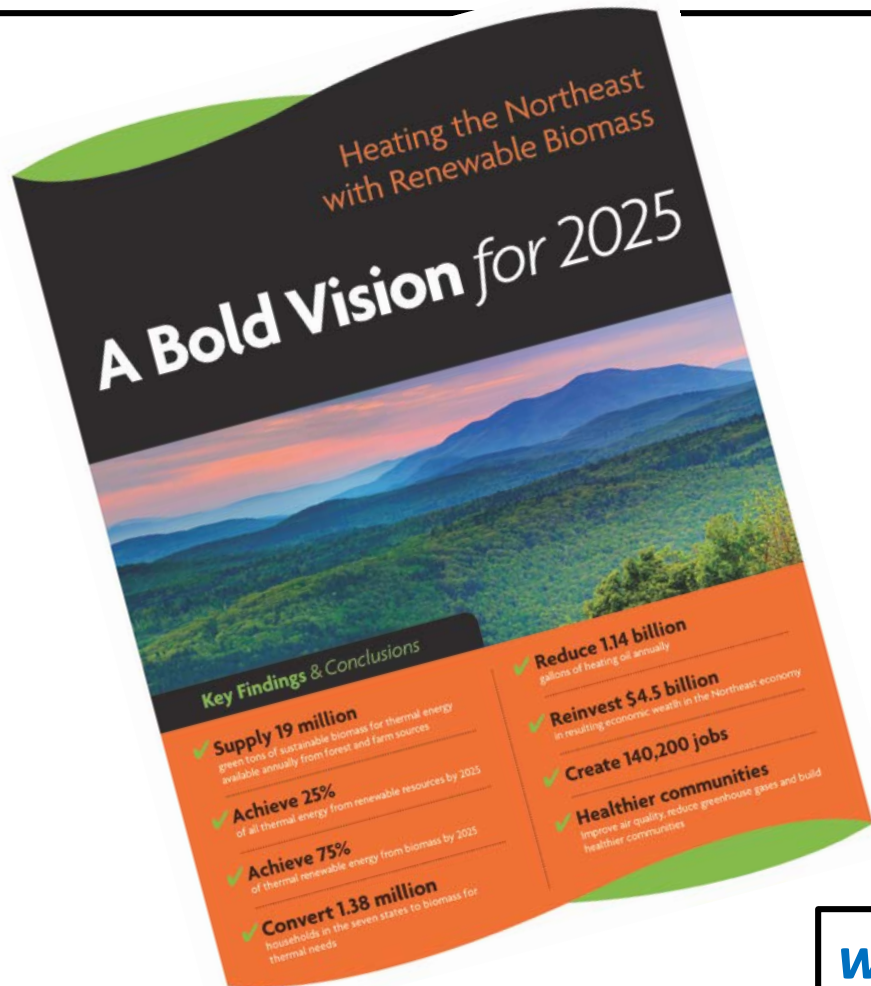


***Advancing Modern Wood Heating  
Across the Northeast:  
A Retrospective on a Decade of Progress***



Charlie Niebling  
Innovative Natural Resource Solutions LLC  
5<sup>th</sup> Heating the Midwest Conference  
October 13, 2016  
Escanaba MI

# Heating the Northeast with Renewable Biomass: *A Bold Vision for 2025*

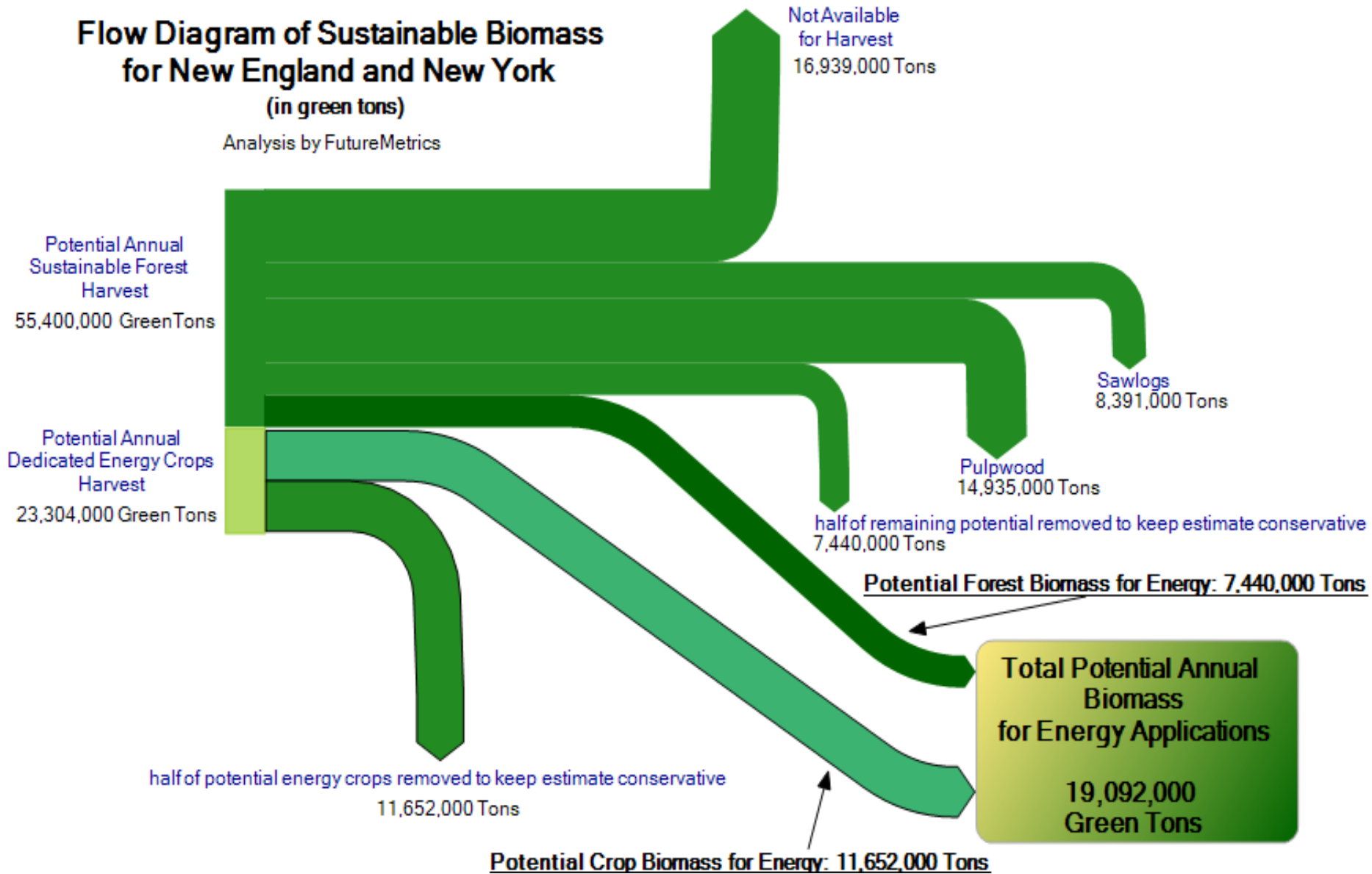


- An American Revolution in thermal renewable energy, to start in the Northeast
- 25% of all thermal energy in Northeast from renewable energy by 2025
- 75% of renewable thermal energy from sustainably-sourced forest and agricultural biomass by 2025 (balance from solar thermal and geothermal)

[www.nebioheat.org/vision](http://www.nebioheat.org/vision)

# Flow Diagram of Sustainable Biomass for New England and New York (in green tons)

Analysis by FutureMetrics

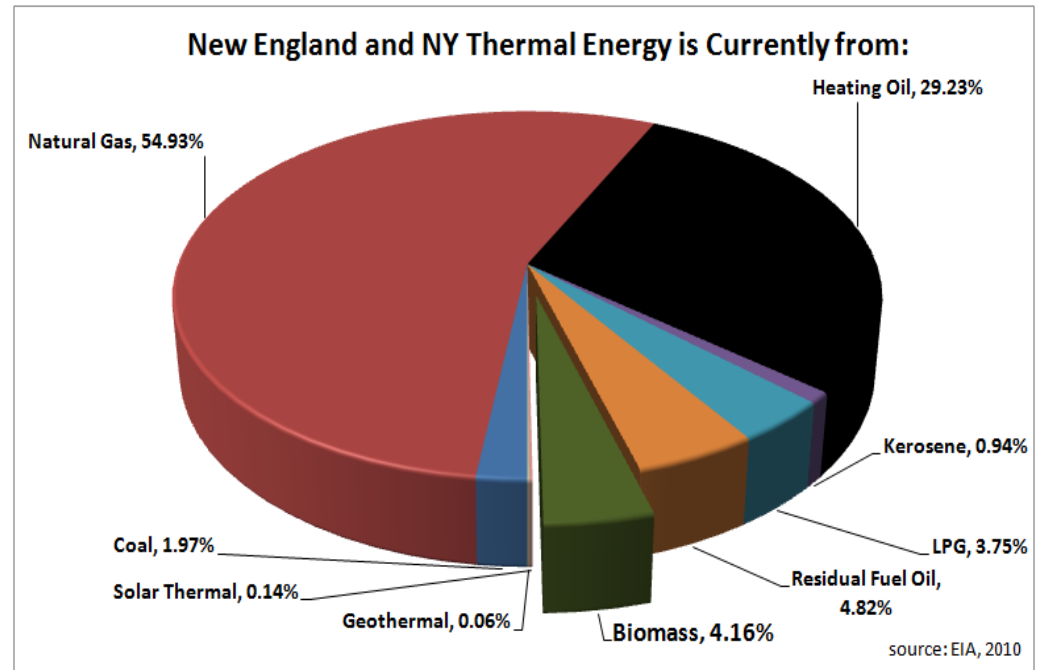


# 2025 Vision – Potential Economic Benefits

- ▶ Conversion to biomass thermal will displace over 1.14 billion gallons of oil annually by 2025. This represents over 20% of all heating oil consumed in the Northeast, making our region more secure
- ▶ Conversion of **1.39 million homes and businesses** will enable the retention of more than \$1.6 billion in annual income in our economy instead of exporting to other economies
- ▶ By 2025, the Northeast would have more than \$4.5 billion new dollars per year injected into the regional economy
- ▶ This retention of wealth and expansion of the biomass thermal industry will result in a total of 140,200 permanent jobs (new and retention of existing)

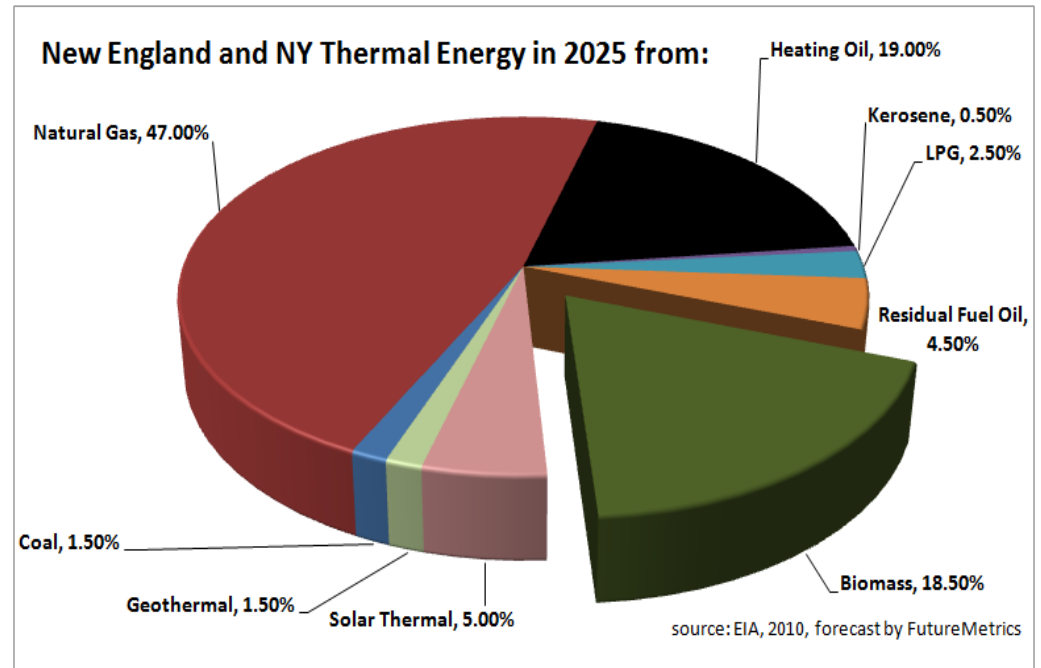
# 2010

Biomass = 4.16%  
of thermal energy

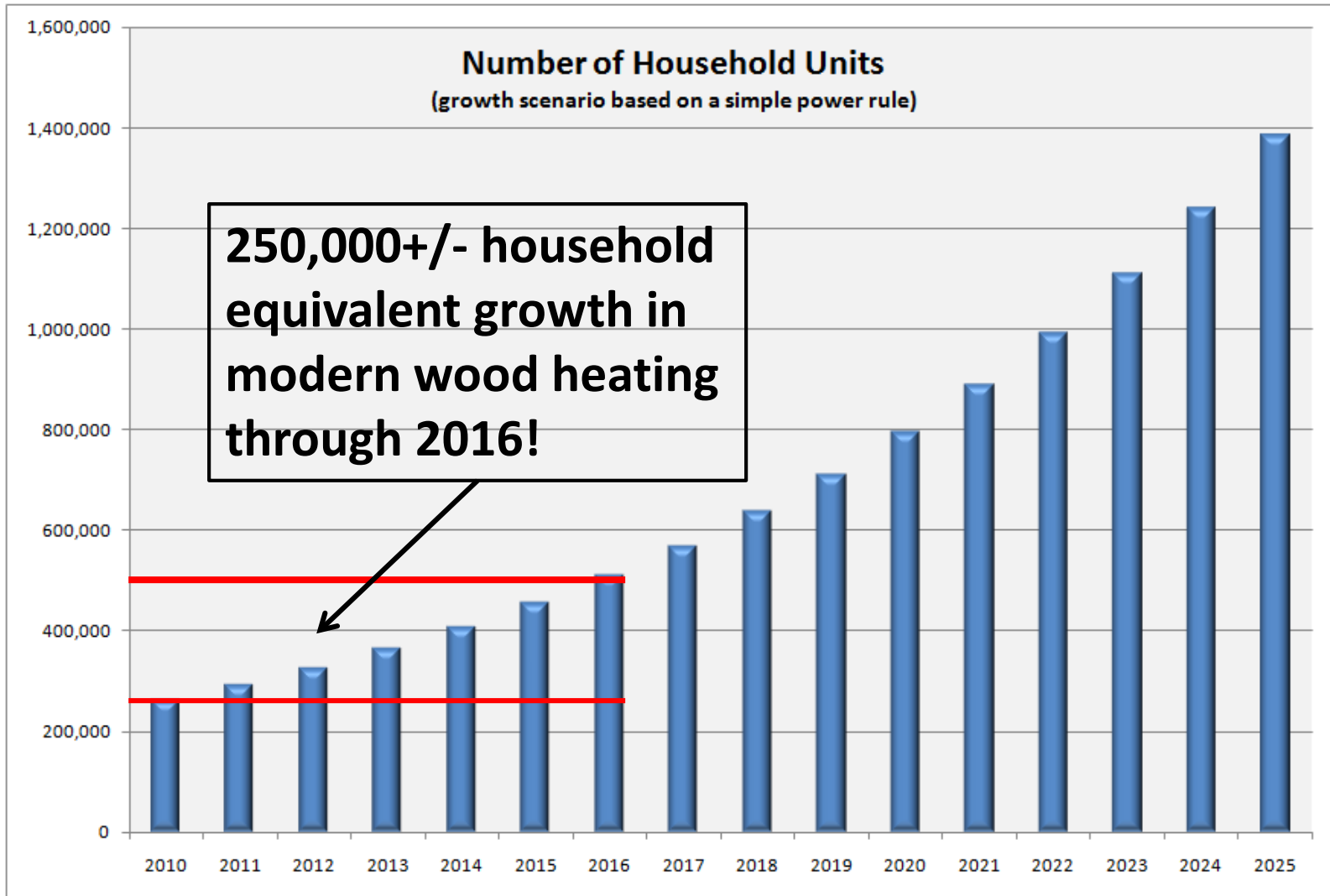


# 2025

Biomass = 18.50%  
of thermal energy



# A Challenging Scale-Up!



# Ten Years of Steady Growth in Domestic U.S. Heating Pellet Industry

- **Up Years**

- 2005-2006 – Hurricanes Katrina and Rita
- 2007-2008 – Dramatic spike in oil/natural gas prices
- 2012-2015 – Cold winters and steady increase in heating oil and propane



# Ten Years of Steady Growth in Domestic U.S. Heating Pellet Industry

- **Down Years**

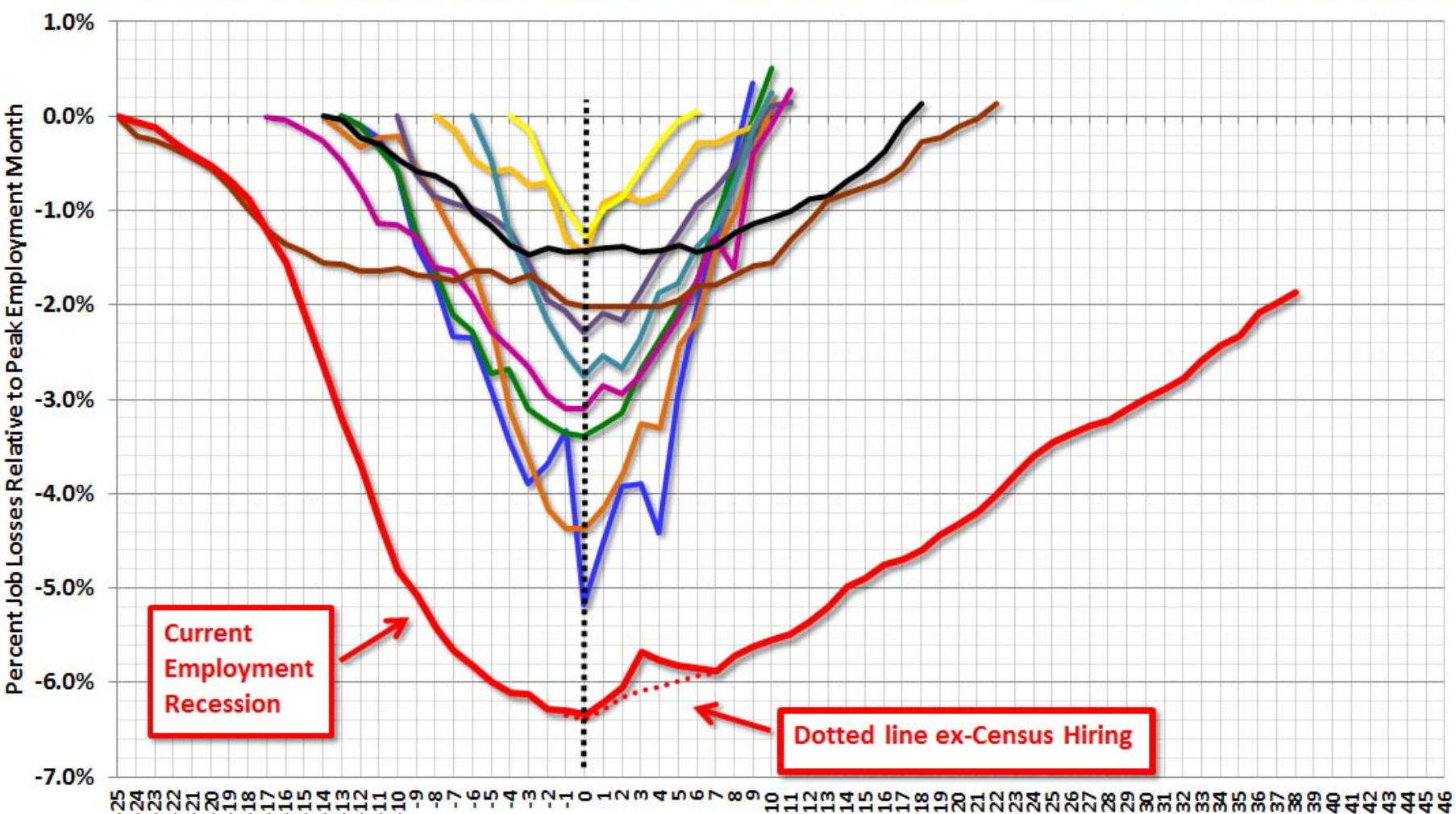
- 2006-2007 – Warm winter
- 2009-2010 – Recession, rapid drop in fossil heating fuel prices
- 2015-2016 – Record warm winter, sustained dramatic drop in fossil heating fuel prices





### Percent Job Losses in Post WWII Recessions, aligned at maximum job losses

1948 1953 1957 1960 1969 1974 1980 1981 1990 2001 2007 ex-Census



Dotted line ex-Census Hiring

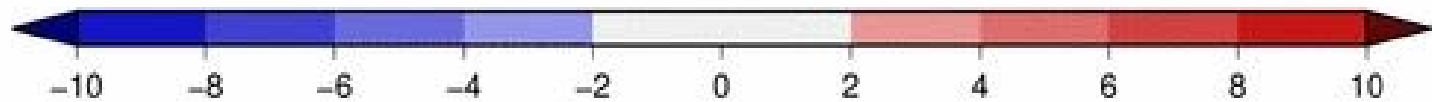
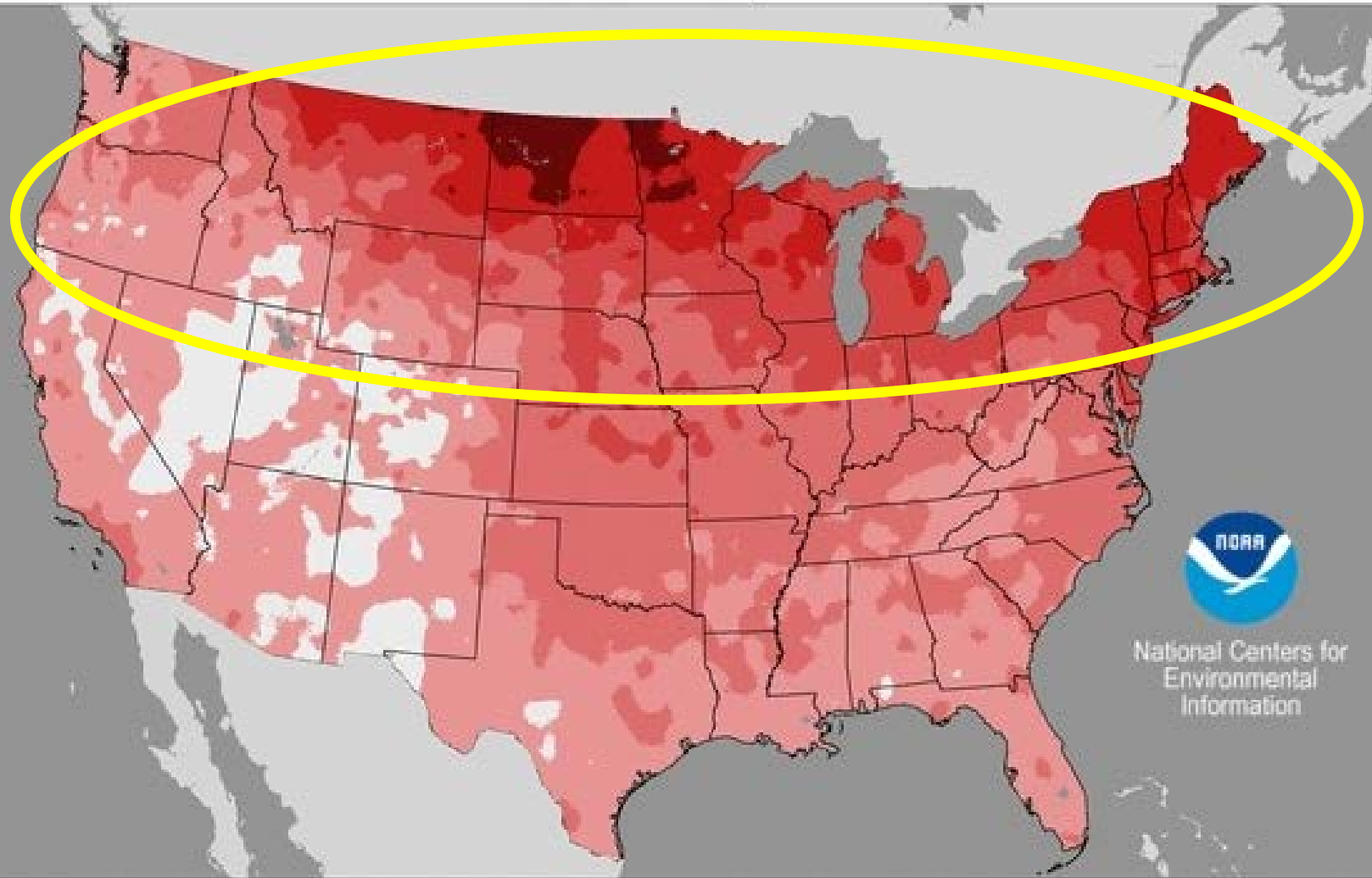
Current Employment Recession



# Mean Temperature Departures from Average

December 2015 – February 2016

Base Period: 20<sup>th</sup> Century



# Crude Oil WTI

MAR 29 2016 03:35 PM

O:39.55 H:40.14 L:37.91 C:38.43

-0.96 (2.44%)

finviz.com



# **In the Face of Adversity, Much Progress and Accomplishment!**

- **Private, Public Investment in Capacity and Market Development**
- **Recognition**
- **Policy**
- **Regulatory Reforms**
- **Organization**

# Private, Public Investment in Capacity, Market Development

- **Millions in new investment in fuel manufacturing** – 160% increase in pellet capacity 2006-2016 (105K to 834K TPY)
- **Millions in state, federal grants** to support building capacity
- **Millions in investment** in bulk delivery, trained installers
- **Private philanthropic/foundation capital:** BEREC, NFC and other nonprofits, USEFC

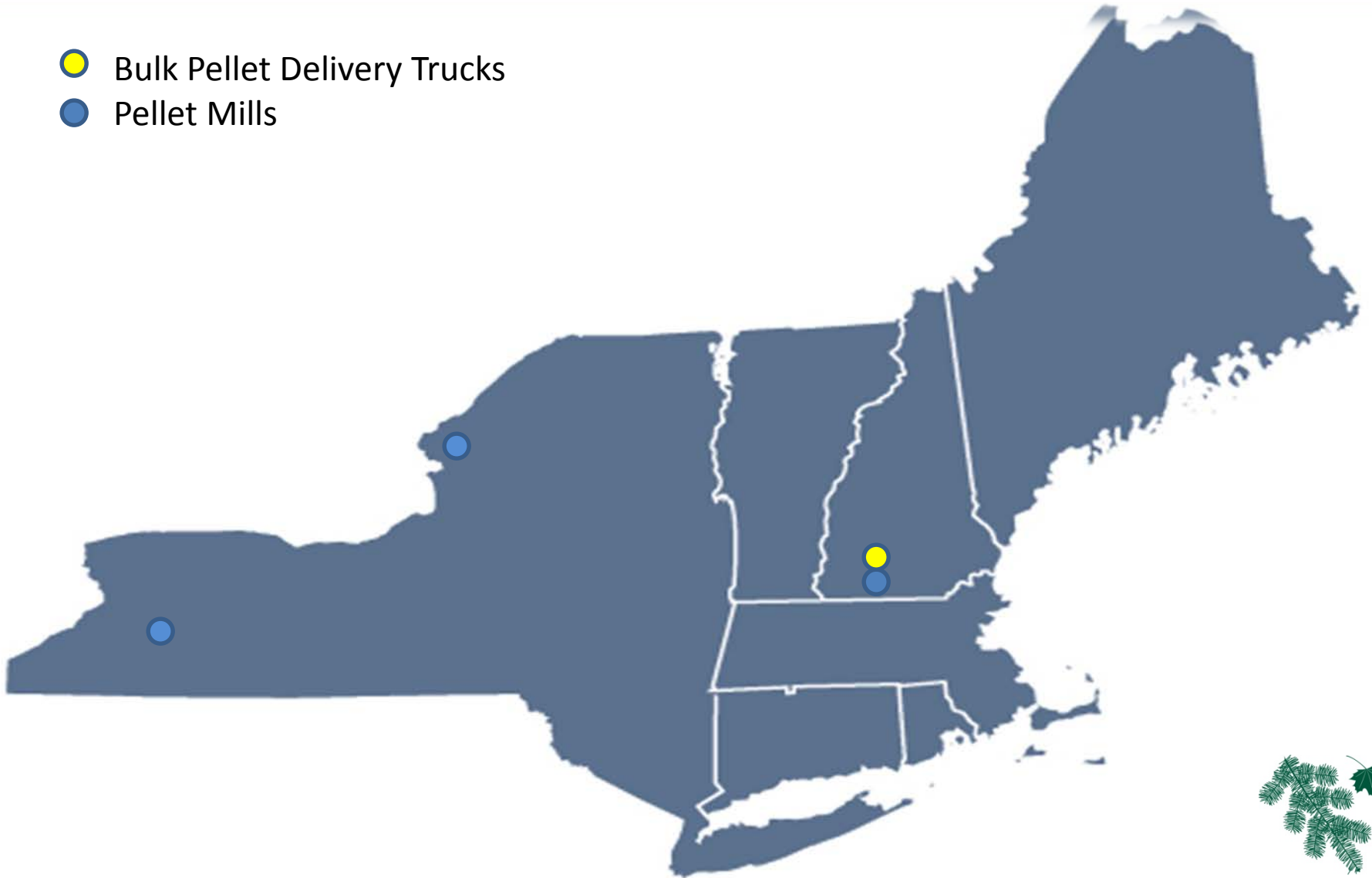
# New England/New York Mill Capacity

Mill	2006 Capacity	2013 Capacity	2016 Capacity
ME 1	---	25,000	40,000
ME 2	---	35,000	75,000
ME 3	---	50,000	81,000
ME 4	---	90,000	110,000
NH 1	60,000	80,000	85,000
VT 1	---	14,000	18,000
VT 2	---	---	30,000
NY 1	5,000	5,000	5,000
NY 2	---	80,000	85,000
NY 3	---	80,000	100,000
NY 4	---	80,000	120,000
NY 5	40,000	50,000	60,000
NY 6	---	10,000	15,000
CT1	---	---	10,000
<b>TOTAL</b>	<b>105,000</b>	<b>599,000</b>	<b>834,000</b>



# Pellet Supply/Distribution 2006

- Bulk Pellet Delivery Trucks
- Pellet Mills





# Pellet Supply/Distribution 2016

Active in Bulk Fuel Markets:

2016 Pellet Mill And Truck Locations

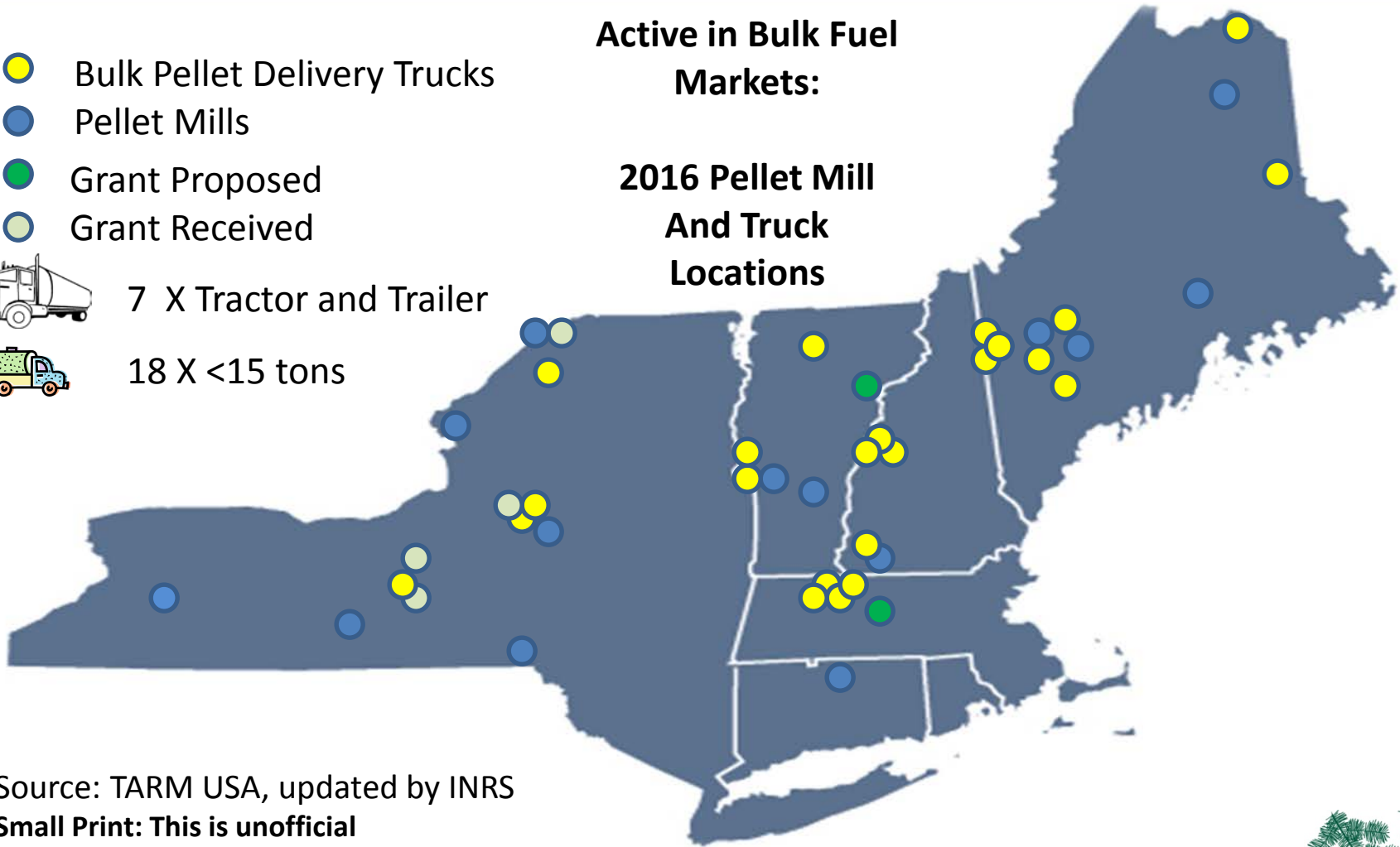
- Bulk Pellet Delivery Trucks
- Pellet Mills
- Grant Proposed
- Grant Received



7 X Tractor and Trailer



18 X <15 tons



Source: TARM USA, updated by INRS  
Small Print: This is unofficial



# Recognition

- **State Energy/Climate Plans** – MA, NH, VT
- **State Renewable Thermal Strategies** – MA, NY/RI coming
- **EIA tracks and reports biomass heating!!**
- **Federal Executive Orders**
- **Community energy initiatives**, e.g. NH LECs,
- **Recognition** by financing institutions, insurance industry, realtors, building code enforcers

# Policy

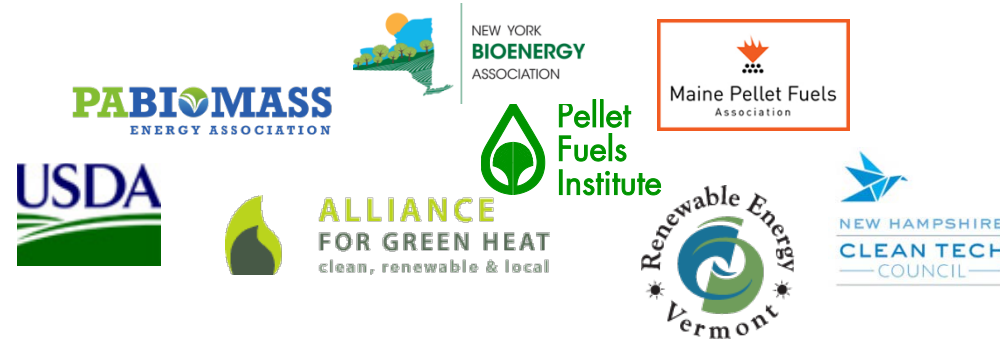
- **State Incentive Programs** – NH, ME, MA, NY, VT
- **Thermal in state Renewable Energy Standard** programs – NH, MA, VT and soon possibly NY and RI
- **Renewable thermal as RGGI offset**
- **Thermal now in federal definition** of renewable energy (pending energy bill)
- **BTU Act has fighting chance** during lame duck

# Regulatory Reforms

- **An NSPS we can live with**
- **Standards** – fuel, boilers, bulk storage and delivery, recognition of EN standards (NH, VT)
- **Certification and licensing** – Maine Fuels Board waives solid fuel licensing requirement
- **HUD recognition** of automated pellet boilers
- **NYSERDA/EPA endorsement** of boilers built to EN standards

# Organization!

- **Get organized! A rising tide floats all boats! Start with a national organization: BTEC (2009)**  
[www.biomassthermal.org](http://www.biomassthermal.org)
- **Organize grassroots advocacy and address common challenges across region: Northeast Biomass Thermal Working Group (2010) “NEBTWG”**  
[www.nebioheat.org](http://www.nebioheat.org)
- **Promote a Vision: Heating the Northeast with Renewable Biomass – A Bold Vision for 2025**
- **Bring people together: Northeast Biomass Heating Expo – 9<sup>th</sup> year in 2017** [www.nebiomassheat.com](http://www.nebiomassheat.com)
- **Support state organizational efforts: ME, NY, PA, VT, NH Work together with other organizations and agencies: PFI, AFGH, USDA, USFS**





# ***Modern Wood Heat: Prescription for Progress in Challenging Times***

- Policy matters: have to be recognized to exist
- Organizations matter – state, regional, national
- Projects – show people this stuff works!
- Messaging – focus on all benefits, not just economic
- Go on offense in face of critics: facts, data and science

What keeps you up at night?



What gives you hope for the future?

