

Residential HVAC Programs in the Northeast

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On behalf of
Northeast Energy Efficiency Partnerships

ENERGY STAR® HVAC Partner Meeting

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Introduction



Who is NEEP?

- Regional non-profit
- Helps coordinate regional efforts



• Presentation Focus

- New England, Long Island & New Jersey
- Central A/Cs and Gas Furnaces
 - Programs also address heat pumps, boilers, oil/propane equipment
- **2004 Program Features**
 - Most will be unchanged in 2005
 - Will flag some possible changes for 2005



Northeast HVAC Market



- **~225,000 new central A/C installations per year**
 - Saturations high in new homes (~80%)
 - Saturations growing in existing homes
- **~135,000 new furnace installations per year**
- **No data on new gas boilers or oil/propane equipment, but non-trivial**
 - Gas boilers as common as gas furnaces (roughly)
 - ~40% existing homes have oil heat



Regional Program Overview



State/Territory	Central A/C Equipment Incentives	Central A/C Sizing & Installation Focus	Gas Furnace Equipment Incentives	Gas Furnace Fan Efficiency Incentives
Connecticut	✓	✓		
Long Island, NY	✓	✓		maybe in 2005
Maine				
Massachusetts	✓	✓	✓	✓
New Hampshire			✓	✓
New Jersey	✓	✓	✓	✓
Rhode Island	✓	✓	✓	✓
Vermont	✓	maybe in 2005	✓	✓



Central A/C Rebates



State/Territory	Customer Incentives			Extra Contractor Incentives	Other requirements
	SEER 13 EER 11	SEER 14 EER 12	SEER 15 EER 13		
Connecticut	\$350	same	same		
Long Island, NY	\$300	\$400	\$500	\$120	Proper Size/Chg/Flow
Maine					
Massachusetts	\$300	\$450	same	\$100 if NATE	
New Hampshire					
New Jersey	\$300	\$500	same		Proper Size/Chg/Flow
Rhode Island	\$370	\$550	same	\$100	Proper Size/Chg/Flow
Vermont	\$200	same	same	\$50	

Central A/C Installation Focus



- **Connecticut**

- Promoting use of Honeywell Service Assistant
- \$50 - \$100 for diagnostic & improvements w/tool



- **Long Island**

- Requires proper size/chg/flow for equipment rebate
- Training technicians on Manual J, charge/airflow
- Future integration w/Home Performance w/Energy Star
- Future use of in-field verification tools likely



- **Massachusetts**

- Extra \$100 for installation by NATE certified tech

Central A/C Installation Focus (2)



- **New Jersey**

- Requires proper size/chg/flow for equipment rebate
- Training technicians on Manual J, charge/airflow
- Aggressive promotion of NATE certification
- Significant customer education efforts



- **Rhode Island**

- Requires proper size/chg/flow for equipment rebate
- Uses Proctor Check Me tool for verification

Gas Furnace Rebates



State/Territory	AFUE Incentives		ECM Fan Incentives
	90% AFUE	92% AFUE	
Connecticut			maybe
Long Island, NY			
Maine			
Massachusetts	\$150	\$400 if ECM	incl w/92% AFUE
New Hampshire	\$150	\$400 if ECM	incl w/92% AFUE
New Jersey	\$300	same	
Rhode Island	\$150	\$400 if ECM	incl w/92% AFUE
Vermont	\$300	same	\$150 to customer \$50 to contractor

Market & Field Research (STAC)



- **Characterization of northeast HVAC market**
- **Impact of NATE certification on central A/C installation quality**
 - Field tests of actual operating efficiency
 - Two samples: NATE installs, non-NATE installs
- **Variable speed system efficiency during peak**
 - Extensive field metering and monitoring of 5 systems



NEEP Program Contacts



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**More Detail in Following
Slides**

GasNetworks



- Bay State Gas
- Berkshire Gas
- New England Gas Company
- NSTAR Gas
- KeySpan Energy Delivery
- Unitil
- Northern Utilities of New Hampshire

Providing rebates for high efficiency heating equipment since 1997

Gas Networks



Continued Adjustment of Rebates to Reflect Market Response



Furnace Rebates - 90% and 92% AFUE with ECM



- \$150/unit and \$400/unit

Hot Water Boiler Rebates - 85% AFUE

- \$500/unit

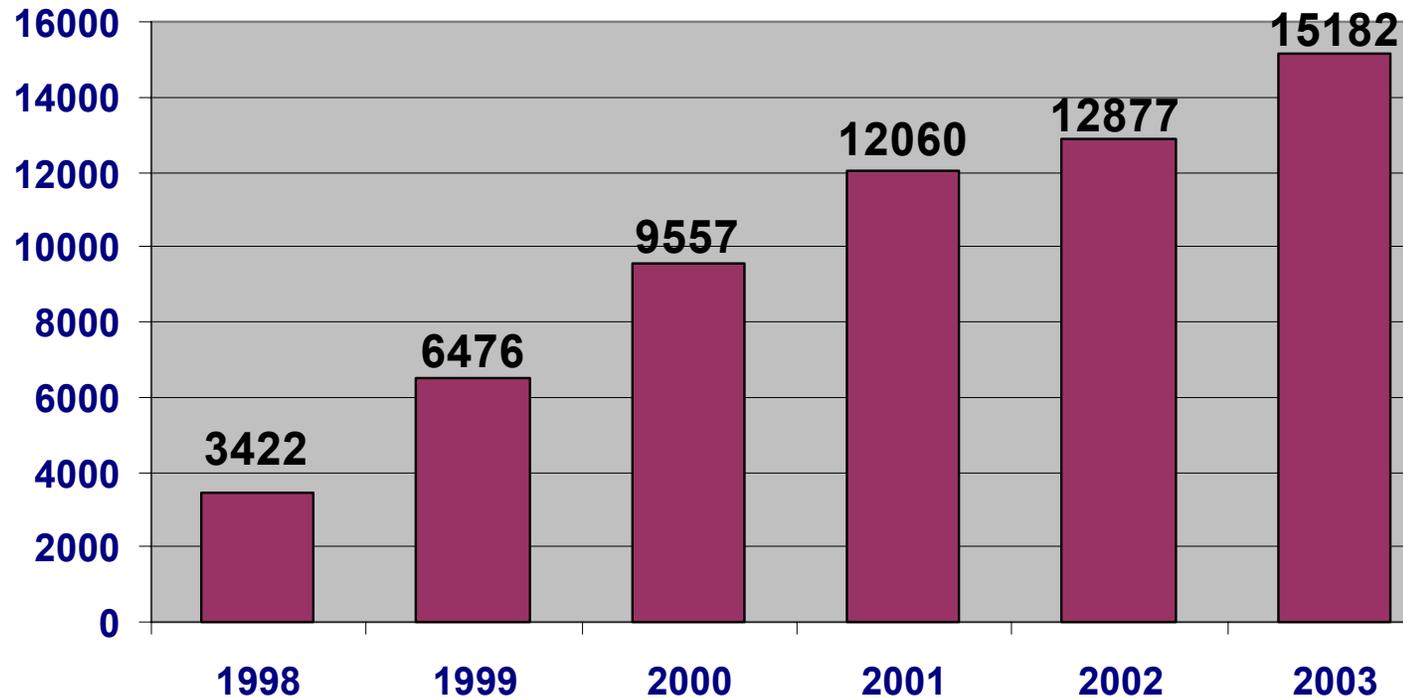
Steam Boiler Rebates - 82% AFUE

- \$200/unit

GasNetworks



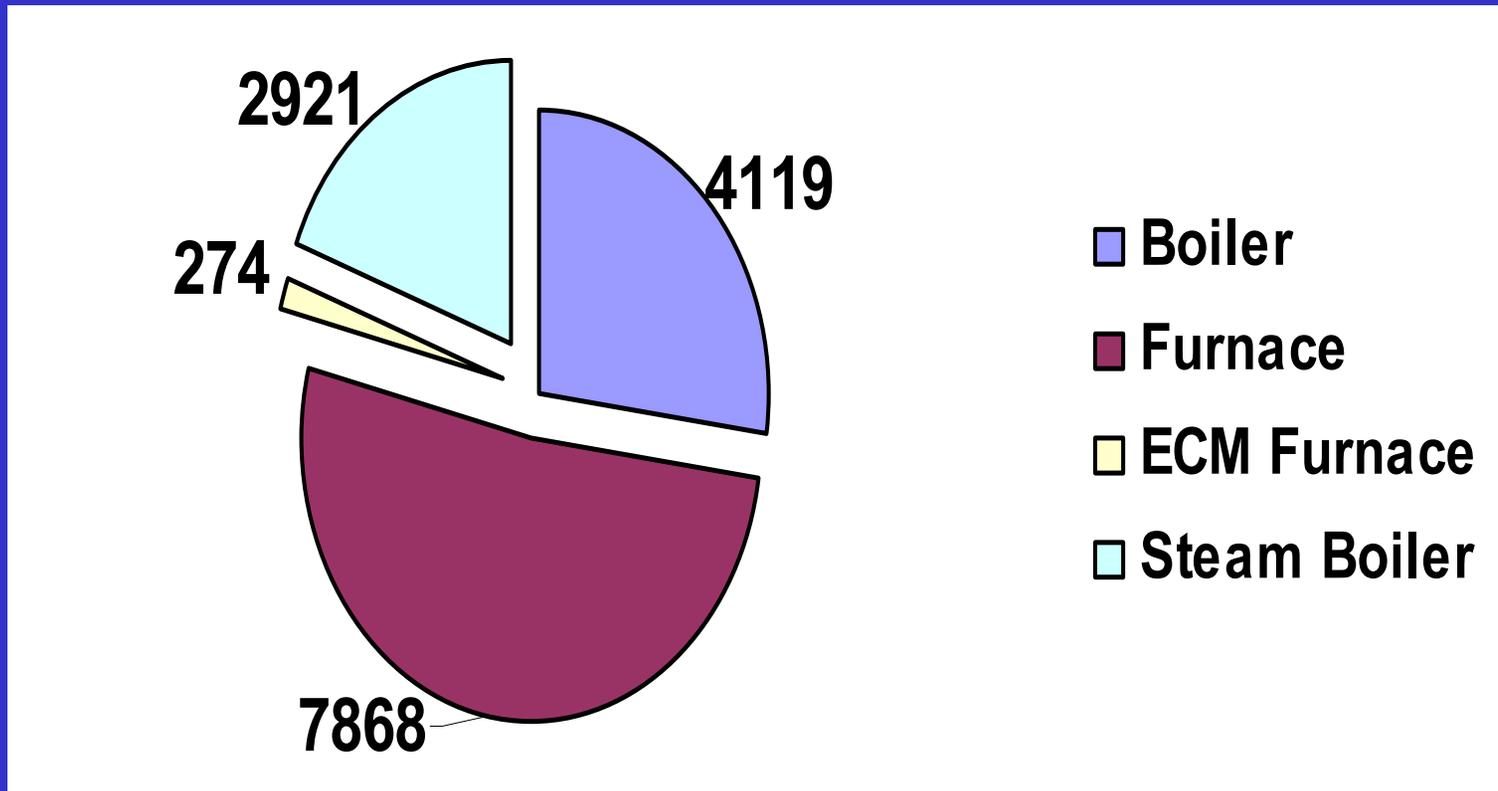
Total Residential HE Rebates



GasNetworks



Distribution of Rebates by Equipment Type 2003



GasNetworks



- Joint Utility promotion of Furnaces with High Efficiency Blower Fans
 - Utilities split \$400 rebate for gas furnaces ($\geq 92\%$ AFUE) with high efficiency blower fans (ECM or equivalent)
- Partnering Utilities:
 - Massachusetts Electric
 - NSTAR Electric
 - Western Massachusetts Electric
 - Unitil
 - Cape Light Compact



Massachusetts Cool Smart



April 2004 - Program launched

- Provides consumer rebates
- Offers special training and incentives for contractors
- Goals:
 - Provide 2,000 rebates
 - Provide 200 NATE Certifications



Program Sponsors:

Cape Light Compact, NSTAR Electric,
Nantucket Electric, Massachusetts Electric,
Unitil, and WMECo

Massachusetts Cool Smart



Rebate for Qualified ENERGY STAR Equipment

Central A/C – SEER 13 and SEER 13 with ECM

\$300 and \$350/unit

SEER 14 and SEER 14 with ECM

\$450 and \$500

Heat Pumps – SEER 13, HSPF 8 (with ECM)

\$300 (\$500)

SEER 14, HSPF 8.5 (with ECM)

\$450 (\$650)

\$100 Incentive for NATE certified contractor



New Jersey - CoolAdvantage and WarmAdvantage Programs



Electric HVAC - CAC and HP

SEER 13, EER 11 - \$300 and \$400 (8.0 HSPF)

SEER 14, EER 12 - \$500 and \$650 (8.5 HSPF)



Furnaces and Boilers

Furnaces - 90% AFUE - \$300/unit

Boilers - 85% AFUE - \$300/unit



Ground Source HP → EER 13 - \$500/ton

Rebate availability:

Existing Homes – Statewide

New Construction – Limited to specified 'Smart Growth' areas

New Jersey - CoolAdvantage and WarmAdvantage Programs



Year 2003 Program Activity:

- 16,009 Rebates -- CAC/HP
- 8,777 Rebates -- Furnaces/Boilers



HVAC Trainees:

- 1,244 (mix of Manual J, charge/airflow, sales training, prep for NATE certification test)
- NATE certified technicians: 427 new certifications in CAC or HP
- 172 ENERGY STAR sales training



Inspections ensure that program sizing, airflow and charging specifications are met.

Rhode Island – Cool Change Program



Electric HVAC - CAC and HP

SEER 13, EER 11 - \$370 and \$370 (8.0 HSPF)

SEER 14, EER 12 - \$550 and \$550 (8.5 HSPF)



- \$100 Spiff to the HVAC Contractors for filling out rebate forms, passing CheckMe test, completing inspections to ensure that program sizing, airflow and charging specifications are met.
- 35 Technicians trained on program requirements and quality installations in 2003.



New York - LIPA Cool Homes



Electric HVAC - CAC and HP

SEER 13, EER 11 - \$300 and \$400 (8.0 HSPF)

SEER 14, EER 12 - \$400 and \$600 (8.5 HSPF)

SEER 15, EER 13 - \$500



Contractor receives \$120 for (mandatory) completion of Manual J calculation.

Inspections ensure that program sizing, airflow, and charging specifications are met.

New inspections process more in-depth, verify airflow & Manual J calculations in addition to visual inspections.

New York - LIPA Cool Homes



Program Activities

- 5,527 applications for rebates processed in 2003
- 84 contractors trained to date on Manual J, airflow, and/or charging
- Consumer marketing in 2003 included Yellow Pages, updated website, consumer brochure, website and bill stuffers



Connecticut - High Efficiency Heating/Cooling Program



Electric HVAC - CAC

SEER 13, EER 11 - \$350



Electric HVAC - HP

SEER 13, EER 11, 8.0 HSPF - \$350



Ground Source Heat Pumps

EER 13.4, COP 3.1 - \$350

2,237 Qualified Rebates - CAC and HP combined in 2003.

Program disruption in 2003

Connecticut – Southwest Tune-up Program



After the Program suspension in 2003, Southwest CT is now offering a comprehensive set of services:



- \$50 Contractor incentive for quality installations
- Program Focused in Southwest CT
- Partnered with Honeywell Services to provide HVAC Diagnostic system tools to HVAC contractors
- 30 participating contractors and 100 Honeywell Service Assistant tools in use at this time
-



Vermont HVAC Program



Vermont Gas Program Activities for 2003:

- 189 rebates for furnaces (AFUE 90% or higher - \$350/unit)
- 137 rebates for boilers (AFUE 87% or higher - \$450/unit)



Efficiency Vermont

- CAC and Furnace Program launched in May/April 2004.
- \$50 Incentive to Contractors/Sales person
- 35 CAC rebates and 10 furnace fan rebates through the end of July.

New Construction Programs



Varying approaches to high efficiency HVAC:



- Included in HERS calculations for ENERGY STAR Homes compliance
- System commissioning services offered in some programs (MA)
- Rebates for high efficiency equipment (NJ)



Strategies to Increase Residential HVAC Efficiency in the Northeast



Budget: \$596,104

Schedule: July 2004 – 2005

Funders: US DOE, NJ BPU, NYSERDA

Tasks:

- Regional HVAC Market Characterization (Northeast)
- Assess Emerging Technologies & Practices
- Estimate HVAC Efficiency Potential in Northeast
- On-site survey comparing installations in NY & NJ by trained/certified and other contractors
- On-site monitoring of High SEER equipment in NY and NJ
- Draft program design to transform/develop market for duct sealing



NEEP's role is project admin and management as well and technical expertise, as in kind contributions.

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