



Maine Energy Planning Roadmap Steering Committee

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Maine Energy Policy



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First Principle:

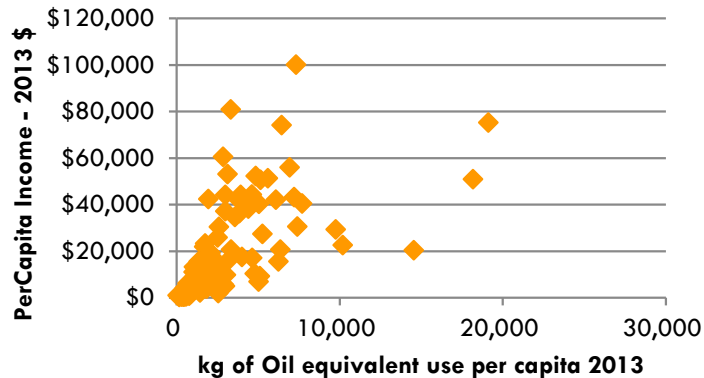
The more energy we use as a society, the better off we are and the better off we will become

Energy Use → Economic Well-Being



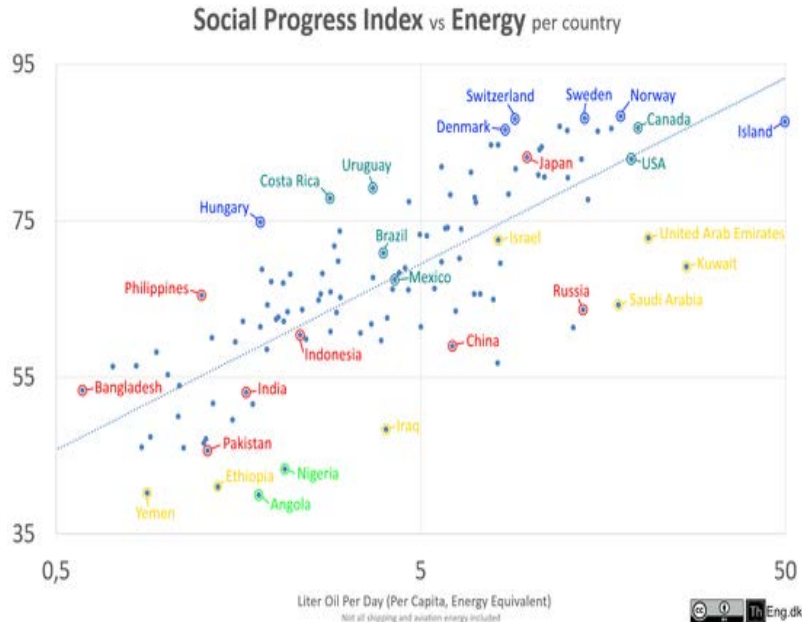
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Relationship Between Energy Use and Economic Well-Being Countries Measured in 2013



Across the almost 200 countries in the world today, as energy use per capita increases, economic well-being increases

Energy Use → Societal Well-Being



The same strong positive relationship exists when non-economic measures of societal well-being are compared to energy use

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Second Principle:

**Energy should be priced correctly.
Prices should reflect the costs to
produce and deliver energy.**

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Standards for Assessing Energy Policy:

- Conversion Efficiency
- Production Efficiency
- Externality Efficiency

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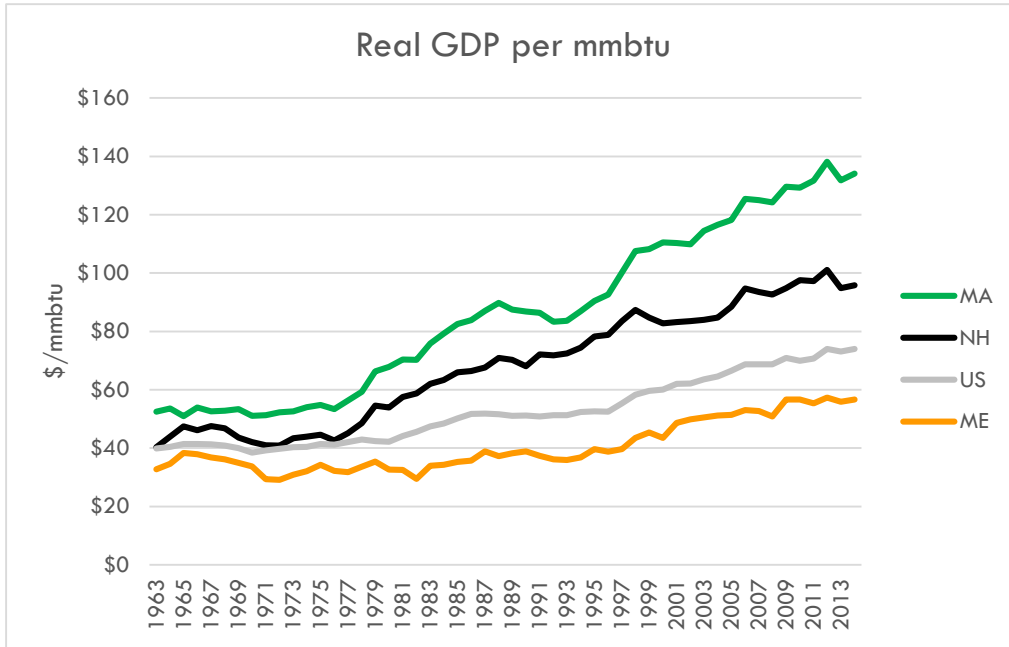
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Conversion Efficiency:

- The rate at which btus of energy are converted into \$\$ of goods and services

Proposed Measure - Gross State Product per btu of energy consumed (GDP/btu)

Conversion Efficiency



Maine has lagged behind the U.S. (and all other N.E. states) in Conversion Efficiency over the past 50 years.

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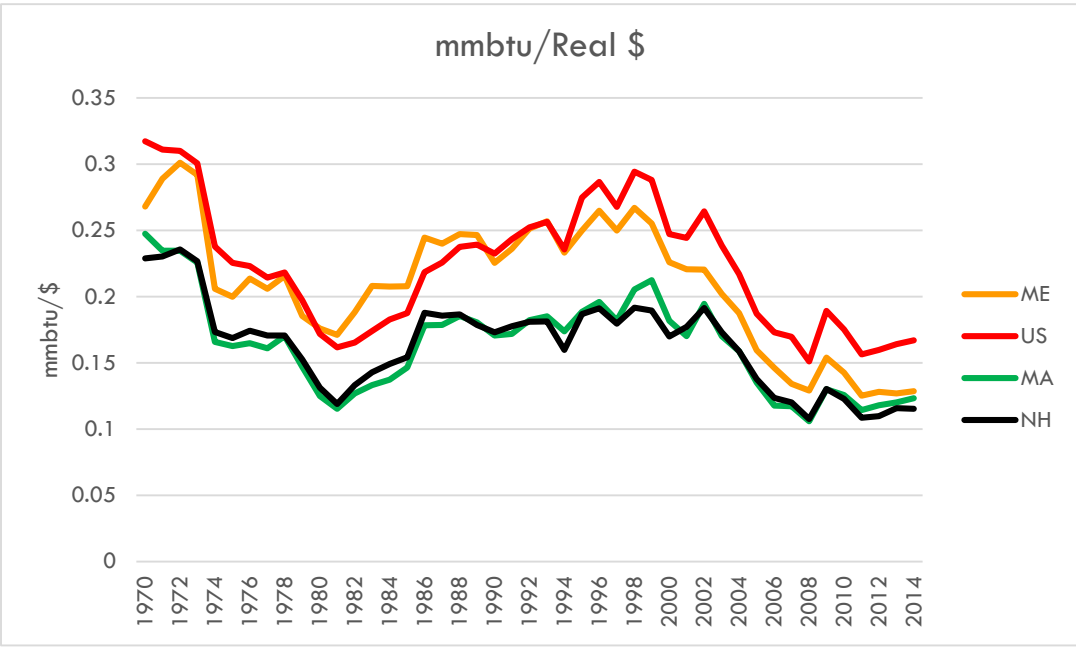
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Production Efficiency:

- The cost to produce, deliver and consume a btu of energy

Proposed Measure - Amount of btus of energy consumed per dollar spent on energy (btu/\$)

Production Efficiency



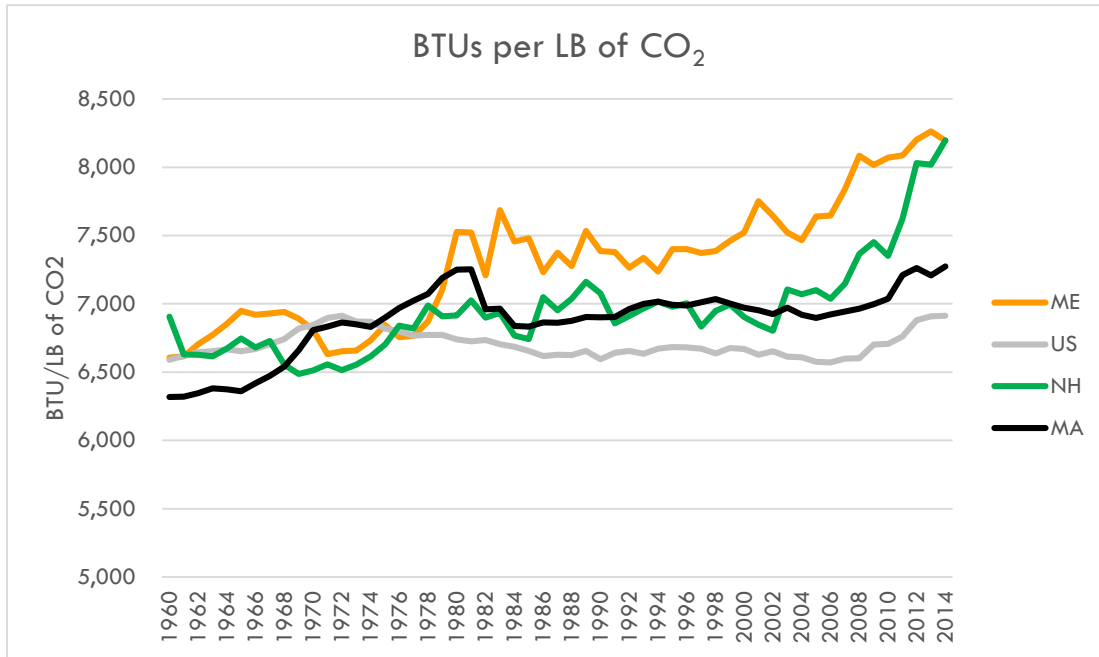
Until the mid-90s, Maine and the U.S. energy per costs per mmbtu were similar and distinctly better than the rest of N.E. Maine now looks more like the rest of N.E. than the U.S.

Externality Efficiency:

- The amount of GHG emissions created per btu of energy consumed

Proposed Measure - Amount of btus consumed per ton of GHG emissions created (btu/GHG)

Externality Efficiency



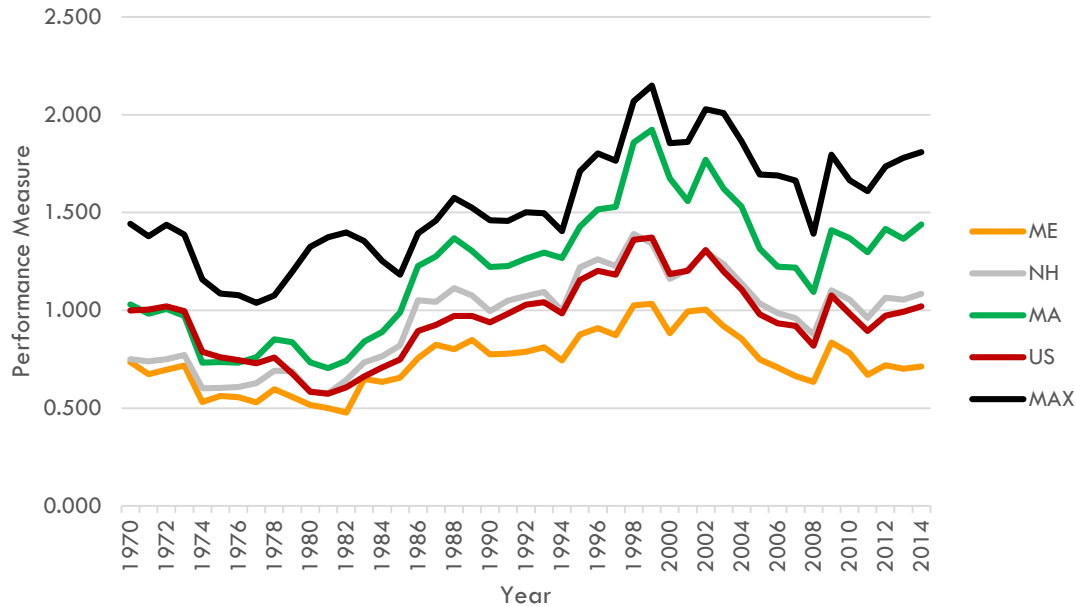
Maine has consistently performed better than the U.S. and N.E. in terms of Externality Efficiency by obtaining more btus of energy per ton of CO₂ emitted.

Overall Performance



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Performance - National Average in 1970 = 1



Maine has consistently performed below the national average.

Also interesting that the range across the states has widened over the last 45 years.

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Strong Policy Rule:

Any policy or action that results in improved Conversion, Production and/or Externality Efficiency without resulting in a reduction in any of these three Efficiencies should be pursued.

Strong Policy Rule



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Examples of Strong Policy Rule:

- Cost effective energy efficiency
- Natural gas substitution for oil
- Boothbay Pilot Project

Corollary to Strong Policy Rule:

Any policy or action that results in a reduction in Conversion, Production and/or Externality Efficiency and does not result in an improvement in any of these three Efficiencies should be rejected.

Corollary to Strong Policy Rule



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Examples of Corollary to Strong Policy Rule:

- Different cost allocation rules for different solutions for electric grid reliability
- Pricing structures that promote economic inefficiency

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Weak Policy Rule:

Any policy or action that results in a net improvement in Conversion, Production and/or externality Efficiency, giving equal weight to each, should be pursued.

Weak Policy Rule



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Operationalizing the Weak Policy Rule:

- Estimate the percentage changes that a policy or action will have on Conversion, Production and Externality Efficiencies
- If sum of percentage changes is greater than zero, proceed with the policy or action; otherwise do not



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