Vermont
Energy Investment
Corporation

2015-2024

Efficiency Vermont Demand Resources Plan

Thermal Energy and Process Fuels

May 14, 2014

Vermont Energy Investment Corporation

Agenda

- Introduction
- Objectives
- Methodology
- Market Sector Plans
- Contrast from Current Practices

Introduction: Funding Source

Thermal Energy and Process Fuels

- Historical thermal efficiency savings leveraged from EEC funding
- 2006: VEIC became Market Participant in the New England Forward Capacity Market on behalf of Efficiency Vermont customers
- 2006: Vermont receives revenue from participation in the Regional Greenhouse Gas Initiative
- 2009: Thermal Efficiency services implemented through Efficiency Vermont using RGGI and FCM funds collectively

Introduction: Funding Source

Thermal Energy and Process Fuels

Supporting energy efficiency services for homeowners and businesses using unregulated heating and process fuels:

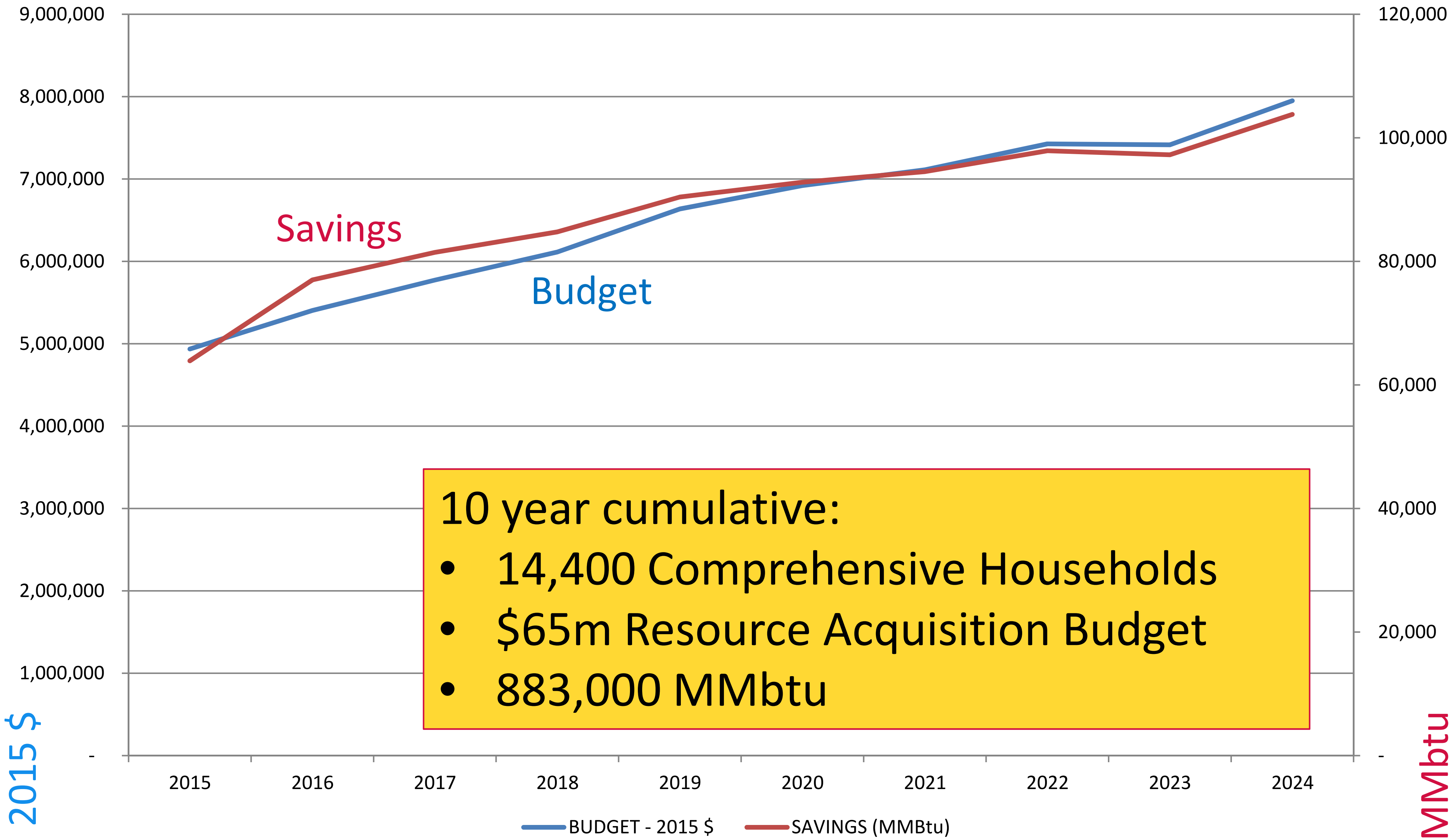
Oil

Propane

Kerosene

Woody biomass

Introduction: Budget, Annual Savings



10 year cumulative:

- 14,400 Comprehensive Households
- $65m Resource Acquisition Budget
- 883,000 MMbtu

Objectives

- Support Diverse Customer Classes
  - Commercial & Residential, reflective of the Heating and Process fuels consumed by these sectors
- Addressing the Needs of Low Income Vermonters
  - Support of *VT Fuel Efficiency Partnership*, a supplemental service to Weatherization Assistance Program
  - Provides deeper energy efficiency measures and project management of complicated multifamily projects
  - 45% of low income Vermonters live in apartments; 99% of all apartments serve low income households.

Objectives

- Supporting a scalable service infrastructure to achieve Vermont's energy goals

Although current resource acquisition is constrained by available TEPF funding, VEIC's services are scalable in response to marketplace changes to enable "continuous and proportional progress toward attaining the overall state building efficiency goals."

- Fuel price signals
- New regulations *(building energy labeling, code enforcement)*
- Fluctuating program budgets

Objectives

- Comprehensive thermal energy retrofits that minimize lost opportunities
  - Home Performance with ENERGY STAR
  - Building Performance
  - Vermont Fuel Efficiency Partnership
- Managing long-term comprehensive retrofits through ongoing customer engagement

  Create long-term foundational plans:
    - Where a single comprehensive retrofit is not a viable option
    - Customers realize benefits of comprehensive efficiency retrofits over time

Objectives

- Leveraging opportunities: coordinating services across fuels, geographic regions, and incomes
  - Solar Domestic Hot Water heating
  - New and emerging technologies such as heat pumps for space heating and domestic hot water efficiency
  - Weatherization / VFEP collaboration
  - Conservation savings through customer behavior changes

Promotes consistent messaging to customers, integrates with EEC measures

Methodology: Budget Forecast

- January 10, 2014 TEPF Budget estimate from PSD
  - FCM budget adjusted to nominal dollars, 2% inflation;
  - RGGI presented in 2015 $, no inflation rate
  - 20% combined placeholder: NRA, Operations Fee, QPI Award

Methodology: Modeling Assumptions

- Residential / Commercial: 75%/25%
- Low Income:
  - 17% Assumed QPI Target
  - 21% DRP Forecast
- With and without customer behavior initiatives
- Vermont Gas Expansion
  - Phase 1 and 2: No TEPF DRP effects noted through ~3,000 potential natural gas accounts
  - Rutland Potential: Re-evaluate plan assumptions upon Certificate of Public Good

Methodology: Budget Constrained Plan

- Savings and Program yields
  - MMbtu / $1,000
  - Projects / $1,000
  - Based on historical rates, adjusted for forecasted program and market changes
  - HPwES and BP yields reflect savings verification and Act 89 cost allocation adjustments

Plan: Market Sectors

TEPF Services:

1. Comprehensive Thermal Shell Retrofits
2. Mechanical Systems
3. Targeted Commercial Market Sectors

Supporting:

1. Leverage historical investments in contractor partnerships and training
2. Alignment with EEC funded initiatives
3. Achieve increased yields from historically underserved commercial market sectors

Plan: Comprehensive Thermal Shell Retrofit

- Low Income Multifamily: VFEP (~5+ unit MF)
- Home Performance with ENERGY STAR (1-4 unit res.)
- Building Performance (5+ unit res. & mixed use)

The comprehensive retrofits within these market sectors are critical components in meeting the State's energy goals. Efficiency Vermont continues to improve the delivery infrastructure to expand the initiatives, in the event that future funding develops.

Plan: Mechanical Systems
(Residential and Commercial)

- Oil and Propane heating systems
- Biomass heating systems
- Solar thermal
- Heat Pumps

Increase the market penetration of energy-efficient mechanical equipment through partnerships and education campaigns with contractors and suppliers.

Provide consistency with EEC baseline measures.

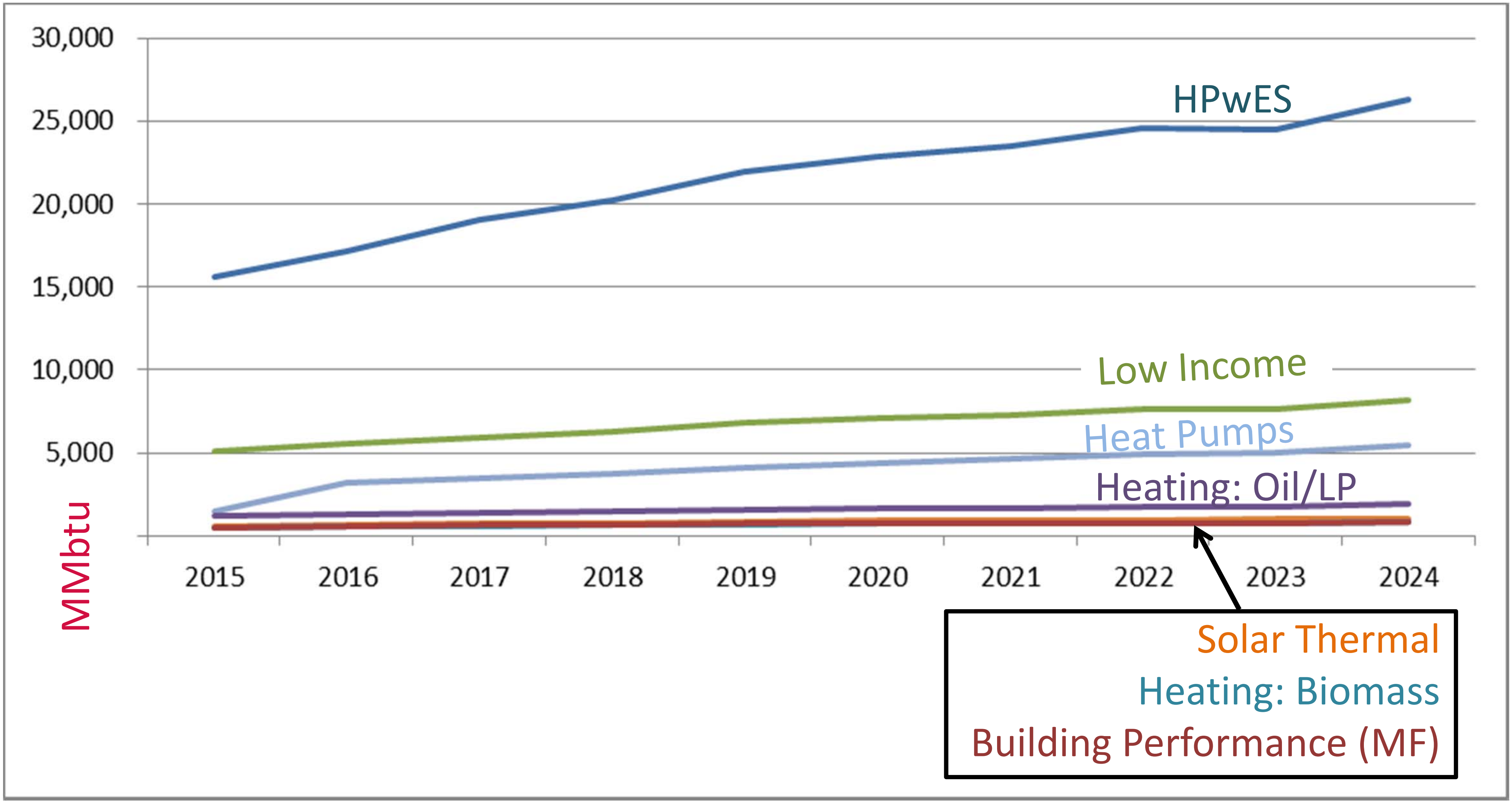
Plan: Targeted Commercial Market Objectives

- Support market sectors that are challenged with very low operating reserves
- Support historically underserved market sectors
- Very cost-effective measures provide significant economic benefits to fragile sectors of economy
- Capability to closely monitor and balance program implementation capacity with available funding

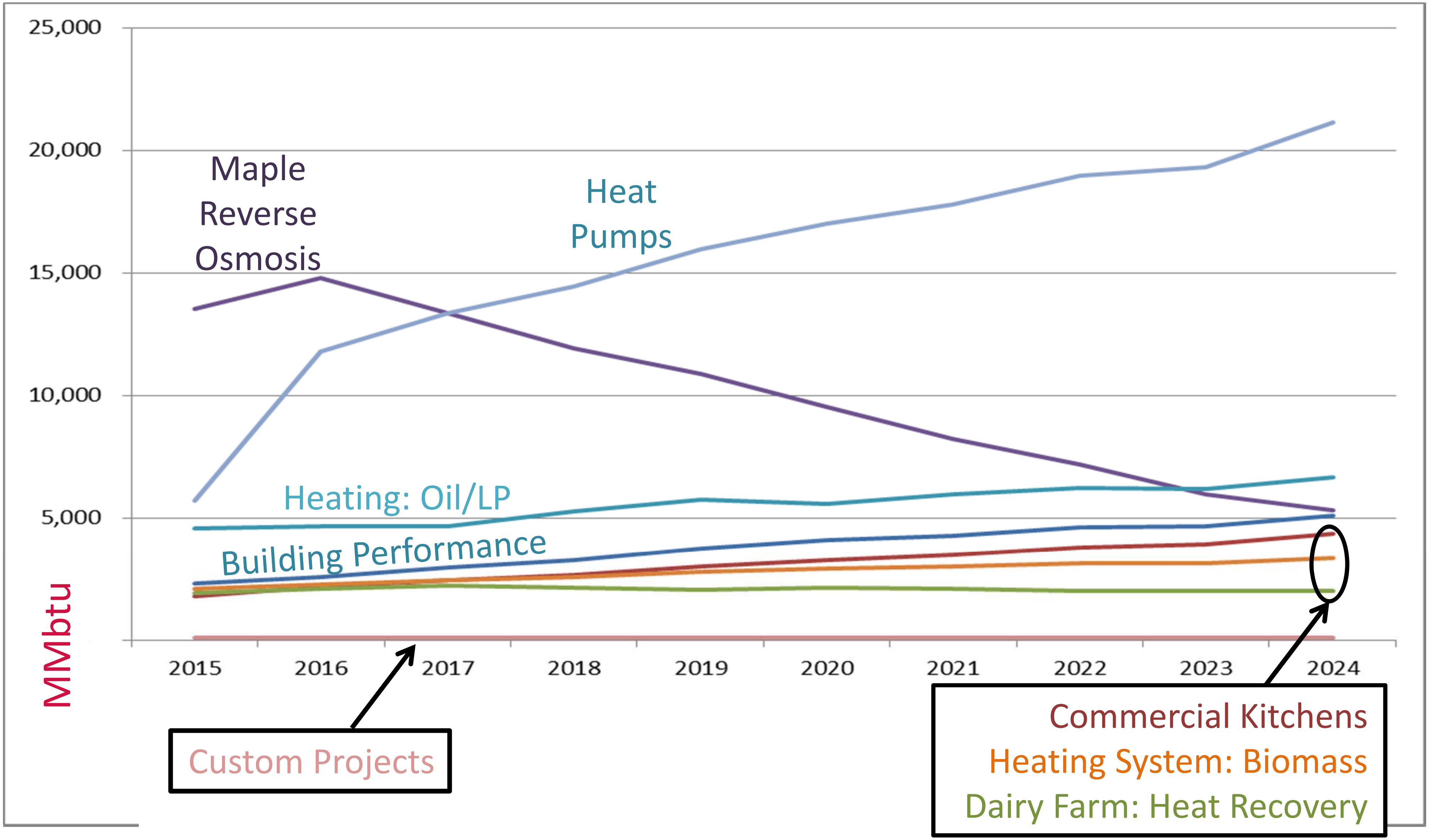
Plan: Targeted Commercial Markets

- Agriculture
  - Dairy Farm Heat Recovery
  - Maple sugaring reverse osmosis
- Commercial Kitchens
- Custom Commercial Projects
  - Forecast at $0 / 0 Savings
  - Flexibility to serve unique opportunity
  - TEPF funding constraints will not enable Custom commercial projects to become a standard offering. In addition, the associated challenges of consistently providing and messaging thermal services to what would be a limited quantity of commercial customers is also a constraint

Plan: Residential Program Savings



Plan: Commercial Program Savings



Contrast from Current Practices

- 35% reduction in HPwES households in 2015
  - Ramifications of Act 89 (costs reallocated from EEC to TEPF budget)
  - 21% low-income modeling assumption
  - Residential modeling at 75% of Resource Acquisition
- Increase in overall MMbtu savings
  - Reallocation of budget from Residential (HPwES) to higher yield commercial programs.

Questions?