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Methanol and Distributed Energy Parks

FIGURE 1A. Camelina in rosette stage.



FIGURE 1B. Camelina bolting to make seed.

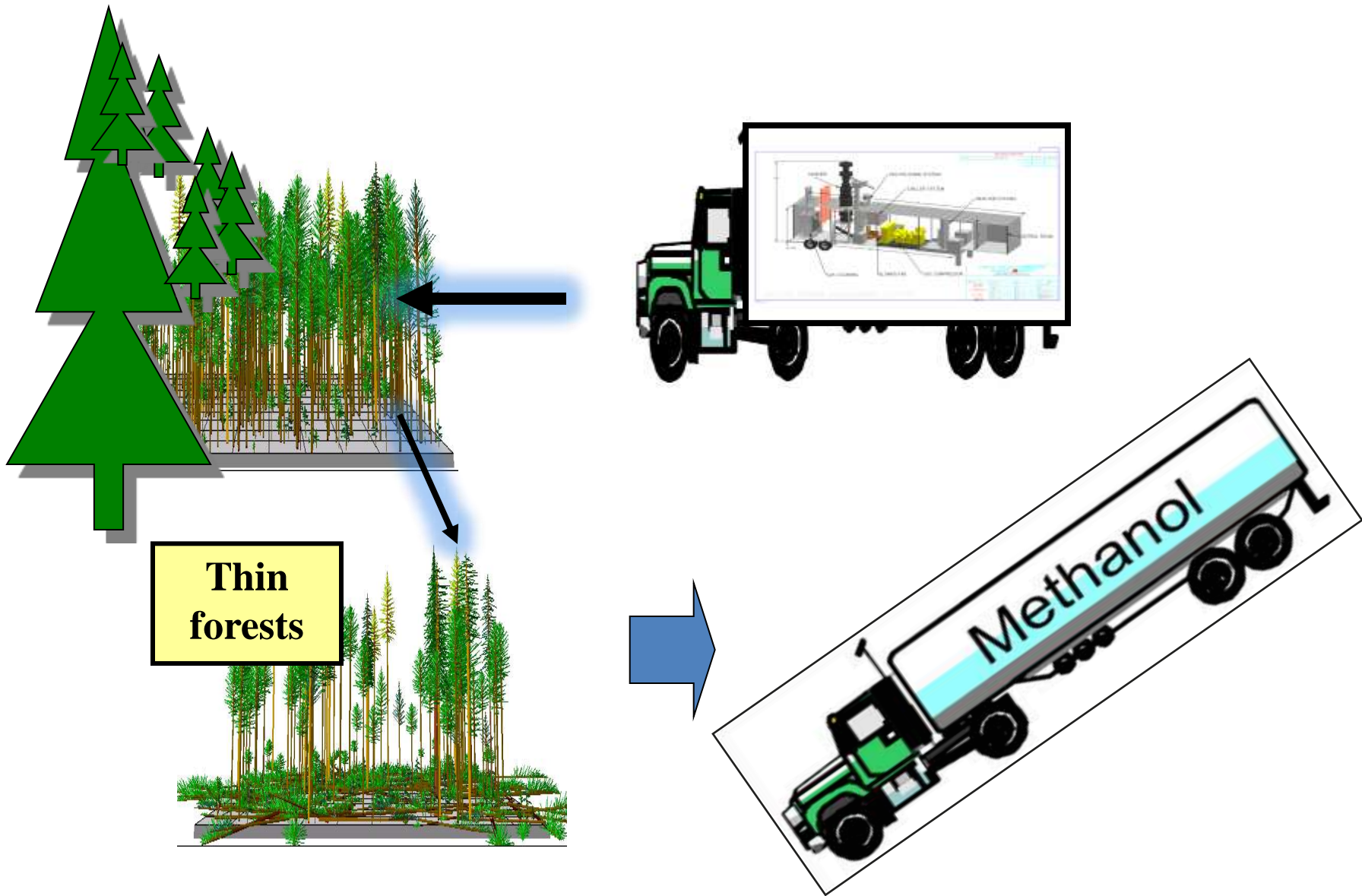


FIGURE 1C. Seed pods of camelina on multiple branches.

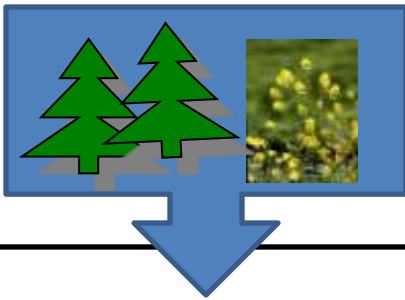


We need to decrease competition between Agriculture & Forest materials – use crops in each area – to meet regional demand





Distributed conversion of forest materials USING MOBILE SYSTEMS OR SMALL SCALE ENERGY PARKS is essential or not economical!



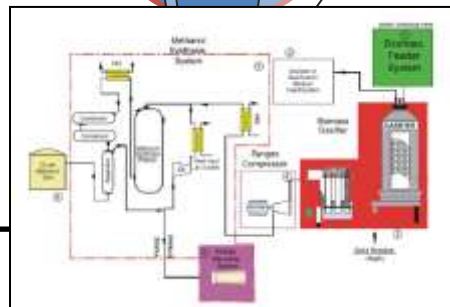
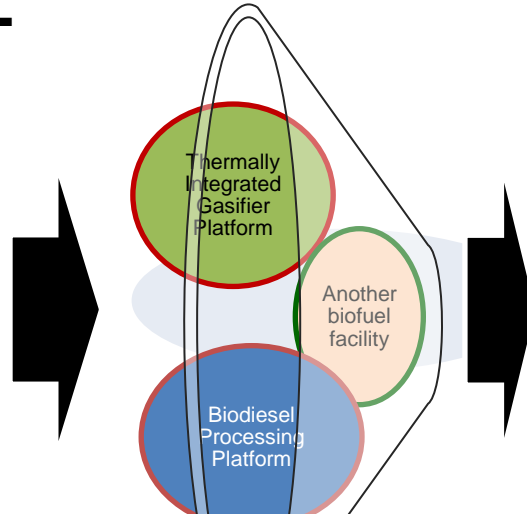
Biodiesel
METHANOL



**18 Mg/day
camelina
crush
BIODIESEL
facility
needs:**

- 86.5 Mg dry wood biomass
- 27,252 L methanol
- 3,240 Mg oil seed crush

1 ENERGY PARK



1 ENERGY PARK:

- **Biodiesel** - 2,725,200 L/yr
[sales (@\$3.79/L) = **\$10,329,000/yr**]
- **Oil Seed Meal** – 9,720 Mg/yr
[sales @\$230/1 Mg = **\$745,000/yr**]
- **Wood Methanol** – 27,252 L/yr [Methanol sales (\$7.57/L) - **\$206,000/yr**]
- **CO2 emissions avoided** - (1) replace natural gas with wood methanol – 24 Mg CO₂/yr; (2) biodiesel substitute diesel - 666 Mg CO₂/yr
[Total = 690 Mg CO₂/yr]

Inputs

Outputs



**Multiple Diverse
Products to
Satisfy Regional Demand**

+

**Build Regional
Modular Energy Park**

**Manufacturing
Capacity
Regionally**

+

JOB Training



Products

Using climate-friendly technology to produce diverse, new products

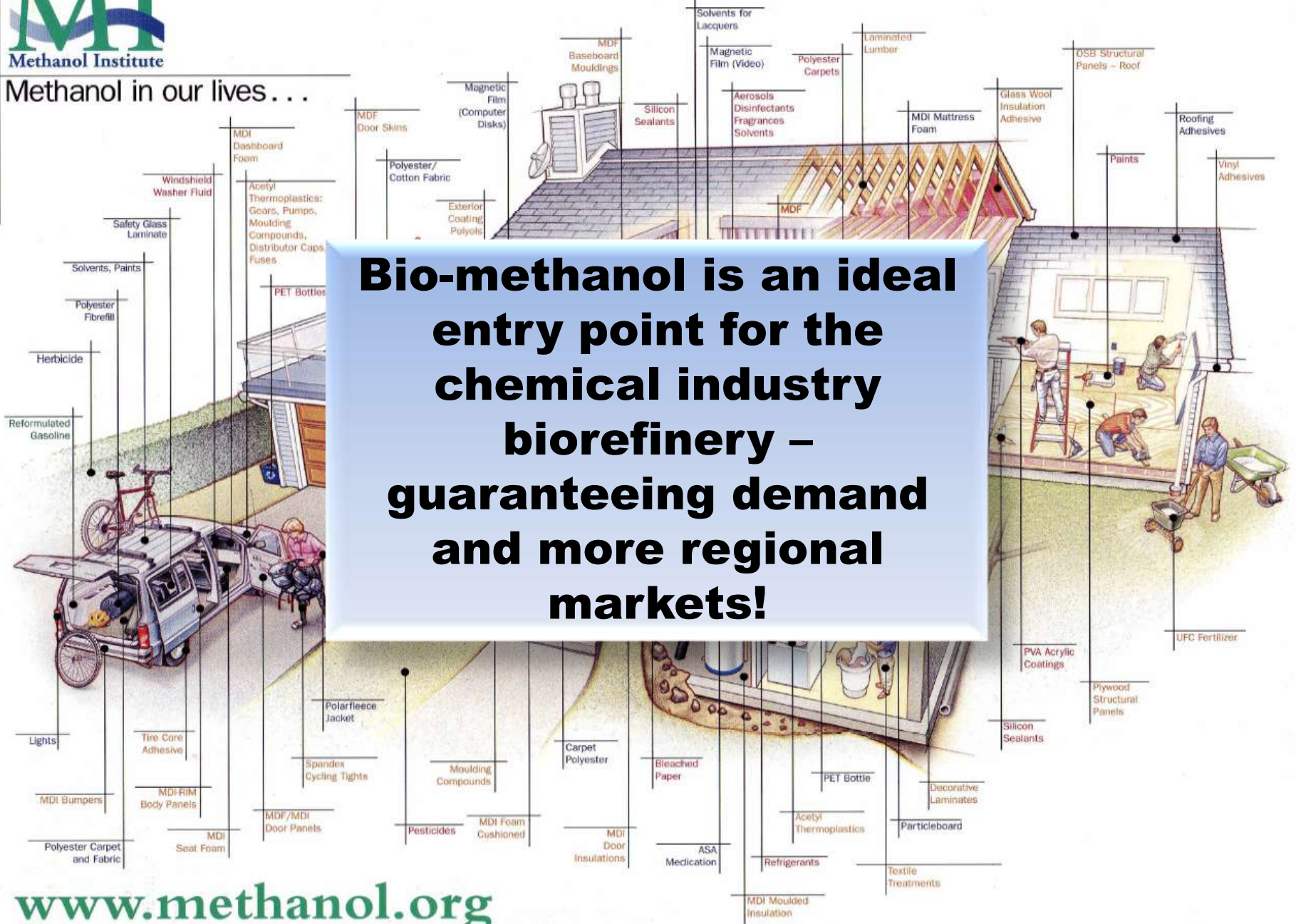


Methanol
Denitrification
Methanol
Institute 2007

Powered
by
Methanol



Methanol in our lives . . .



Bio-methanol is an ideal entry point for the chemical industry biorefinery – guaranteeing demand and more regional markets!



Green Bio-diesel – its not **100% green** if use natural gas methanol

- ❑ **Biodiesel require 8-12% methanol**
- ❑ **Bio-methanol can substitute for natural gas methanol**

Natural Disaster Assistance

- ❑ Estimated 4.7 million tons of recyclable demolition waste from the 2004 Indian Ocean Tsunami in Banda Aceh
- ❑ Vegetative waste was the largest portion of debris
- ❑ Methanol produced from waste could have provided an energy source to assist victims and seeded recovery after hurricanes, earthquakes, tsunamis



BriteLyt Emergency Package -
includes lantern, stove, 1 Quart-1 gallon container of Methanol



Critical Backup Power – a newly emerging market

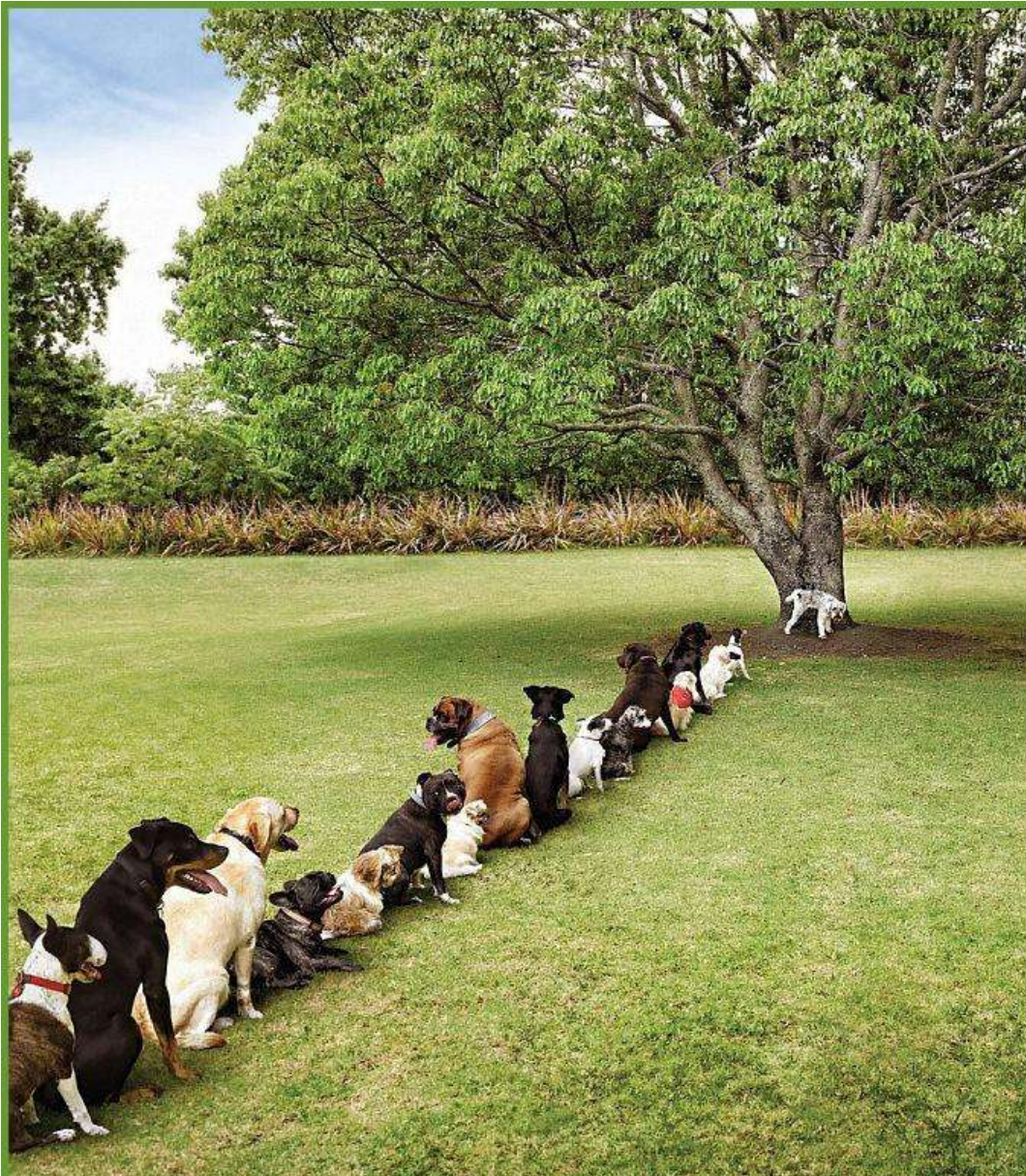
IdaTech's direct hydrogen-fueled ... backup power solutions .. to *traditional battery powered systems for markets such as telecommunications, utilities, public safety networks*

http://www.fuelcellmarkets.com/idatech/news_and_information/3,1,599,1,14666.html

Multiple Benefits and Services

If we don't have a diversify energy product stream, development of new green energy business enterprises will be challenging





Need to
diversify
forests and
agricultural
products so
more can
'visit'

Another problem caused by LOW product diversity