JustBioFiber

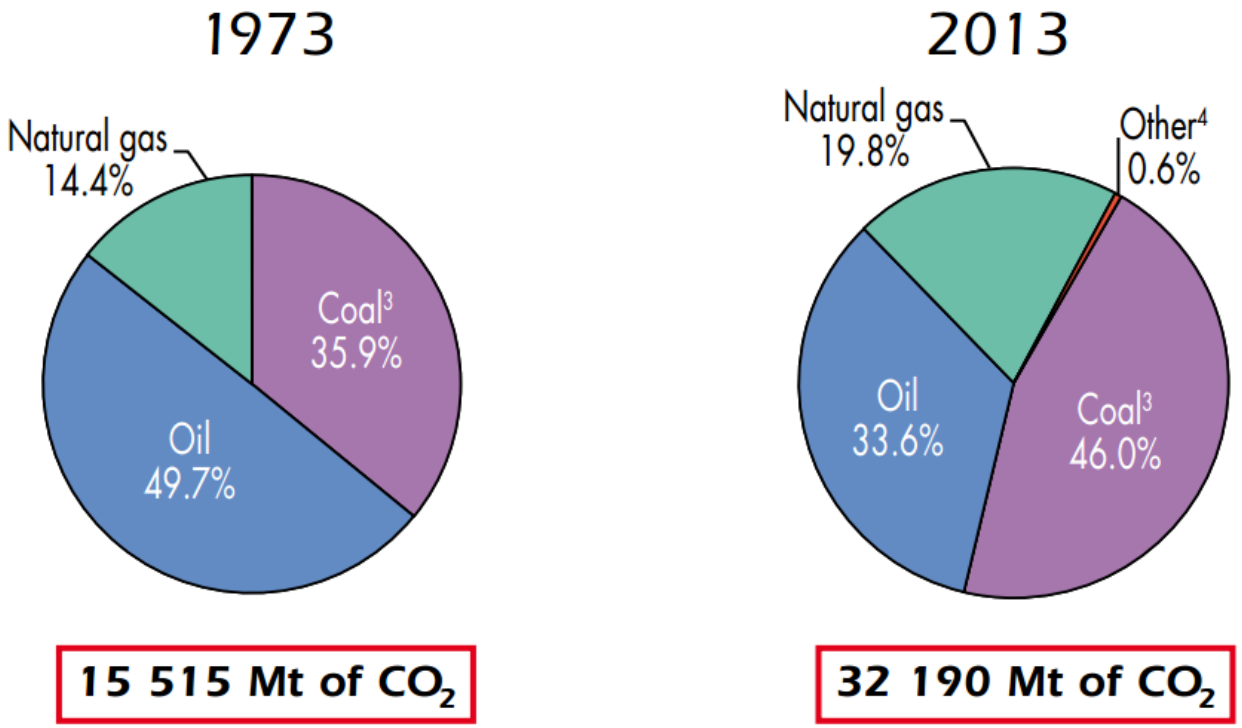
Structural Solutions

Bio Fiber Building System for

Carbon Sequestration and Energy Efficiency

Terry Radford presenter

1973 and 2013 fuel shares of CO_2 emissions from fuel combustion[2]



15 515 Mt of CO_2

32 190 Mt of CO_2

1. *World includes international aviation and international marine bunkers.*
2. *CO_2 emissions from fuel combustion are based on the IEA energy balances and on the 2006 IPCC Guidelines, excluding emissions from non-energy.*
3. *In these graphs, peat and oil shale are aggregated with coal.*
4. *Includes industrial waste and non-renewable municipal waste.*

Share of total EU energy consumption

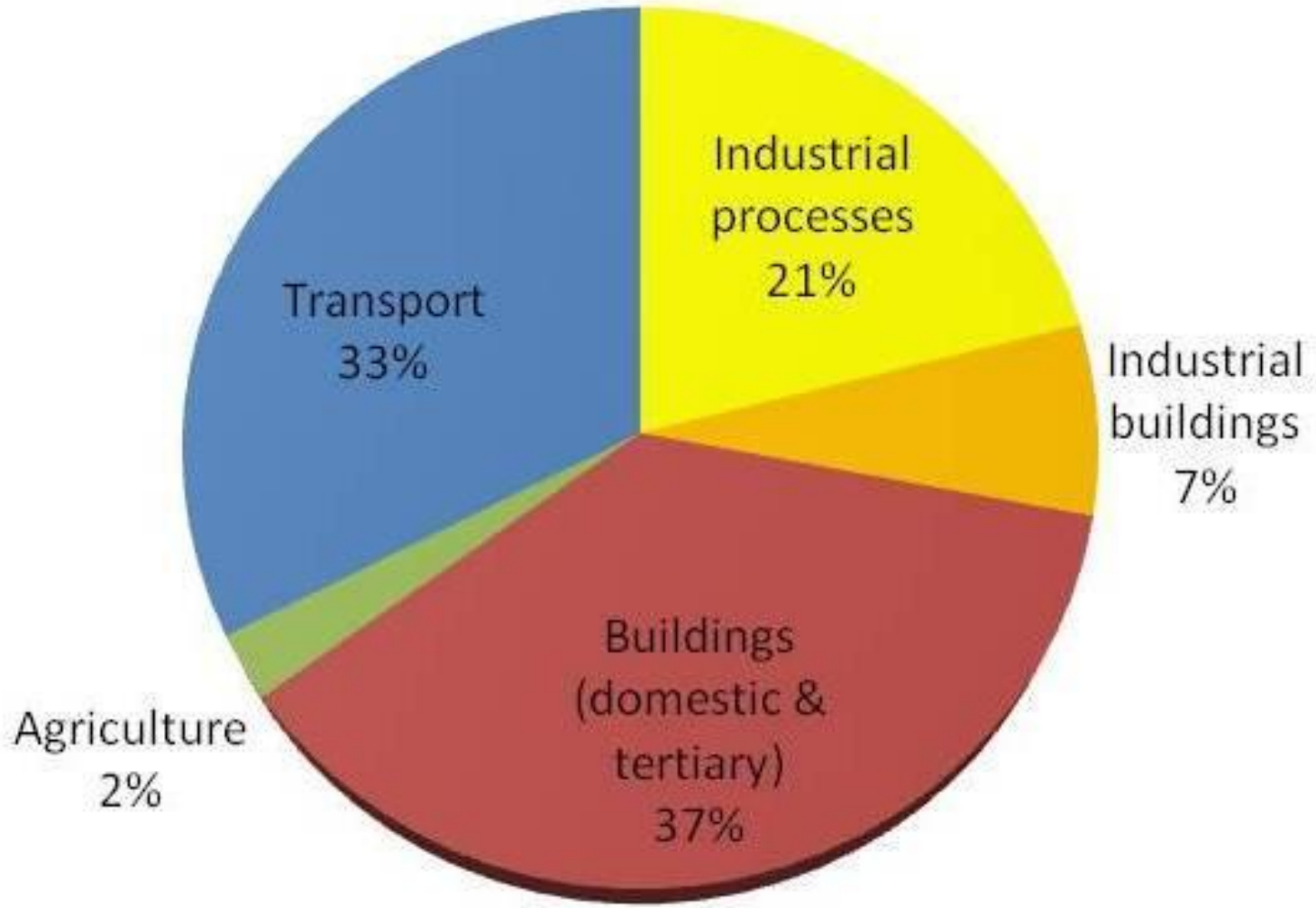
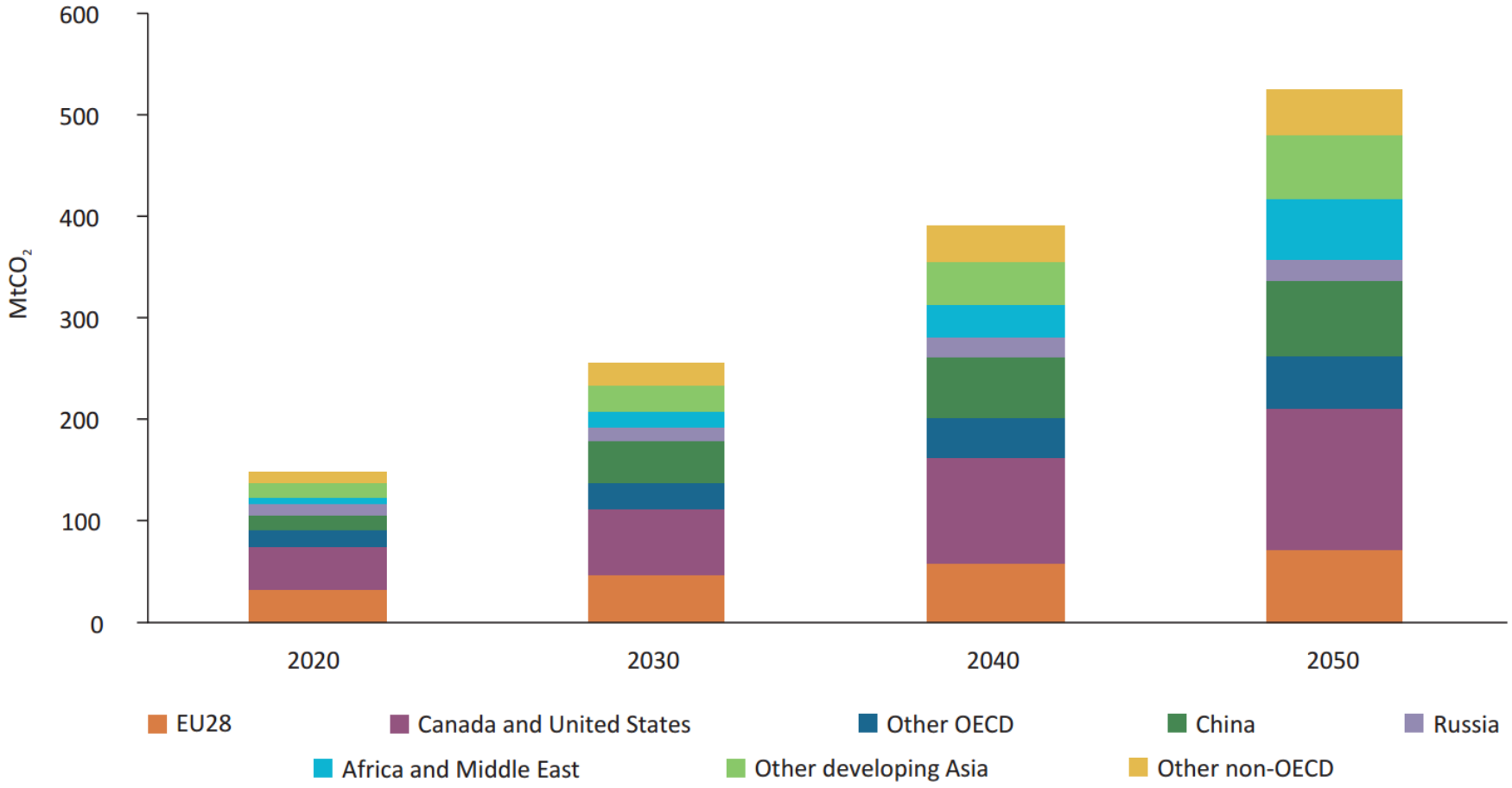


Figure 9: Direct emissions savings from improvement in building envelopes between the 6DS and 2DS, in Mt CO_2



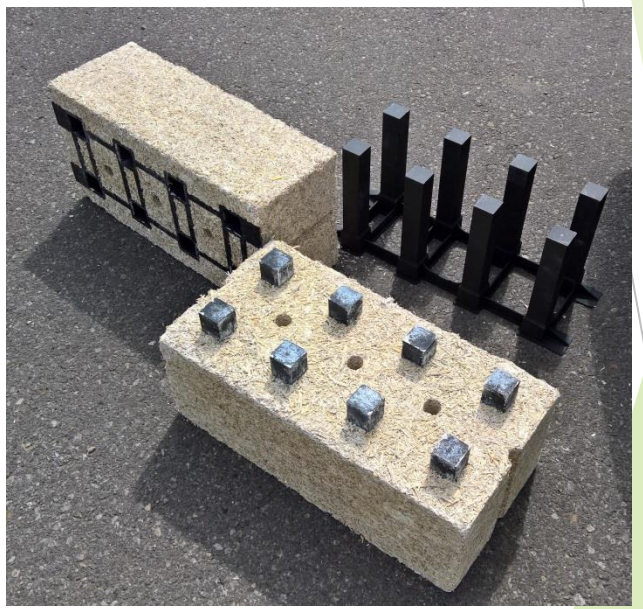
Note: these savings exclude indirect emissions for electricity that are greatest for electricity end-uses (e.g. does not reflect air-conditioning electricity generation benefits).

Problem Change Opportunity

- International Energy Agency develops policy for governments
- Governments implement policies to reduce GHG
- November 2016 new building energy requirements in Alberta
- Local municipal codes enforce policies
- Builders must comply to new building energy efficiency requirements
- Using conventional materials incrementally increase costs
- Just BioFiber increases energy efficiency while reducing costs
- Problems drive change, create opportunity

The Product

- modular building block system for fast flexible construction
- Structural load bearing and weather resistant
- Reduces building energy requirements by %30
- CO2 sequestering Hemp
- Lime formulation continually absorbs CO2
- Non Toxic and permeable
- Monolithic flexible structure is earthquake and tornado resistant

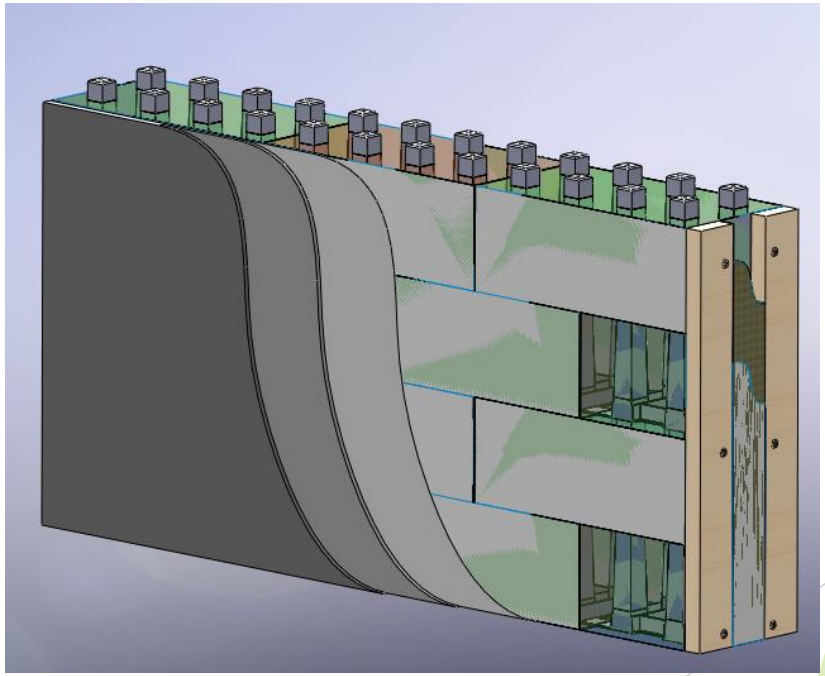


The Value Proposition

- 15% lower construction cost
- Fast build times and lower labour costs.
- R40 effective U-value minimum R-Value of 27
- Safety Fire rating of >1 hour
- Mold and insect resistant
- interior comfort Warm and Quiet
- Healthy indoor air quality.
- Longevity over 7 generations

The Target Market

- Commercial demising fire walls between tenants
- Commercial exterior walls systems
- Residential exterior wall systems
- Perimeter barrier walls for communities
- Green Builders, Architects, Engineers



Net Zero Commercial Building

The Competition

Building System	R Value	*Cost $/ft2*
JBF SSR Hemp Block	27	**24**
Wood frame *	24	29
Metal Frame *	20	27
Concrete masonry block	8	24
Poured Concrete	2	36
Hempcrete	26	27
Insulated Concrete Form	20	54
SIP OSB	24	28

Sustainability Benefits

- Reduces energy needed to heat and cool buildings
- CO2 is sequestered in the building material for the life of the building
- Rapidly renewable hemp grows 20 times faster than trees
- agricultural diversification through value added agri-products;
- water reclaimed and reused in manufacturing
- Recyclable material with minimum construction waste
- cost effective, high performance building solutions exceeding LEED
- Durable buildings for strong, resilient communities
- Local job creation

The Numbers

- Total Investment from R&D to commercialization =$30 million
- Full Capacity Plant Size = 4 million blocks annually
- Total Annual Carbon Sequestration = over 88,400 tonnes CO_2e
- Total hemp hurd required annually = 15,630 tonnes
- Total hemp cultivation required = 7,000 hectares
- Total CO_2 flue gas absorbed = 6,500 tonnes annually
- Water reclaimed and reused = 20 million liters
- Product is 15% more cost-effective than traditional building materials
- Provides a 30% increase in energy efficiency compared to traditional building

Hemp Hurd / Shiv

- 2017, 10 – 100 Tn per month
- 2018, 400 – 1500 Tn per month over 3000 Tn straw
- Currently grain production, need more straw
- Larger stock diameter for increased hurd
- Not combined
- Not retted

Eco Lock Kelowna BC

Thank You

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