The Forest to Cities Challenge: Securing the Timber Age in an Era Dominated by Climate Change

Maine Mass Timber Event
Orono, ME
October 11, 2018

Frank Lowenstein, Deputy Director

New England Forestry Foundation

- Conserve New England's forestland
- Promote exemplary forestry

Each is essential to preserving the beauty, prosperity, wildlife habitats, and unique character of our region.

IPCC report

It’s the diagnosis you don’t want to hear from your doctor:

“Every possible test has been done and the news is not good”

--Katherine Hayhoe, Texas Tech University

What’s in the report

- Cut concrete emissions
- Plant up to 2.5 billion more acres of forests by 2050
- Rapid transformation of urban infrastructure including deep reductions in energy use in buildings

Forest Products Sector Needs to Engage

From National Geographic:

> Existing forests must be protected to avoid dangerous climate change, warn a coalition of forest scientists in a statement.

Carbon prices proposed of up to $5500 per ton of CO2 by 2030– equivalent to 10x the going per acre rate for some Maine forest land.

What's not in the report: Forest products as a climate solution

Potential to reduce concrete use through mass timber

- Equivalent impact to other major climate wedges
- Reduces need for unproven technologies
- Provides an incentive to reduce deforestation

Photo by John Stanmeyer, National Geographic

What's not in the report: Better forestry as a climate solution

Increase carbon storage through improved forest management on existing forest lands

- Higher stocking and productivity
- Addressing non-carbon effects of forest on albedo, water vapor and other critical climate variables

Photo by John Brissette, Northeastern Research Station

Differentiate: Sustainability and Climate

Murray Building, London
Source: Timber City

Steel and Concrete: Forged from coal

“New Mines Bank on Steel” – March, 2017 Metallurgical coal mine opens in PA, Associated Press

Mass Timber: Forged from forests.

Forged from photosynthesis

Photo: Wildlands and Woodlands, Harvard Forest

From carbon source to carbon sink.

About 5000 tons C02 emissions avoided.
Typical mass timber mid-rise building
+C sequestered in the wood.
+C sequestered in the growing forest.

Rendering, façade detail.
SHoP Architects, NY, NY
From Timber City exhibit

Differentiate: Urban form and density

“the Metro Mayors Coalition will need to add 185,000 housing units from 2015 – 2030 in order to meet demand and reduce – or at least stabilize -- housing costs.”


What's being
built now: 5+1 stories,
about 60 feet tall
HANOVER
CAMBRIDGEPARK
NOW
LEASING
Bobcat


What could be built
Mjøstårnet– 262 feet tall

Differentiate: Construction

Good neighbor construction: Less pollution, waste, noise, disruption on-site.
Less heavy moving equipment needed.
Faster. Certain amount of pre-fab.

Results

- Forest products at the center of climate-driven development
- Create jobs throughout the forest products sector
- Create more housing
- Improve mobility and reduce future sprawl
- Help solve the climate crisis

What’s needed to make CLT work here in New England?

Build Supply

Build Demand

CLT Supply Potential

U.S. Forest Service
Wood Innovations Grant

Pöyry Global

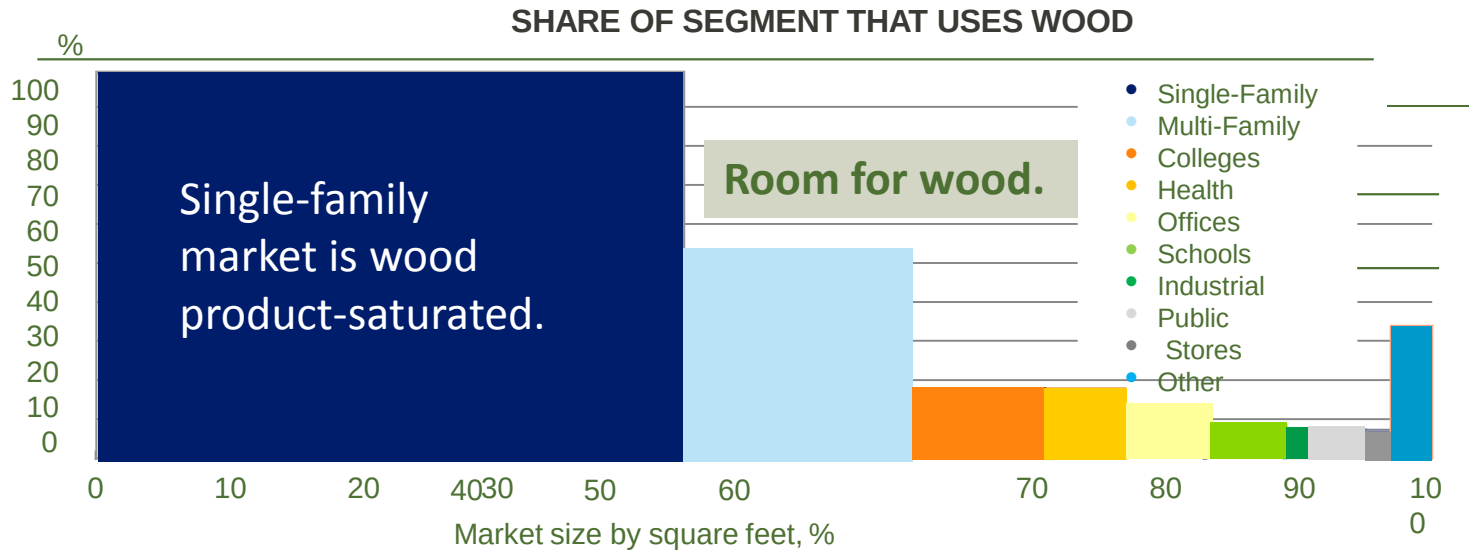
Innovative Natural Resource Solutions

ASSESSING THE WOOD SUPPLY AND INVESTMENT POTENTIAL FOR NEW ENGLAND ENGINEERED WOOD PRODUCTS MARKETS AND MILL

July, 2017

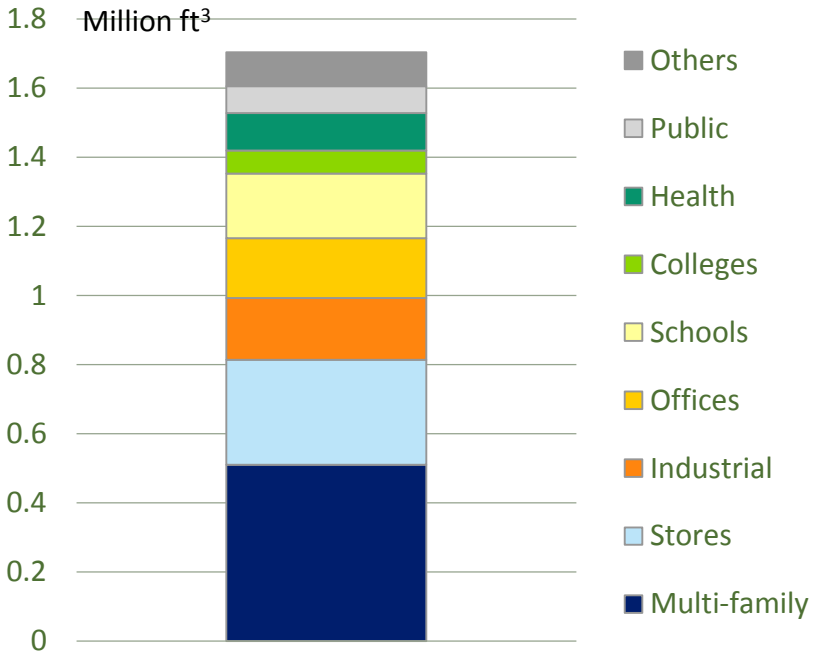
CONSTRUCTION MARKET – U.S. NORTHEAST

Commercial and taller residential buildings provide the largest new opportunities for wood.



1% market share for CLT in Northeast

Large projects from both private and public sector would accelerate the demand relatively quickly.



1 U of M, Amherst project or ~200 dorm rooms

2-3 schools (Franklin Elementary, VW)

2-3 big projects

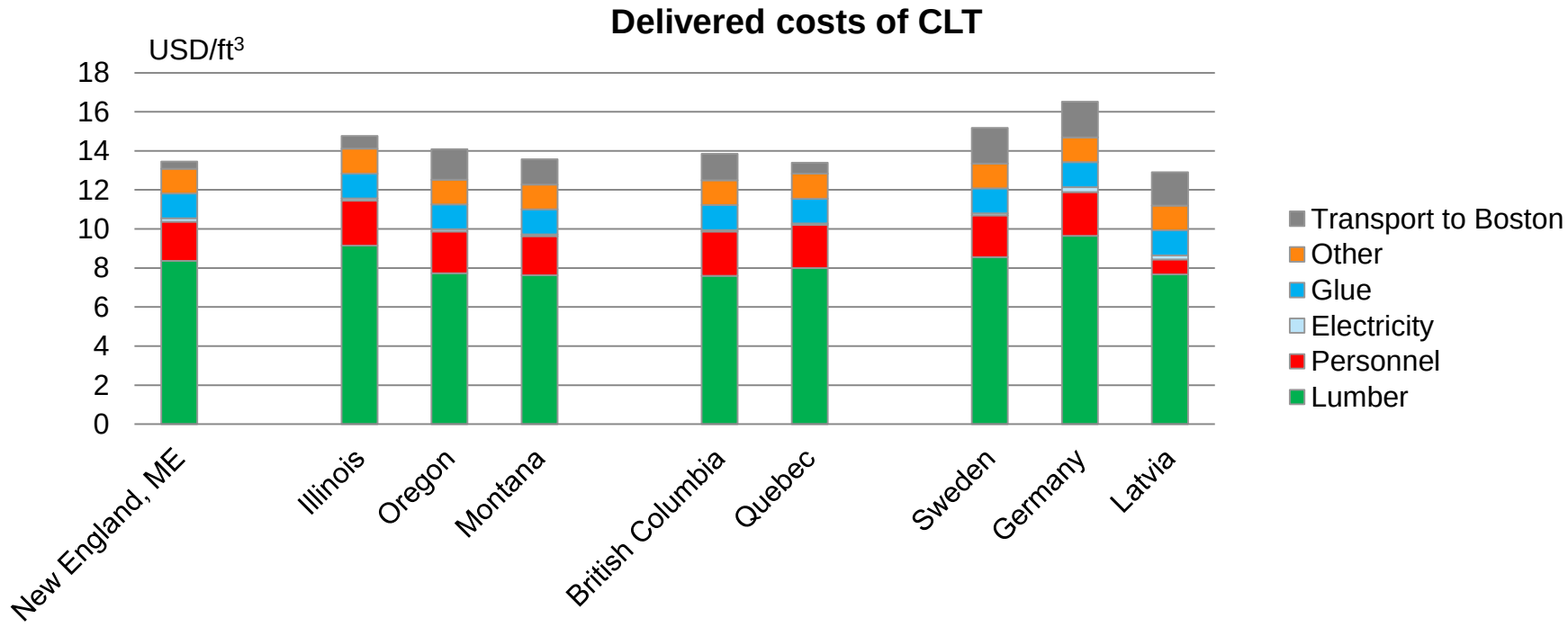
2 CLT mills?

3 bigger shopping malls

400-500 apartments

CLT – INTERNATIONAL COST COMPARISON

When taking into account transport costs, the costs of New England are on par with or better than competitors for delivery to a construction project in Boston.



PROFITABILITY

Sales prices have to be clearly above the cost of import at current $/€ exchange rate to justify a greenfield investment. Integrating CLT production with an existing glulam factory is an attractive opportunity even with current import parity price.

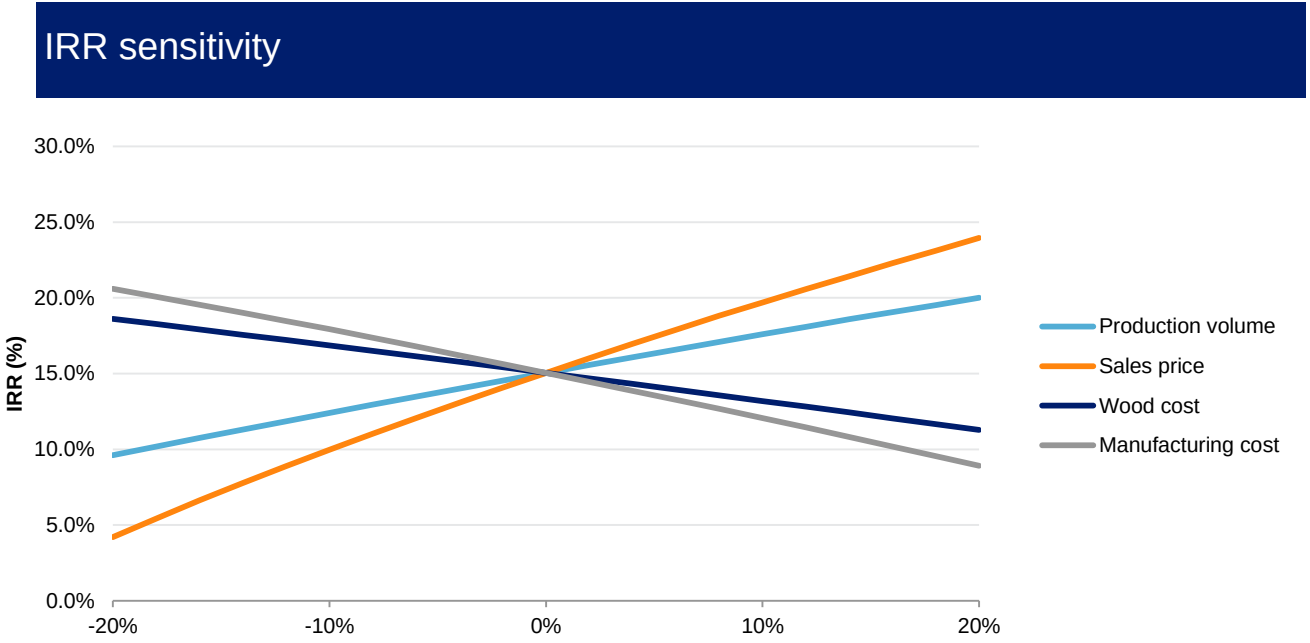
	IRR %
Local pricing	15.1%
Import parity price	2.9%
Brownfield integration * Local pricing	40.3%
Brownfield integration * Import parity price	14.9%

*Existing building and infrastructure, existing lamella production, investment 7 MUSD investment in manual technology (+50% production & maintenance personnel) and modifications of buildings

SENSITIVITY ANALYSIS – LOCAL PRICING SCENARIO

The project will have a positive net present value given a local pricing scenario for reasonable fluctuations in sales price, and production volume and costs

- The internal rate of return will be positive under all reasonable circumstances, and vary between 5-25% given the change in input factor prices and costs



Building Demand

Demand is key, and that means Massachusetts matters to Maine

Number of buildings with 5 or more residential units in 2016

- Maine: 42 buildings, 514 units
- Massachusetts 261 buildings (6x as many), 7806 units (15x as many)

Potential incentives

Wood first/wood alternative policies

- Public sector
- Private sector

Public policies that would scale state aid for housing and/or schools based on climate impact

Investor-based strategies

- Investment tax credits
- Carbon credits
- Recruiting climate-interested investors

Reducing interest costs based on climate benefits

NEFF's Build It With Wood Program

Build Demand

- Outreach to developers and investors
- Risk reduction tools and opportunities
- Incentives based on climate benefits
- Flagship buildings

Build Supply

- Promote study of potential for a New England Mill
- Providing a tool for site-specific assessment
- Outreach to investors

Download the full Pöyry report at
http://newenglandforestry.org/connect/publications

NEW ENGLAND FORESTRY FOUNDATION

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