Creating a Market for Biomass

Northeast Sun Grant Feedstock Summit

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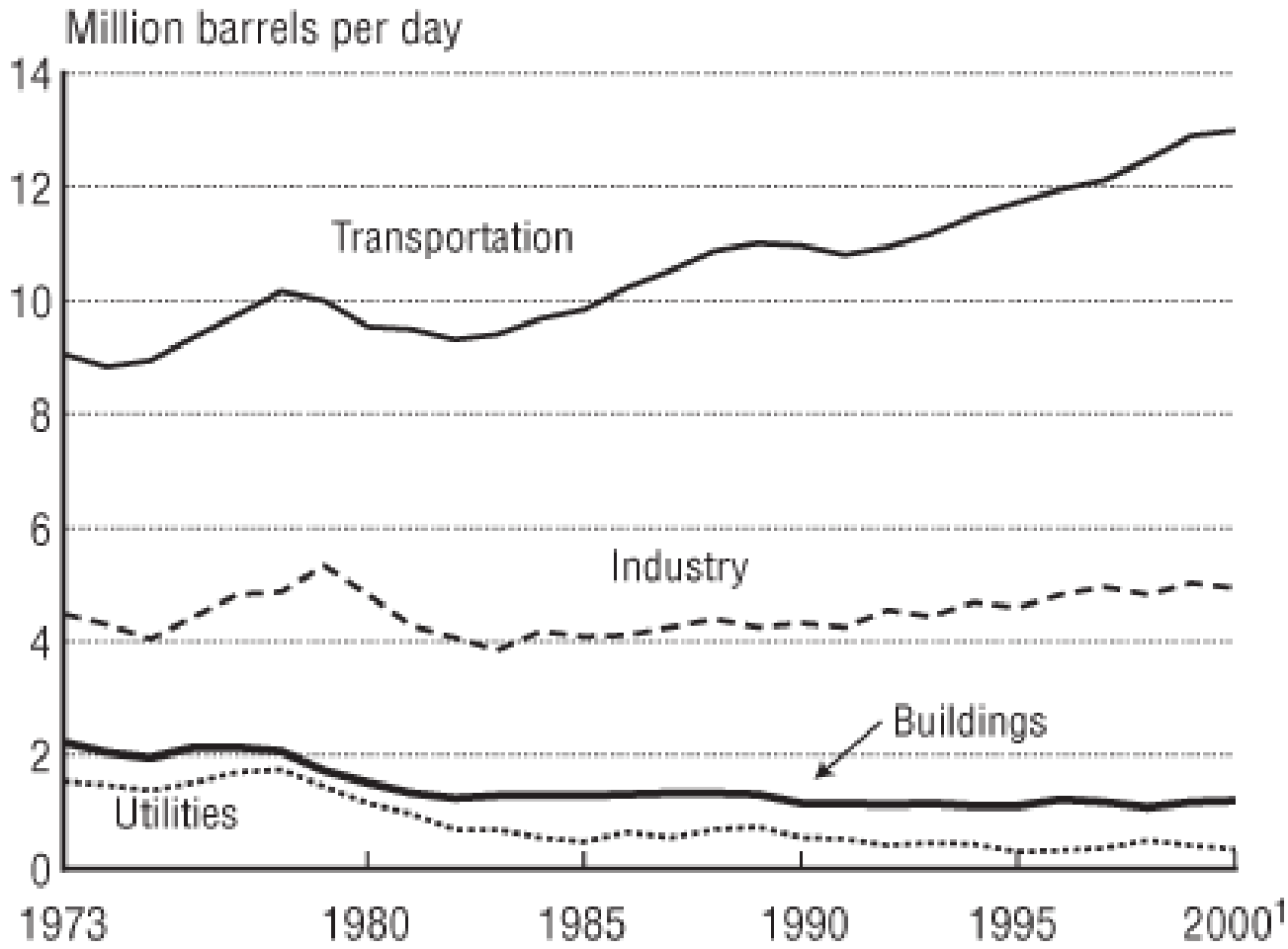
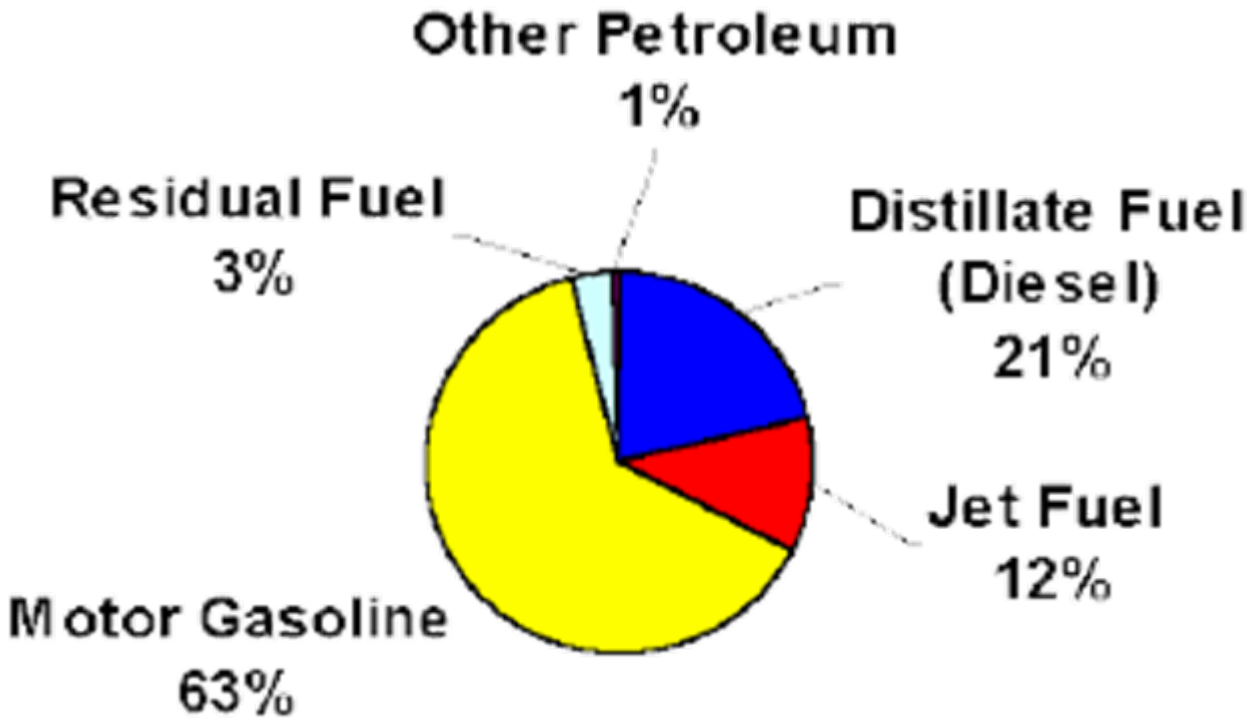
Petroleum Use



Transportation Energy Use as Part of Entire U.S. Energy Picture (2003 data - 98.2 Quadrillion BTU)

Breakdown of Transport Petroleum (2003)



“The first challenge is growing large quantities of biomass and economically transporting to a processing location”

- 30 million gallon cellulose ethanol plant
- 750,000 tons per year
- 2000 + tons per day
- 100 trucks
- 150,000 acres

Northeast States are not well suited to large-scale production or collection of biomass feedstocks

- Forest Residues & Thinnings
- Small Plots Riparian Buffers
- Outside Maryland & Pennsylvania almost no CRP
- Most applications must accommodate heterogeneous feedstocks

Biomass CHP

Fair and balanced fuel supply and price

- Biomass fuels compete well with propane and fuel oil – at $40 to $70 per ton farmers and forest landowners may be willing to expand forest management activities or explore new dedicated energy crops
- The size of CHP facilities (in contrast to electric generation plants) are better suited to local supply

Why a CHP strategy?

- Fair and balanced energy prices
- Market alignment – size and distribution
  - Year around demand
- Job creation potential
- Greenhouse gas mitigation potential
- Technology is here or close
- Private investment potential
- Reliability, security, diversity

Biomass CHP is a initial good strategy for creating market demand for biomass

- Rural Hospitals
  - 6000 Critical Access Hospitals
  - 4000 tons annually
- Prisons
- Campus
- Community district energy systems

Fuel Comparisons

$ per million BTU

- Propane ($2.41 per gallon) $33.30
- # 2 Fuel Oil ($2.36 per gallon) $19.92
- Wood Pellets ($175 per ton) $17.27
- Coal ($185 per ton) $10.03
- Green woodchips ($50 per ton) $7.94
- Switchgrass and Willow ???

Research Needs

- GPS – even more important in the NE
- New crops – especially crops that are appropriate to the region, have multiple uses and can be combined with other feedstocks
- Processing, handling, storage
- In-situ processing
- Demand side research

Demand Side Research

- Emission control technologies for fine particulates economic for small biomass combustion systems
- Automated feed systems
- Sensors and remote control technologies

Summary

- The Northeast has unique needs and capabilities that need to be addressed and exploited
- A Biomass CHP strategy can happen now and provide a fair and balanced market for crop and forest biomass
- The lessons learned will speed the development of future integrated development
- Research – focused on the current barriers is needed