Dr. Pendse is Professor and Department Chair in the Department of Chemical and Biological Engineering at UMaine. He completed his graduate studies for both his Masters and PhD at Syracuse University. He is author and co-author of countless publications in leading journals of his field. In his spare time he has taken the lead in securing a National Science Foundation grant to build capacity and infrastructure at UMaine for the emerging forest bioproducts industry. It is this role of Director for FBRI that he joins us tonight to highlight the accomplishments of the past 1 ½ years and also to describe where we are heading over the remainder of the grant life and beyond. Please welcome Hemant Pendse……

FBRI

FOREST BIOPRODUCTS RESEARCH INITIATIVE

Discovering

a Sustainable Bio-Economy

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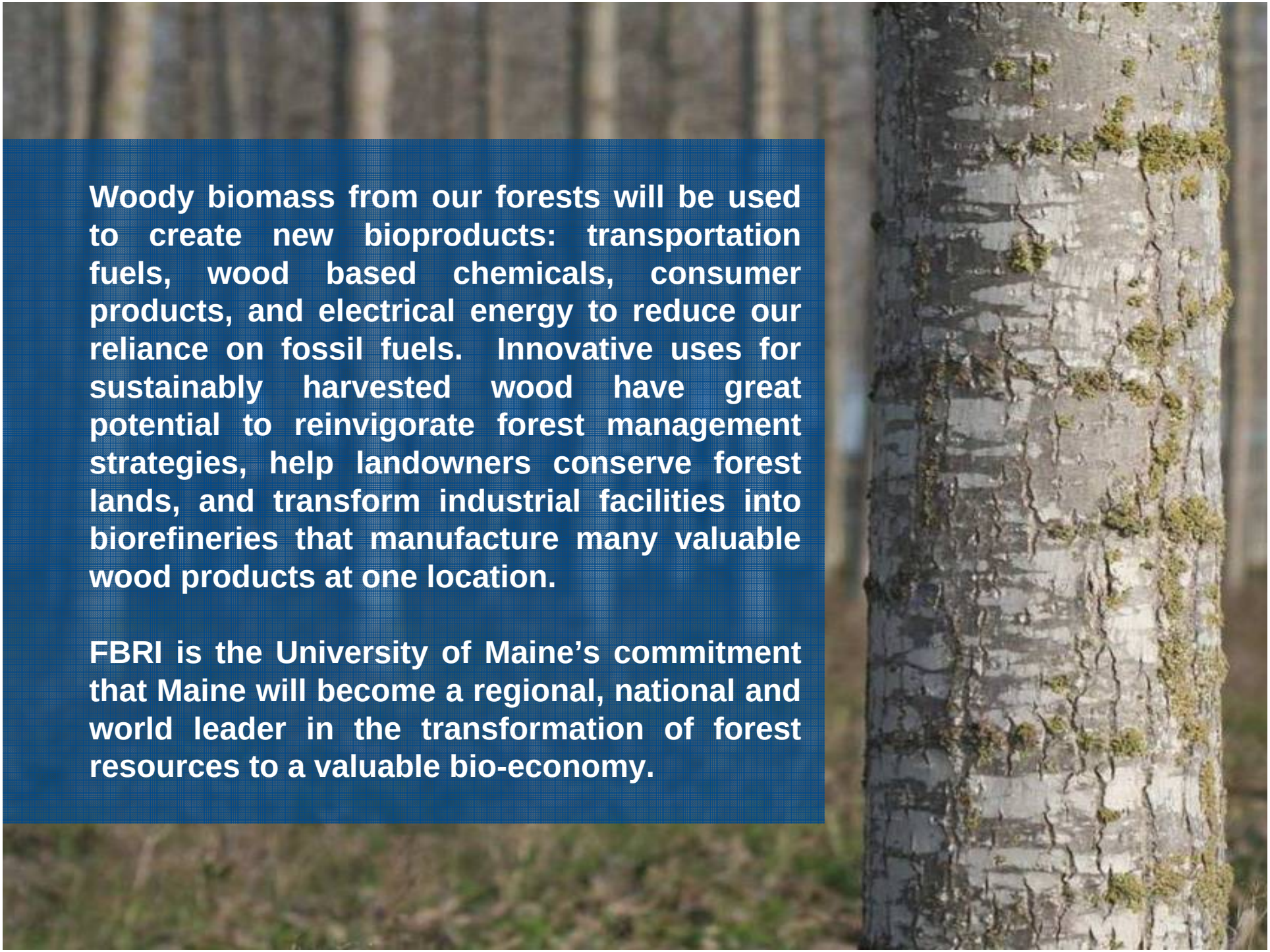


Woody biomass from our forests will be used to create new bioproducts: transportation fuels, wood based chemicals, consumer products, and electrical energy to reduce our reliance on fossil fuels. Innovative uses for sustainably harvested wood have great potential to reinvigorate forest management strategies, help landowners conserve forest lands, and transform industrial facilities into biorefineries that manufacture many valuable wood products at one location.

FBRI is the University of Maine's commitment that Maine will become a regional, national and world leader in the transformation of forest resources to a valuable bio-economy.

FBRI's Core Research

From the forest floor to the factory floor, researchers, students, and project partners' goals are to:

Promote

Forest Health for a Stable Bio-Economy

Understand

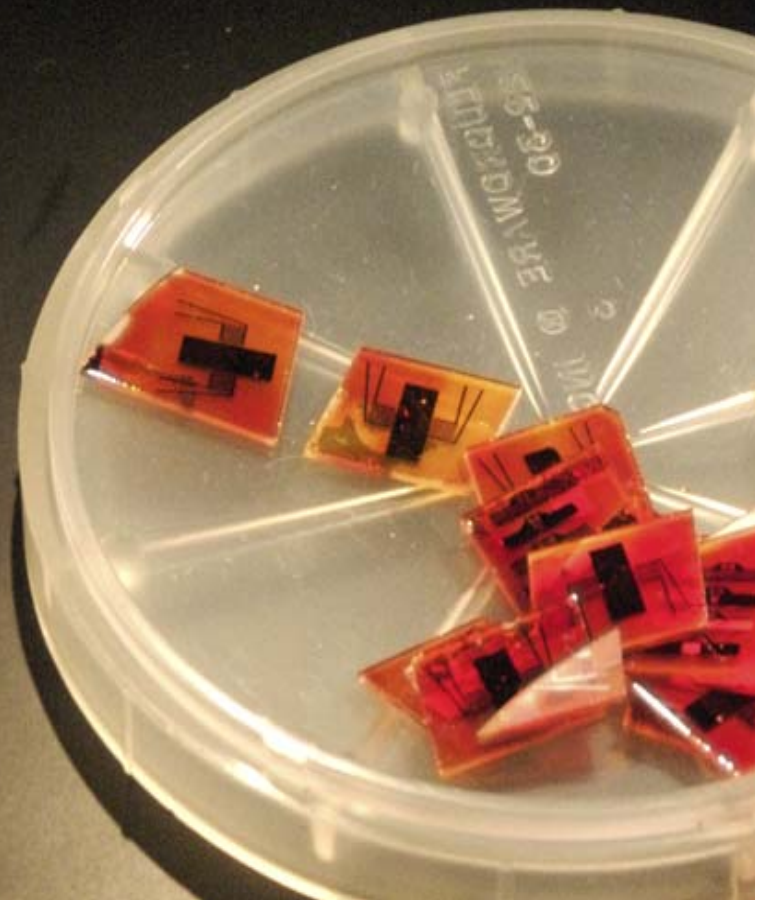
and Separate Wood Components

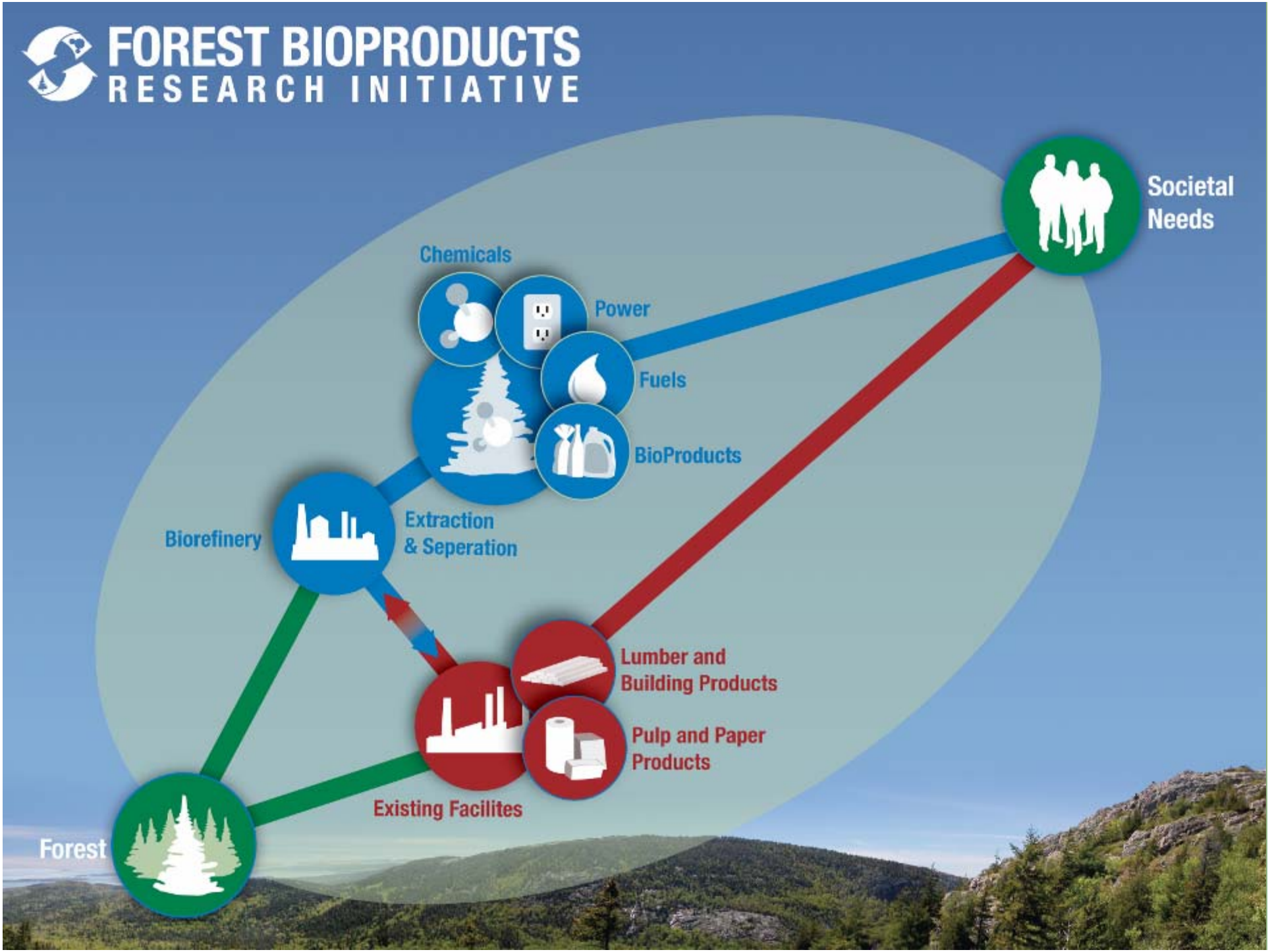
Create

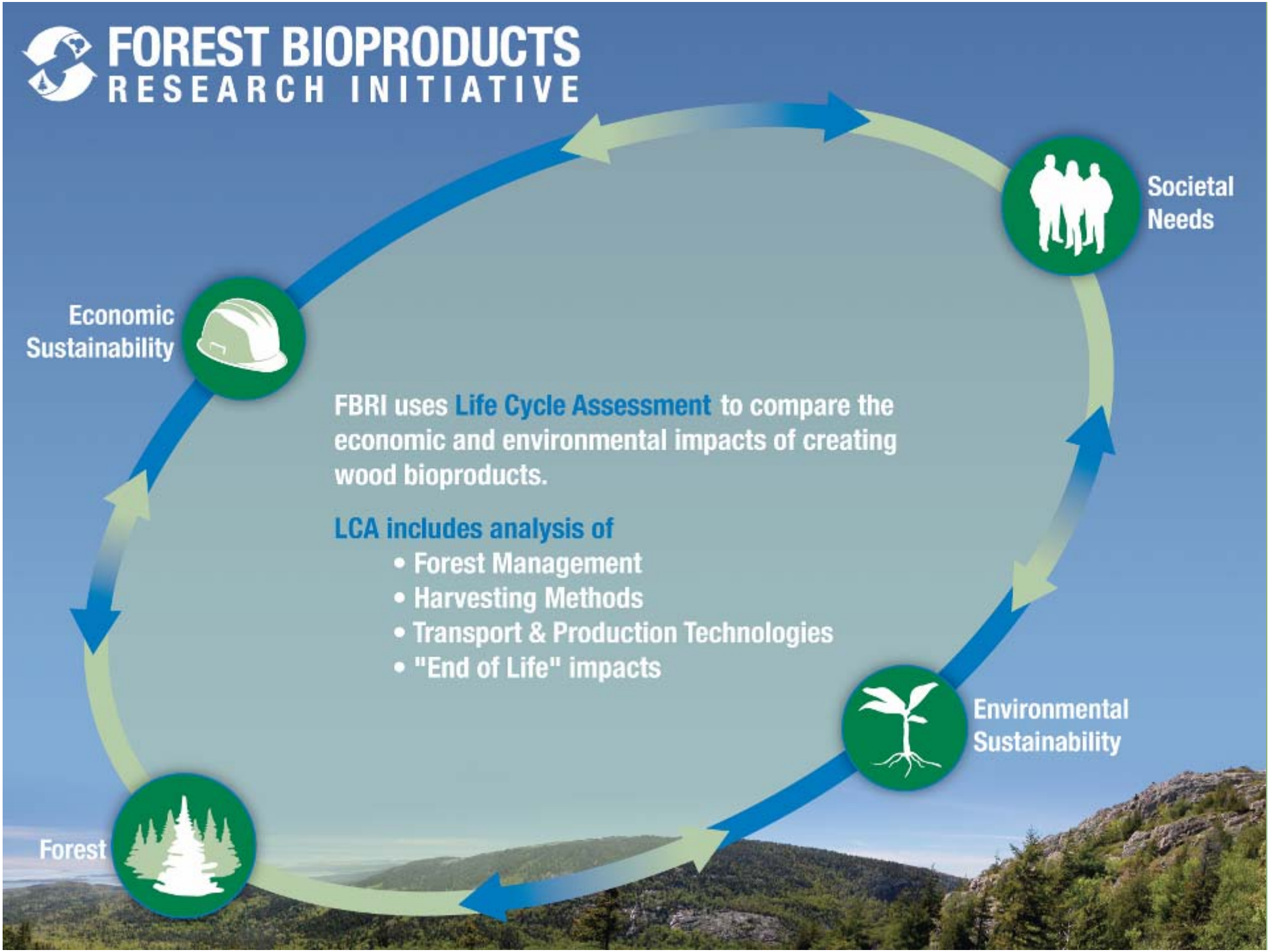
and Commercialize New Bioproducts

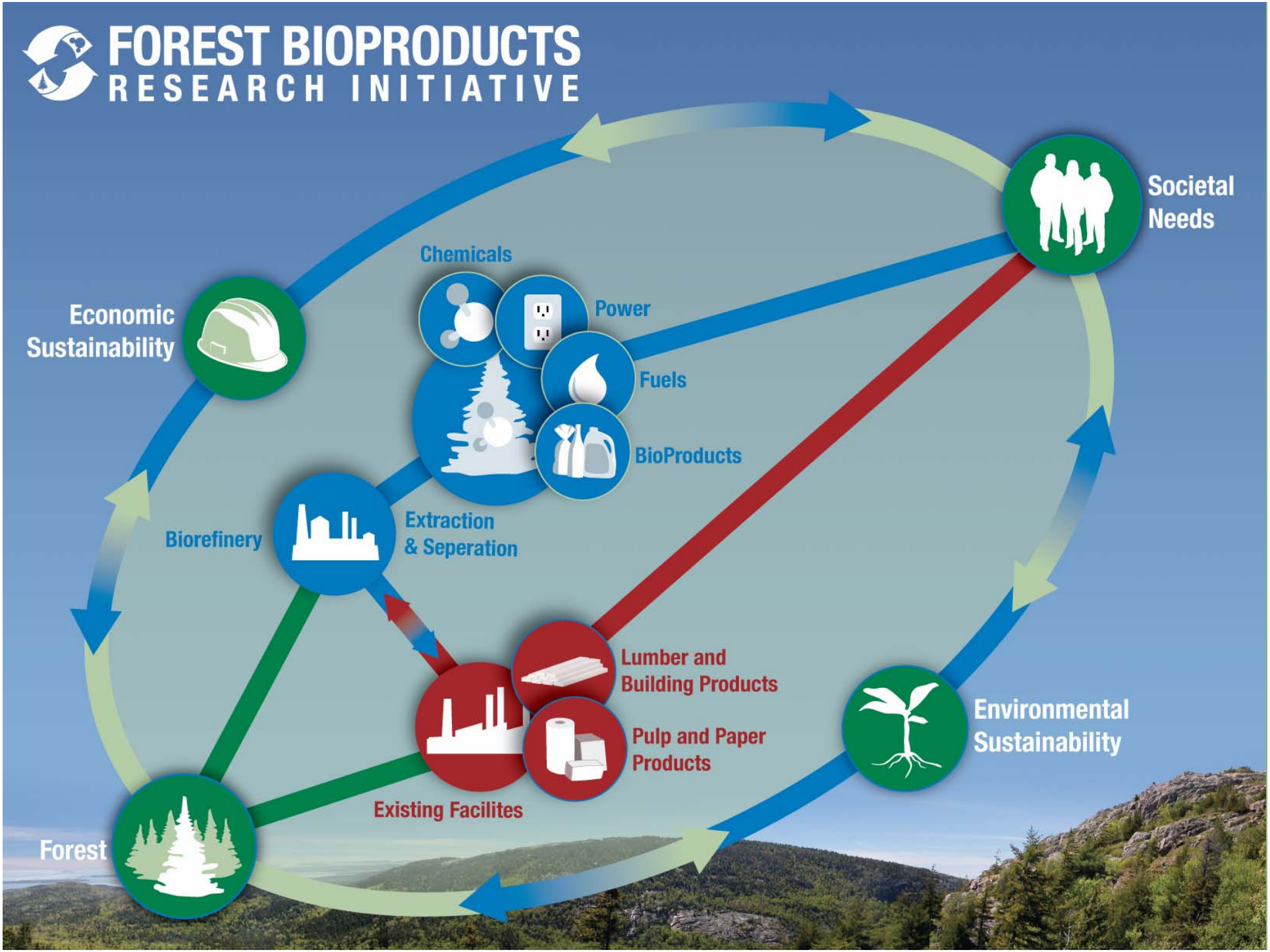
FBRI's Vision

To advance understanding about the scientific underpinnings, system behavior, and policy implications for the production of forest-based bioproducts that meet societal needs for materials, chemicals and fuels in an economically and ecologically sustainable manner.




FOREST BIOPRODUCTS
RESEARCH INITIATIVE
Societal Needs
Chemicals
Power
Fuels
BioProducts
Biorefinery
Extraction & Seperation
Lumber and Building Products
Pulp and Paper Products
Existing Facilites
Forest


FOREST BIOPRODUCTS
RESEARCH INITIATIVE
Societal Needs
Economic Sustainability
FBRI uses Life Cycle Assessment to compare the economic and environmental impacts of creating wood bioproducts.
LCA includes analysis of
• Forest Management
• Harvesting Methods
• Transport & Production Technologies
• "End of Life" impacts
Environmental Sustainability
Forest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Lumber and Building Products
Pulp and Paper Products
Existing Facilites
Environmental Sustainability
Forest

Senate Energy Bill June 2007

O:\CAM\CAM07535.xml S.L.C.

Susan M. Collins

AMENDMENT NO. _____ Calendar No. _____

Purpose: To provide for research support to facilitate the development of sustainable markets and technologies to produce and use woody biomass and other low-carbon fuels.

IN THE SENATE OF THE UNITED STATES—110th Cong., 1st Sess.

H. R. 6

AMENDMENT No. 1700

To _____ nvest-
By Collins urces,
To: Amdt. No. 1502 oping
_____ Effi-
_____ iative
5
_____
Page(s)

GPO:2008 30-772 (Mac)

Referred to the Committee on _____ and ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT intended to be proposed by Ms. COLLINS to the amendment (No. 1502) proposed by Mr. REID

The Collins biofuels research and development provision, which FBRI wrote, passed the Senate, authorizing $275,000,000 total over five years for biofuels research and development. This was amendment number 1700

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this section—

(1) $45,000,000 for fiscal year 2009;

(2) $50,000,000 for fiscal year 2010;

(3) $55,000,000 for fiscal year 2011;

(4) $60,000,000 for fiscal year 2012; and

(5) $65,000,000 for fiscal year 2013.

Portland Press Herald Maine Sunday Telegram

Wood ethanol shows that Maine can play

Technology-based industries can thrive here, especially those connected to our resources.

Ice hockey teams notwithstanding, the University of Maine and national prestige don't often run in the same circles. … Now, university researchers have developed a method for heating and squeezing wood to make ethanol. This research, coupled with commitments from legislators and university leaders to push it forward, could create dynamic energy of its own. … Innovation here could fuel the university's status as a research institution -- in turn, attracting more bright students -- and create a fertile, renewable economic base throughout Maine.

We urge Mainers to support a November bond that will pump millions of dollars into research and development projects. Coupled with environmentally conscious public policy, people might see past the forests to the trees and come to regard Maine as a player off the ice as well as on. July 2, 2007

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FOREST BIOPRODUCTS RESEARCH INITIATIVE

FBRI - Building on Our Strengths …

Cooperative Forestry Research Unit

CFRU

The AEWC Center

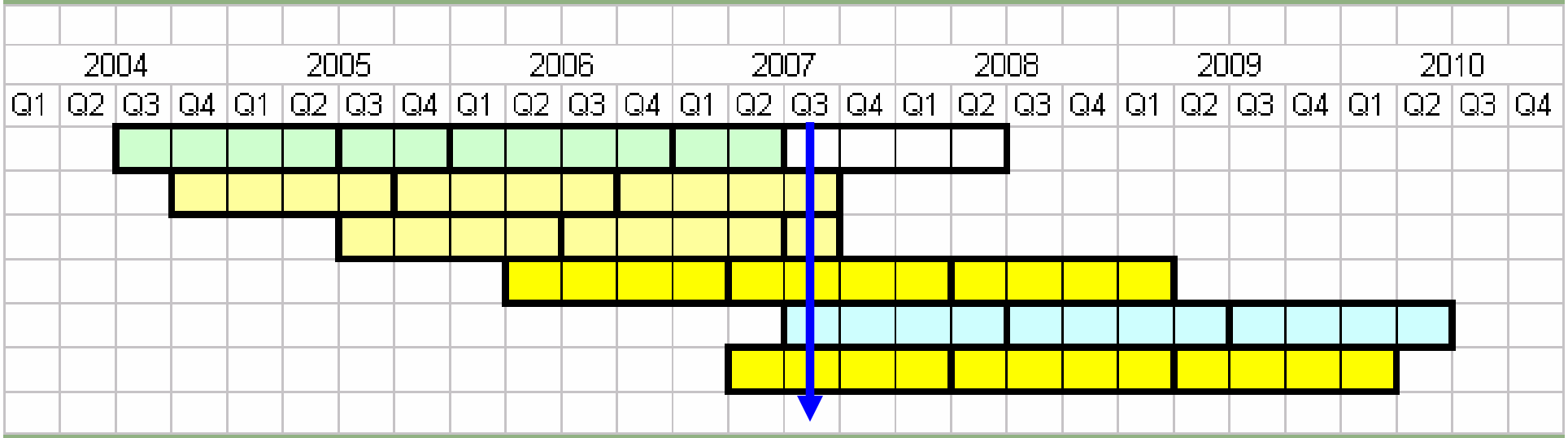
The Advanced Engineered Wood Composites Center

MAINE UNIVERSITY OF MAINE

Pulp & Paper Foundation
Orono, Maine

FOREST BIOPRODUCTS RESEARCH INITIATIVE

International Paper	Pre-Extraction
DOE/IoF	IFPR
DOE/MTI	Mill Residuals
EPSCoR/NSF	Forest Bioproducts
DOE/EPSCoR	Implementation Award Phase I
NSF/REU	Explore It! Sustainable Energy



THE UNIVERSITY OF MAINE

FOREST BIOPRODUCTS RESEARCH INITIATIVE

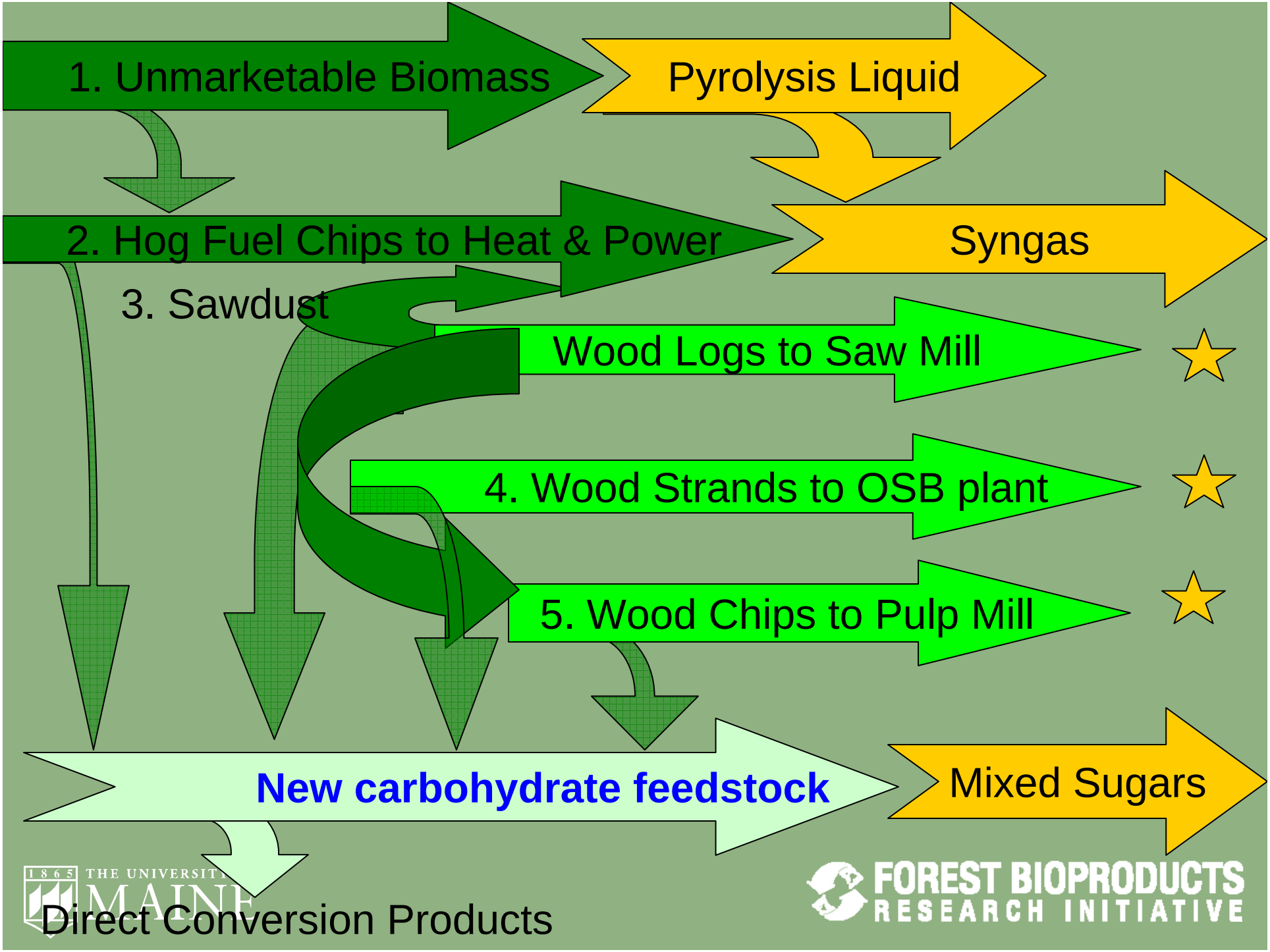
$13.2 million and counting …

$8.8 million

EPSCoR

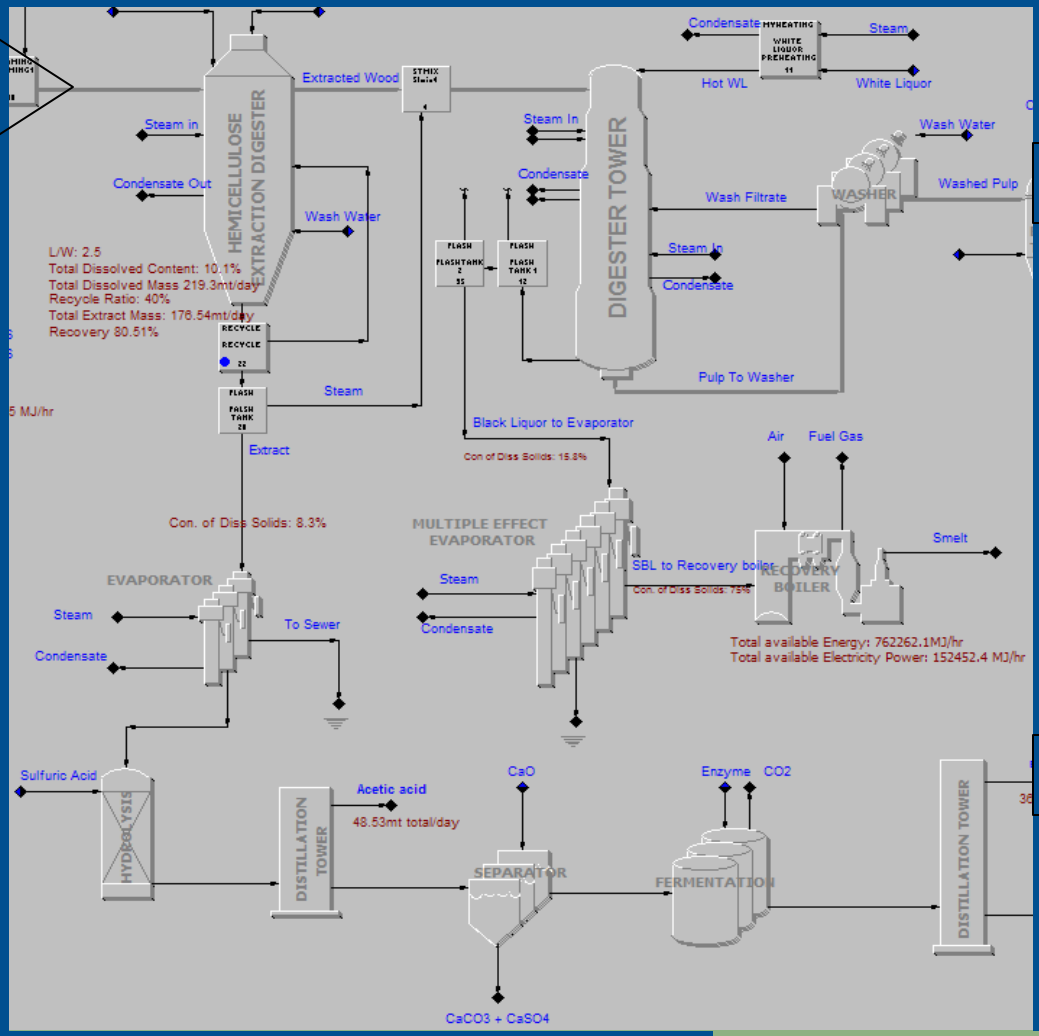
$4.4 million

FOREST BIOPRODUCTS RESEARCH INITIATIVE


1. Unmarketable Biomass
Pyrolysis Liquid
2. Hog Fuel Chips to Heat & Power
Syngas
3. Sawdust
Wood Logs to Saw Mill
4. Wood Strands to OSB plant
5. Wood Chips to Pulp Mill
New carbohydrate feedstock
Mixed Sugars
Direct Conversion Products

Old Town Biorefinery Model

Wood 1200 OD TPD

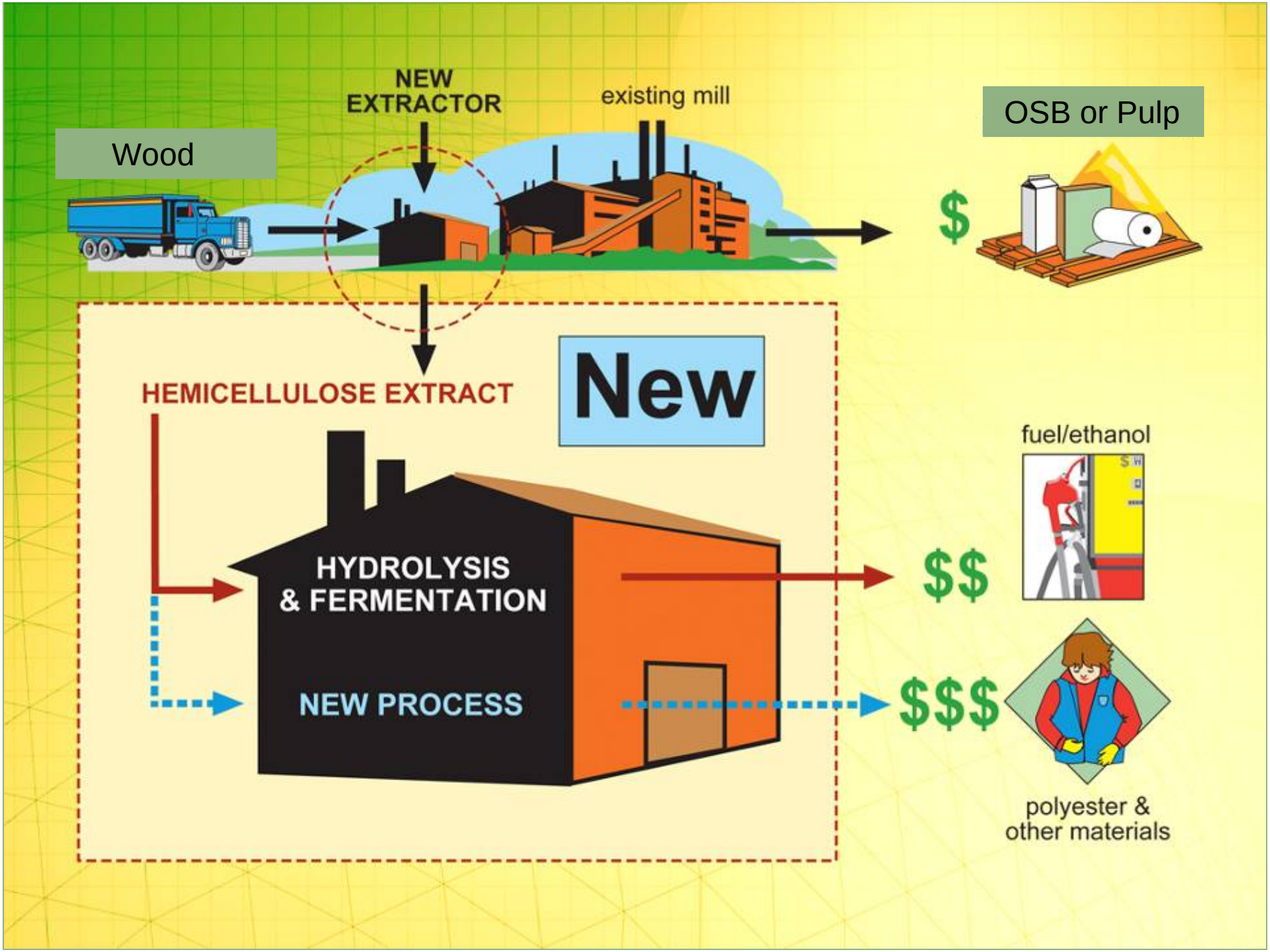


Pulp 550 OD TPD

Ethanol 18 TPD

Acetic Acid 21 TPD

FOREST BIOPRODUCTS RESEARCH INITIATIVE


NEW
EXTRACTOR
existing mill
Wood
OSB or Pulp
$
HEMICELLULOSE EXTRACT
New
HYDROLYSIS
& FERMENTATION
NEW PROCESS
fuel/ethanol
$$
$$$
polyester &
other materials

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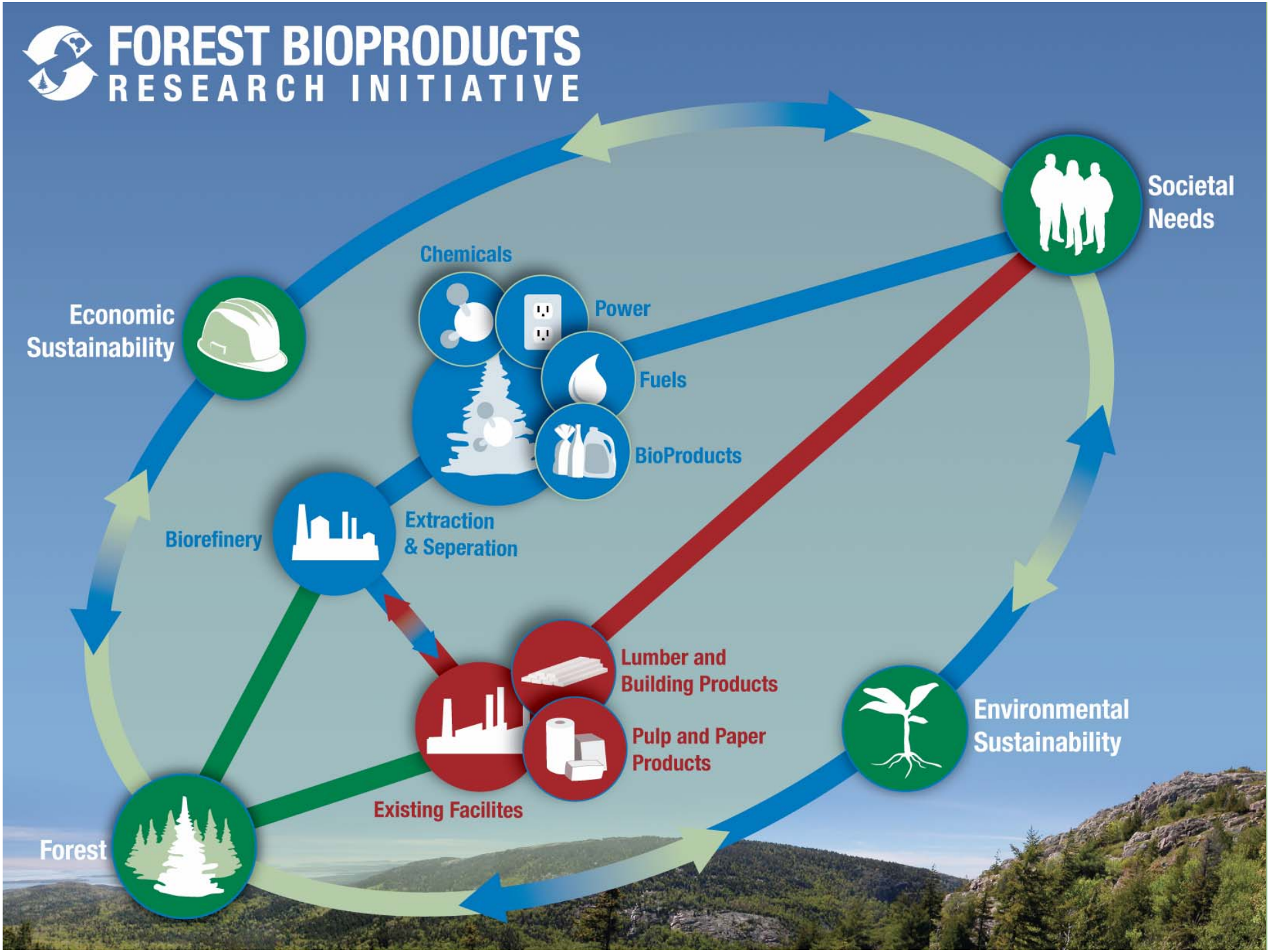
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