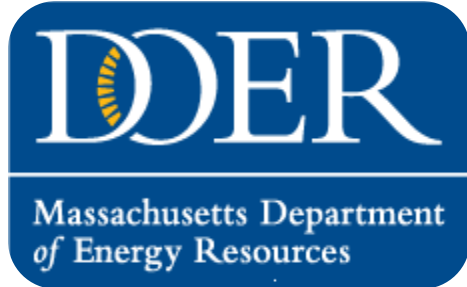


Creating A Cleaner Energy Future For the Commonwealth



COMMONWEALTH OF MASSACHUSETTS

Deval L. Patrick, Governor

Richard K. Sullivan, Jr., Secretary

Mark Sylvia, Commissioner

NESEA

BuildingEnergy 14

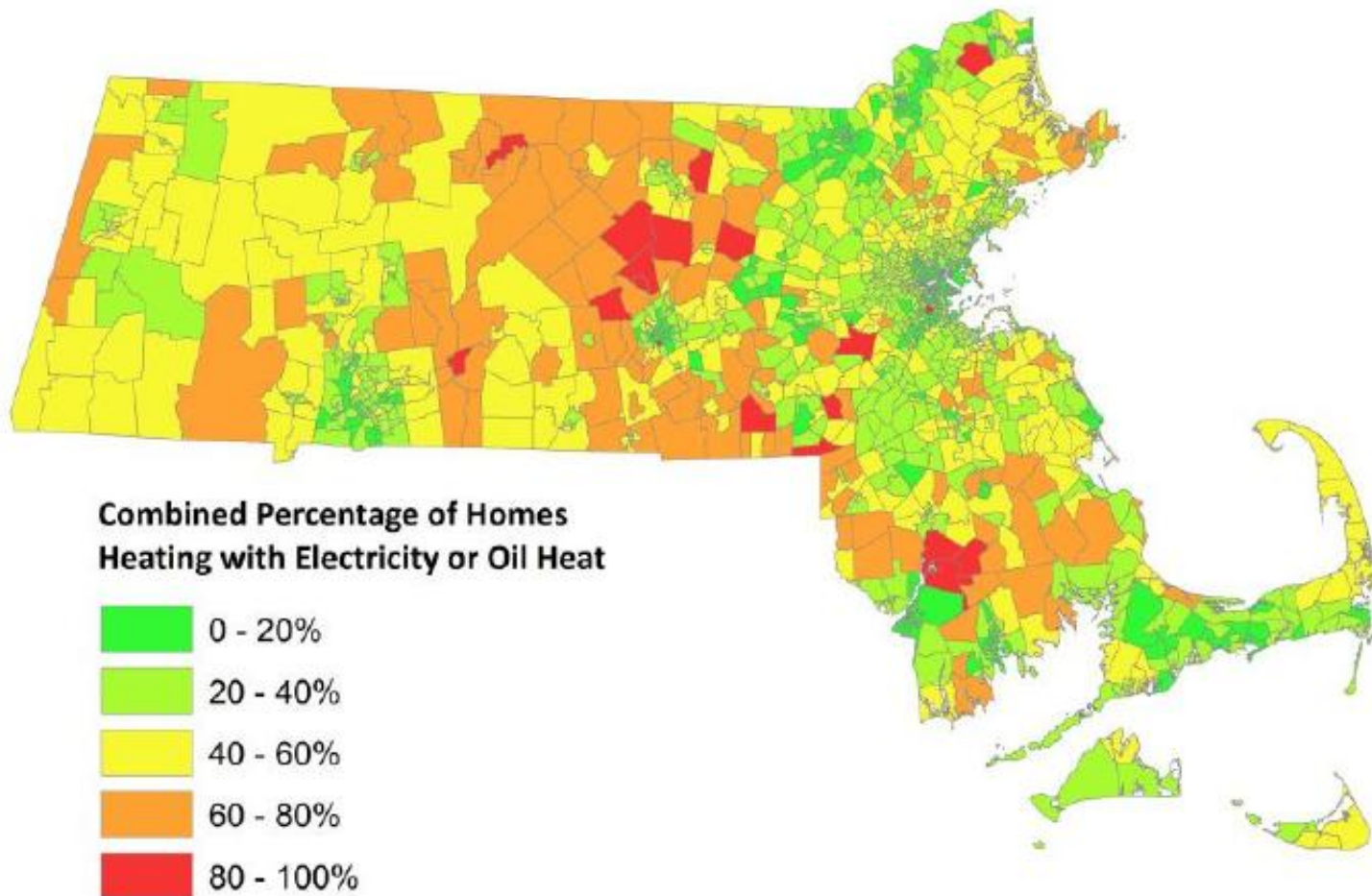
March 5, 2014

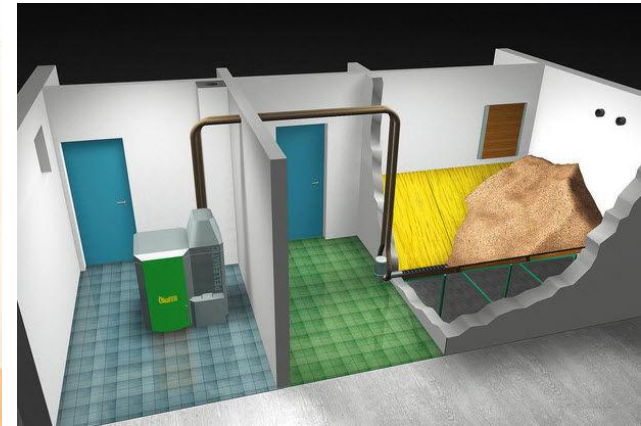
Renewable Heating/Cooling in Massachusetts

Bram Claeys

Deputy Director, Renewable and Alternative Energy Division

High Cost Fuels in MA



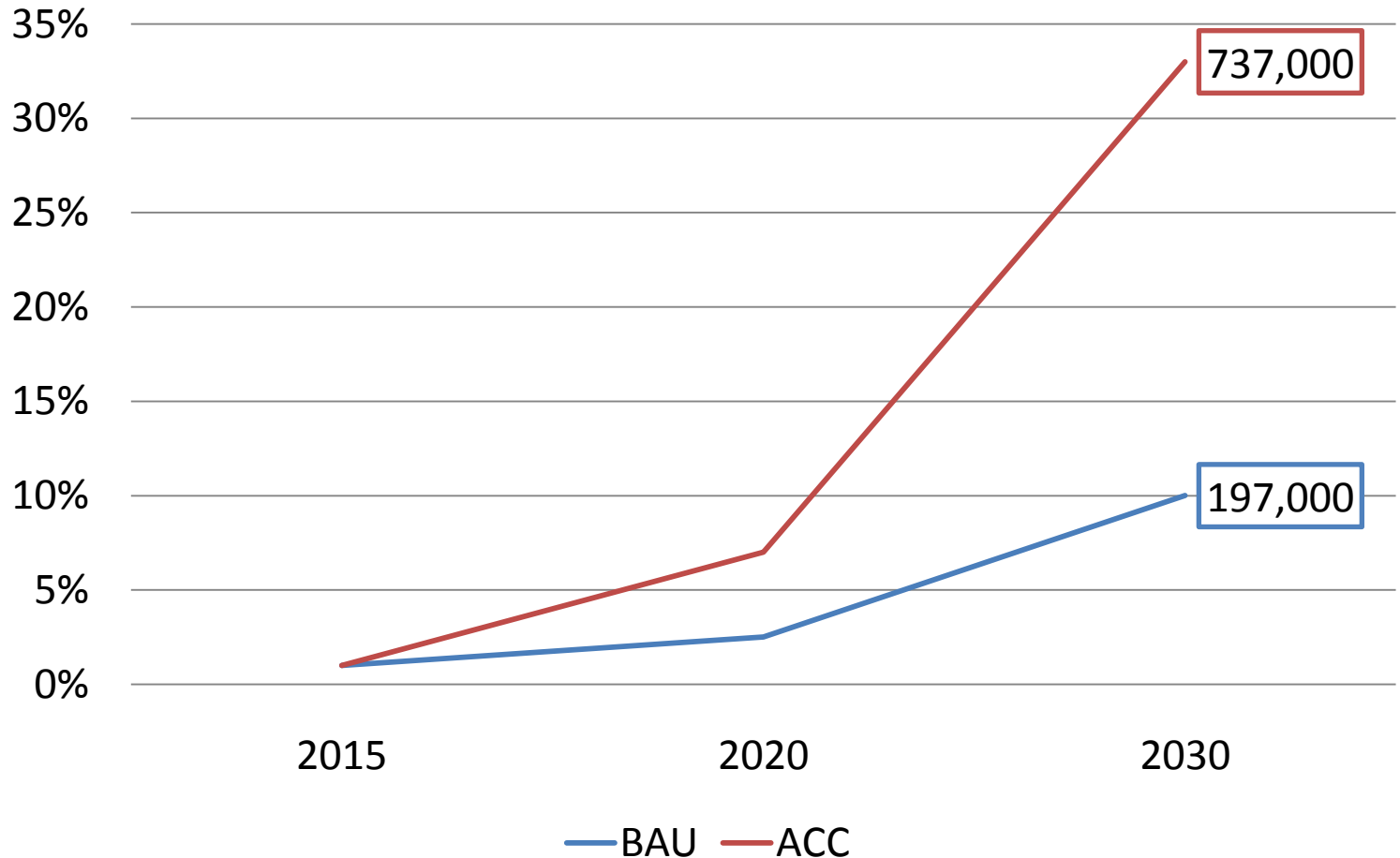


Creating A Greener Energy Future For the Commonwealth

Renewable Heating & Cooling

- Using energy in sunlight, underground, air, biomass, biogas, biofuels for
 - Space heating/cooling
 - Domestic hot water
 - Process heating/chilling
- Market opportunities – overcoming challenges
 - Fuel **cost savings**, less energy **imports**, **business** creation, **greenhouse** gas emission reduction, improved **air quality**
 - If done right...

Projected Renewable Thermal Market Share



Source: CARTS Report, Navigant/Meister for DOER, January 2014

Renewable Thermal in Massachusetts

- Clean Energy & Climate Plan 2020 goals
- Pilot programs to kick-start market: \$32 M
 - Demonstrate & Communicate
- Multi-pronged market strategy
 - Based on careful analysis
 - Coordinated with natural gas strategy
 - Including performance based incentive

Priority Strategies



Keystone:

- Develop statewide renewable thermal goals for each technology (Governance)

Cornerstones:



- Launch comprehensive RT technology information campaign with MassSave (Marketing)



- Leverage, coordinate, and expand efforts across state agencies to meet short-term goals (Governance)



- Support implementation of long-term, stable performance-based RT incentives (Governance)



- Integrate RT in state and public buildings via “Leading by Example” and/or other state energy programs (Governance)



- Enable low-cost RT financing with MassSave HEAT loan (Finance)



- Integrate RT into the Stretch Energy Code and other building energy codes (Governance)

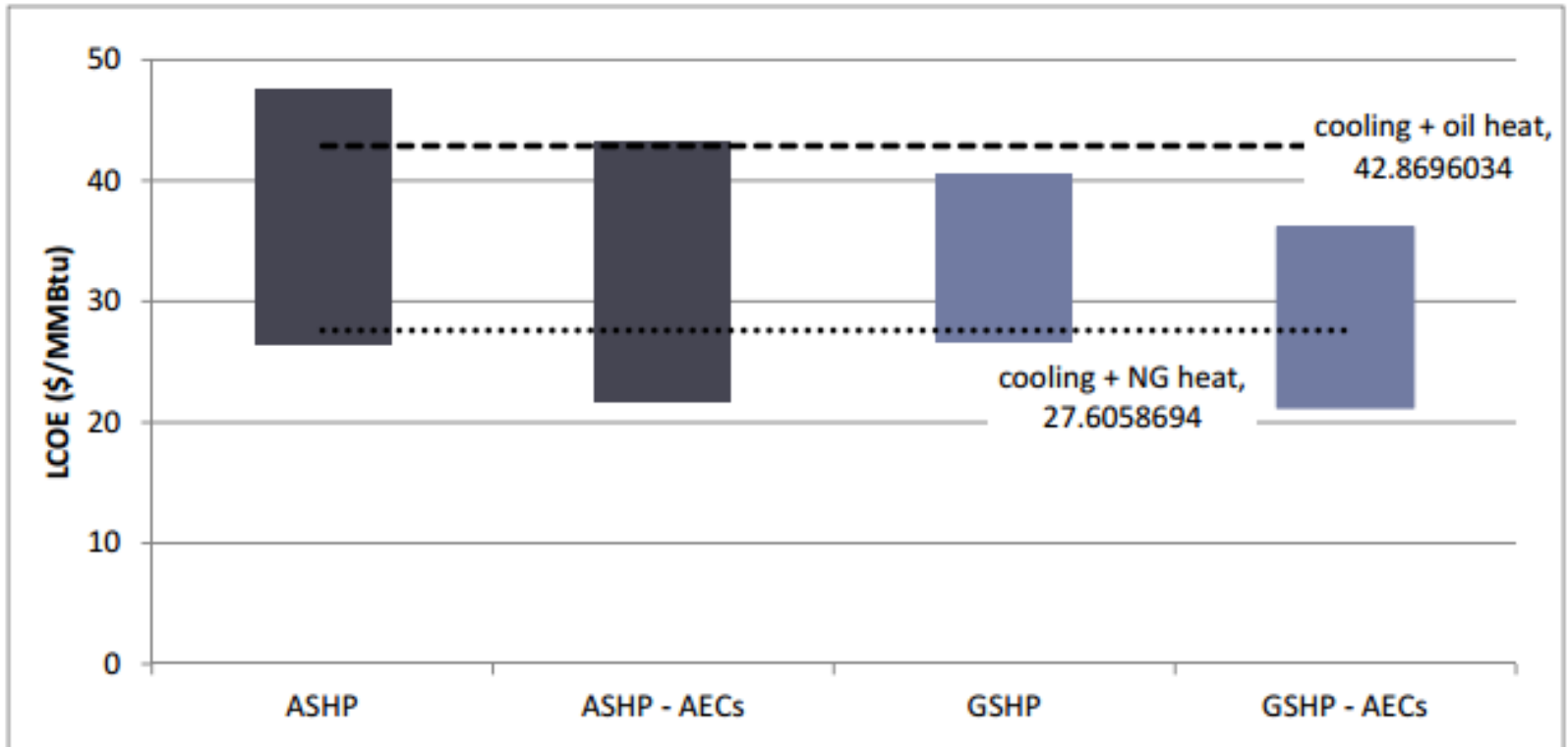
Source: CARTS Report, Navigant/Meister for DOER, January 2014

Proposed Legislation (S1970)

- An Act relative to credit for thermal energy generated with renewable fuels
- Adds to the Alternative Portfolio Standard:
 - “any facility that generates useful thermal energy using sunlight, biomass, bio-gas, liquid bio-fuel or naturally occurring temperature differences in ground, air or water”
 - 3,412,000 BTU = 1 MWh = 1 Credit (AEC)
 - DOER will set standards for verification, efficiency, air emissions and sustainability

Impact of inclusion in APS

Figure 5 - Financial analysis, total thermal load scenario, commercial size heat pump systems



Source: Legislative report on inclusion of thermal in APS, DOER/MassCEC/Meister Consultants, 2012

For Reference

- Bram Claeys
 - (617) 626-7324 / bram.claeys@state.ma.us
- DOER Renewable heating & cooling webpage
 - <http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/renewable-thermal/>
- Commercial project solicitation
 - <http://www.masscec.com/solicitations/renewable-heating-and-cooling-and-district-energy-solicitation>