Dr. Lloyd Irland is a lecturer and senior scientist at Yale School of Forestry and Environmental Studies. He received his Bachelor's degree in forestry from Michigan State University, a Master of Science from the University of Arizona, and a PhD from Yale. He has served with the US Forest Service as a research economist before coming back to teach at Yale for three years. He then served five years with the Department of Conservation, and 5 years as Maine's State Economist. Since 1987 he has been consulting, mostly to industry, but also to governments and trade groups and environmental groups. He has worked actively in the field of forest certification and recent consulting projects include a wood supply analysis for various bio-energy facilities, and a project tracking supply chains of tropical hardwoods.

Dr. Irland has worked in forestry and professional ethics, and edited a major readings volume, Ethics in Forestry. His most recent book is The Northeast's Changing Forests, distributed by Harvard University Press and he is co-editor of the recent Global Institute of Sustainable Forestry publication on long-term forest research. Please welcome Lloyd Irland.....

Community and Economic Development Impacts of Wood-Based Energy Plants

Lloyd C. Irland

Yale University and
The Irland Group

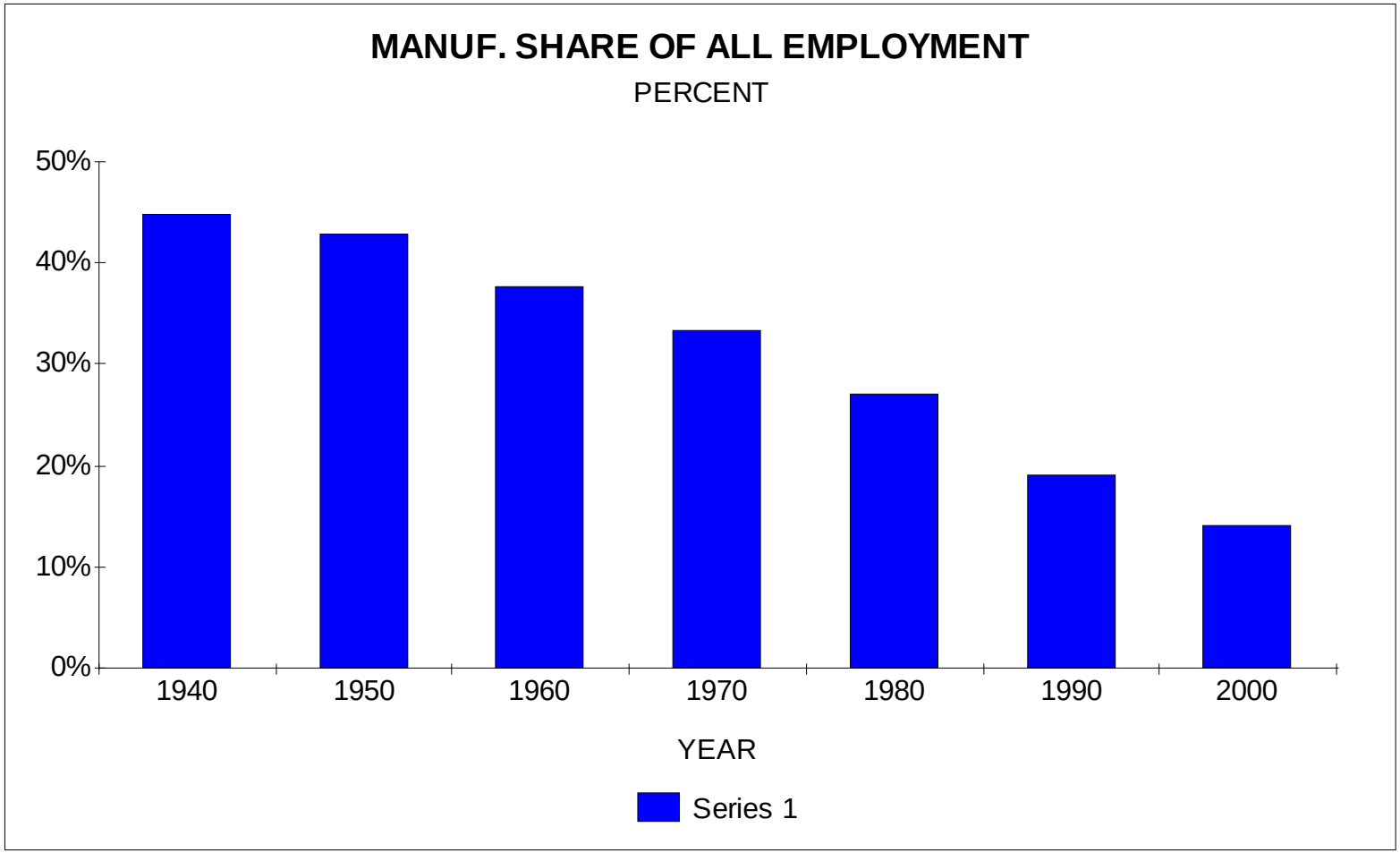
Meredith Cowart

Biomass Energy Resource Center

FPS- Northeast Section
Orono, ME Oct 18-19 2007

Outline

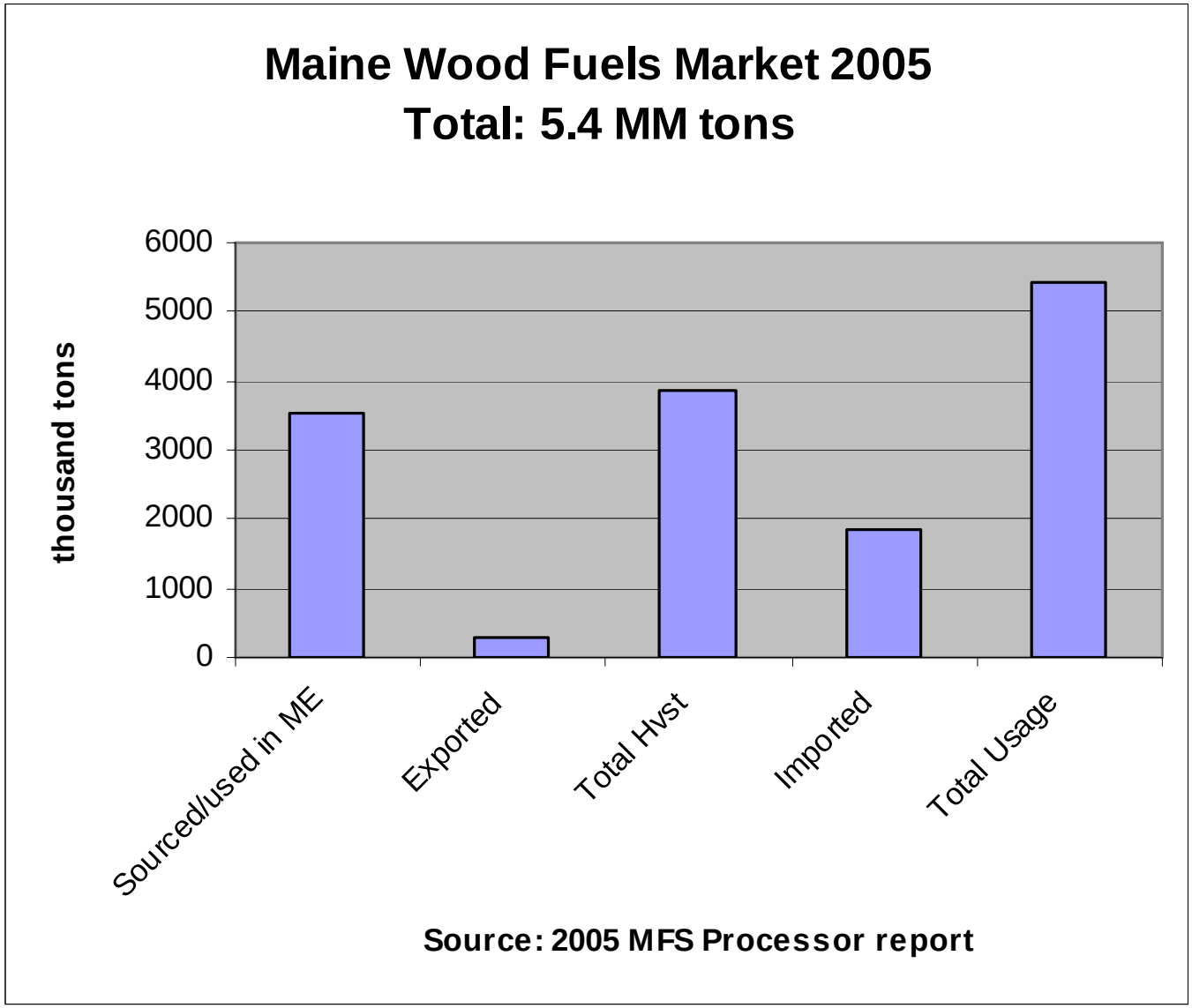
- Context: A struggling Economy
- Size of the business
- Economic/social benefits
- Economic/ Social Concerns
- Larger Questions
- Summary


MANUF. SHARE OF ALL EMPLOYMENT
PERCENT
50%
40%
30%
20%
10%
0%
1940
1950
1960
1970
1980
1990
2000
YEAR
Series 1

Can Biofuels turn this around?

Biomass Fuel is already a Large Business

- Maine alone: 5.4 MMT (green) consumption
- Delivered Value in range of
  - $75 to 100 million/yr
  - Incl. internal flows
- Considerable interstate movement
- Biggest Maine economic development success of 70s-80s.


Maine Wood Fuels Market 2005
Total: 5.4 MM tons
thousand tons
6000
5000
4000
3000
2000
1000
0
Sourced/used in ME
Exported
Total Hvst
Imported
Total Usage
Source: 2005 MFS Processor report

Some Blessings

- Tax base: major additions
- Acc. to IEPM, many of member plants provide 40% + of town tax base
- Direct jobs:

  Cogen: n/a

  Biomass electric: 15-20 per plant

  Biorefinery: 300+ if it saves the mill

  Biofuels Plant: 150-250

Potential for Silviculture

- Modest financial benefit for landowners
  - Revenue
  - Clearing landings
  - ROW wood etc.
- Silvicultural Practice, remains *potential* by and large
- Better prices could improve this a lot

Overstocked acres --

Examples –Rough (add./corr. welcome)

Type	Output	Wood Usage M grn ton)	Jobs
Biomass Electric	35-40 Mw	300-400	15-20 dir.
Liq. biofuel	50-100 MM gal	1.2 MM ton +	150-250
Pellet (NEWP)	100,000 Dry tons	165 M grn ton	20 dir. 75 indir.
Biorefinery	Unclear	Poss. no net ch.	Uncert.

Indirect jobs

- Local spending effects near plants
- Supplier jobs, logging trucking, services

  --could be equal to the direct impact
- OK, so importing fuel oil provides jobs too... Those would be offset

Cash Savings to Maine Economy

- Amount depends on fossil fuel prices.
- Assumed alt. fuel mix
- Estimate of aggregate savings?
  - Would be very useful
- This is cash that stays in Maine
  - Paid to landowners, truckers, workers, and to communities in taxes.
- Q: effect on retail electric rates?

Effect on Wood Industry Competitiveness?

- Control over portion of power needs
- Cost savings on power alone
- Cost savings on residue disposal
  - Large impact for many wood products plants
- Still too much diesel electric used in rural industry

Solid Waste Management

- A new potential destination for CWD
- Carbon offset benefits? (comp to fossil)
- Cost reducer for SWM
- Outlet with logistics for storm damage and urban tree waste

How could anyone Oppose Such a Wonderful thing?

- NIMBY
  - Why have one next door if I get my power anyway?
  - Traffic
    - (raised by people who drive to work alone)
- Concern about the Unknown
  - Assurances about emissions lack credibility
- Constituency for Econ. Devel. smaller than you think.
- Some project developers don’t do homework

Traffic

- Legitimate concern in many small towns
- Many have poor traffic capacity
  - Old industry from the RR days
- Wood fiber 2X as many trucks as coal.
- How many is that?
- Biomass plant:
- 24 to 63 loads/day dep on plant size
- Or, 3 to 8 per hour on 8 hour day at the scales
- Biofuels: 2-4 X as many?

Public Policy Dimensions

- Energy Policy
  - Asleep at the switch (NIMD mentality)
- Emissions
  - Claims/counterclaims lack credibility
- Forest sustainability
  - Let's be careful
- Rural Development
  - Show me ANY policy that was more successful than PURPA!

Larger Questions

- National Goals
  - Energy independence
  - Managing the Carbon Cycle
  - Facilitating waste management
    - Environmental
    - Costs
- “Net energy” impacts – uncertain
  - Better than corn – is that enough?
  - (if corn ethanol didn’t exist, we’d have to invent it)
- Import Replacement
- Grid reliability (are we serious? Doubt it)

Issue	**Electric**	**Liquid Biofuels**
Strength	Established Scale suitable SWM benefits	Offset oil import Reduce trans. cost
Weakness	Transmission Traffic	Scale: too big Siting/enviro.
Opportunity	Use waste heat?	Zero-cost feedstk Sensible scale??
Threat	REC politics	Oil price declines

Can we have both clean energy and pickerel?

- Yes, but we have to change some corrosive habits…
- Find a constituency for larger, longterm

  Public interests
- Can anyone get elected on such a platform?

Summary Remarks

- We need to work out details of above
- And get the message across
- Address the concerns
- State track supply/demand for bio-feedstocks – faster!
- Scale problem is serious
- Small may not be beautiful but we have to make it work