Oil for Heating and Transportation
Maine Per Capita Use is High
A 2017 Perspective

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Perspectives

• Maine Fuel Marketer Background
• 2017 Reducing Oil Use. The “Why” and “How” Per capita?
• Using Oil = Human Flourishing
• Big Story = Today’s price – Future?
• Technology advancements
• Liquid Bio-Fuels
Who are We?

The Trade Association for Maine Energy Marketers

Our Mission:
Providing Advocacy, Education, Leadership and Support to Assure Member Success Since 1954
Who/What is MEMA?

- 300 energy distribution companies statewide (non-utility)
- 1000 Convenience Stores
- Over 8,000+ employees
- Excellent pay and benefits
- State of the art educational facility and programs MTEC
- Health, Workers Comp, Dental, Life, Disability Insurance programs for members
- Providing energy products to Maine people that Maine people want: Affordably, Efficiently, Reliably
Investment in Maine?

Billions

• People – good paying jobs
• Oil and Propane Delivery Trucks = $125,000 each
• Transports (tankers) = $250,000 each
• Service Van = $100,000 each, equipped
• Storage facilities = $100,000 - $100,000,000 each
• Property taxes – annual Multi-millions
• Excise taxes – annual Millions to municipalities
What has Changed in 50 years?
Or for That Matter since 2011?

• Legacy Policies from 70’s oil embargos to occasional price spikes
• 2011 Maine legislature goals. Massive Changes to energy markets since then. The US Shale market was just developing.
• Relative costs of energy to other everyday goods and services
• Why Look at downsides only without measuring the good
• Greenhouse gas emissions. Relative parity with other Fuels. CO2, methane.
• CAFÉ standards Do more to reduce and will not be repealed.
Maine Energy Markets are Mature
Demand is Falling

- **Energy demand** in Maine has not grown in nearly 20 years.
  - Demand for all forms of energy in all sectors is either stable or falling.
- **Demand for all petroleum products** has been falling since 2005 with the exception of LPG.
- **Electricity demand** in all sectors is stable or falling.
- **Residential energy demand** in Maine has fallen sharply since 2004 with all of the decline coming from heating oil. Demand for other residential energy has not grown since 2006.
Oil = scalable, affordable, efficient,

“If oil didn’t exist, we would have to invent it. No other substance comes close when it comes to scale, energy density, ease of handling and flexibility. Those properties explain why oil provides more energy to the global economy than any other fuel. (It accounts for about 33 percent, compared with coal at 30 percent, natural gas at 24 percent and hydro at 7 percent.”

The other oil equation

Without oil, life span was 40 years. Without oil, no air travel, major food transportation, agriculture, medical advances, Computers, cities, clothes, electric

Without oil, we could not control our living environment.

Maine per capita use of petroleum High. Why?

Cold

Unconcentrated living

NY state is #1. Why?

US Energy Revolution

We’ve Gotten Off “Foreign Oil”

• US Crude Production up 70% since 2010 (No one predicted this)
• By 2025 US production will eclipse Saudi Arabia
• 2 million gals per day petroleum exports from US
• Natural gas export infrastructure catching up to production. NG will become world priced. Chenierre on line 4 others being built
• *2011 energy goals built on this price fact
• Reduced volatility due to US influence in oil and natural gas markers

Source: CME
The U.S. Geological Survey says a deposit in West Texas is the largest continuous oil and gas deposit ever discovered in the United States.

On Tuesday, Nov. 16, 2016 the USGS announced that an area known as the Wolfcamp shale contains 20 billion barrels of oil and 16 trillion cubic feet of natural gas.

That is nearly three times more petroleum than the agency found in North Dakota's Bakken shale in 2013.
US crude supply including Canada and Mexico has been rising rapidly and is expected to continue increasing at the recent pace for several years. The combination of rising oil sands production in Canada, gas and oil from shale across North America, renewable fuels and biofuels could cause the region to be energy self-sufficient by 2020.

Source: EIA
Future price predictions?????
Future price predictions????

Heating oil retail price incl taxes, U.S. average

Source: Short-Term Energy Outlook
Future price predictions?????

Henry hub natural gas price

Note: Confidence interval derived from options market information for the 5 trading days ending Dec. 1, 2016. Intervals not calculated for months with sparse trading in near-the-money options contracts.
Long-term crude oil price forecasts change annually and significantly. EIA began forecasting oil prices for 2025 in 2003. In 2012, the price forecast for 2025 had increased $130 per barrel. In 2013, the outlook for 2025 was revised downward by $38 per barrel.
Long-term natural gas price forecasts are revised annually and occasionally by significant amounts. EIA began forecasting natural gas prices for the year 2025 in 2003. By 2009, the price forecast for 2025 increased 56 percent. And, by 2013 the outlook for gas prices in 2025 had fallen back to the same level as was expected in 2003.

Source: EIA

EIA Long-term Natural Gas Price Forecasts Compared to History
Heating Oil: Residential minus Spot Prices: the Margin Received by the Maine Industry has not Changed in Over a Decade

The average gross margin received by the oil heat industry has not increased in over a decade despite:
- a significant reduction in the number of oil-heated homes causing higher per unit fixed costs
- changes in heating oil quality
- significant new investments made on the part of the industry for training of technician

The heating oil industry -- like most unregulated commodity-based markets -- reduces per unit costs due to competitive forces. Industry consolidation and rationalization removes high-cost market participants and rewards low-cost players.

Average increase 2000 - 2012 = 0.1%
Average inflation rate = 2.4%

Source: EIA
MTEC Course Schedules

• HVAC Professional Certification
• Oilheat
• Air Conditioning
• BPI & Advanced Training
• Propane & Natural Gas
• Plumbing 101 (new)
• Management Training
• Customer Service
Technology Advances

• Ultra Low Sulfur Heating Oil - 15ppm
• Central oil and gas fired heat pumps 1.3 COP in winter
• Babington Burner
• IOT
• Controls

1500 gals to 600 to ?????
80 MPG cars
Biodiesel and Heating Oil

• At B7 Heating oil equal to natural gas for GHG equivalents
• Liquid Biodiesel production in Maine
• July 1, 2018 Heating Oil goes from 3000ppm sulfur to 15 ppm ULSHO
• Particulate emissions to almost zero and similar to propane and natural gas

1500 gals to 600 to ?????

80 MPG cars
Average heating oil usage in Maine

• 30 years ago – 1300 gallons per household
• Today – generally 750 gallons
• **EXAMPLE:**

3,000 square foot house family of 6 w/4 children ages 8-20. heavy sports (showers).

Replaced 7 year old boiler with new boiler with indirect hot water and purge control August 2010.

Used 900+ gallons each previous 3 years, used 558, 610, 600, 670 last year.

Used 30% less with only an upgrade.
Relative Costs

• 700 gallons at $2.20 gallon = $1,540 per year
• Cell phone bill @ $130/month = $1,560
• Electric - $100 per month = 1,200
• Cable, internet - $150 month = $1,800
• Food - $200/week = $10,400
• Set of 4 tires = $800
• Health Insurance $1,300/month = $15,600
• Car payment -$300 month (small) = $3,600
Future?

• In 1929, the economic historian Abbott Payson Usher wrote: “The limitations of resources are relative to the position of our knowledge and of our technique.”

• Energy Policy to “Get Off Oil” based on legacy claims of Foreign oil; Peak Oil, volatility, cleanliness - Need to be rethought as the paradigm has changed.