

Use of Mobile Fast Pyrolysis Plants to Address WBUG Objectives



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The Concept

- Utilize relatively small mobile fast pyrolysis units that can convert wood to bio-oil and char cost effectively
- Make plants energy self-sufficient
- These features allow plants to be operated in remote areas close to the biomass resource

Fast Pyrolysis Products

- **Bio-oil**

- 120 gal/dry ton
- 80,000 Btu/gal



60%

- **Char**

- 12,000 Btu/lb



25%

- **Syngas**

- 300 Btu/cf

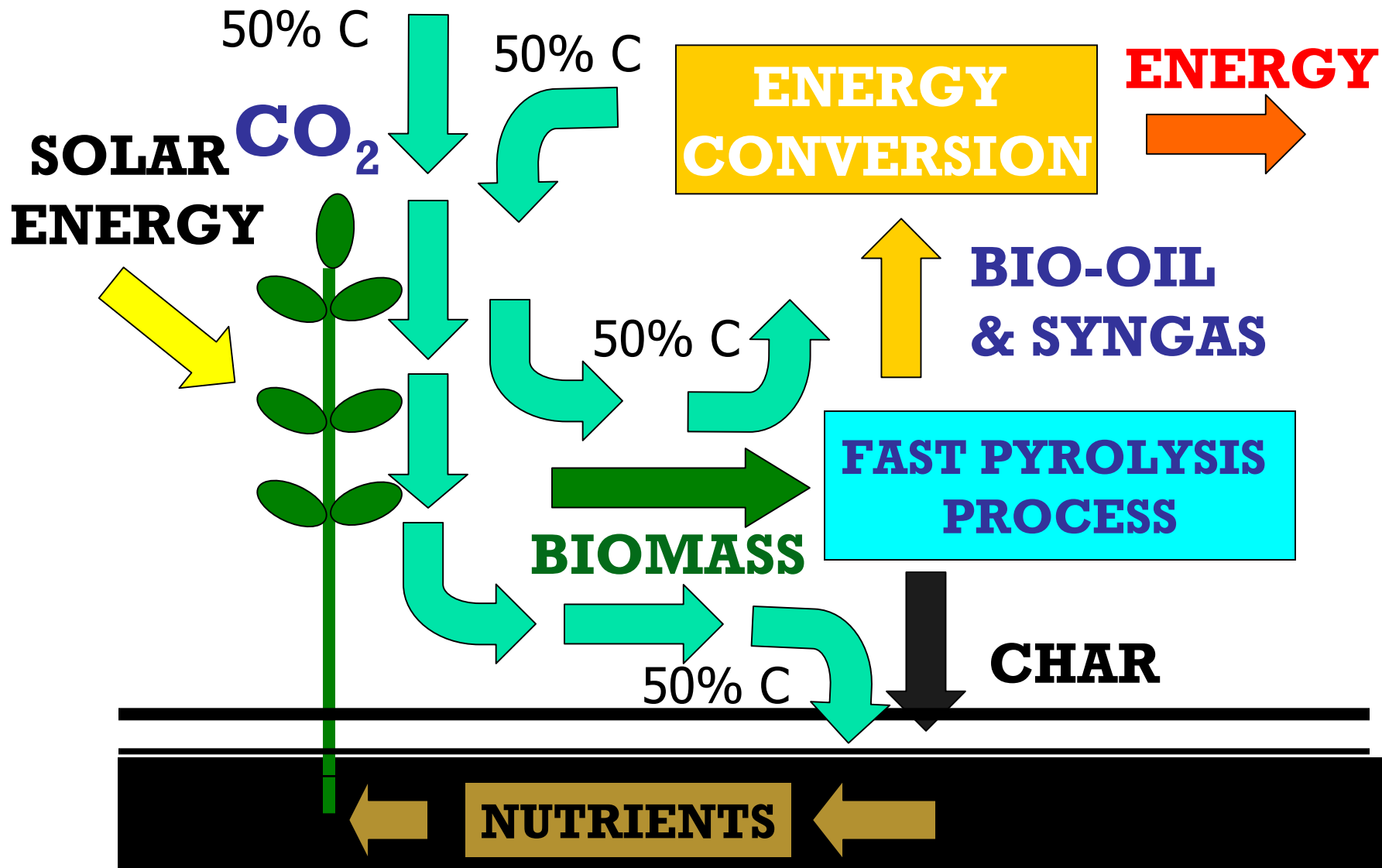


15%



Bio-oil Uses

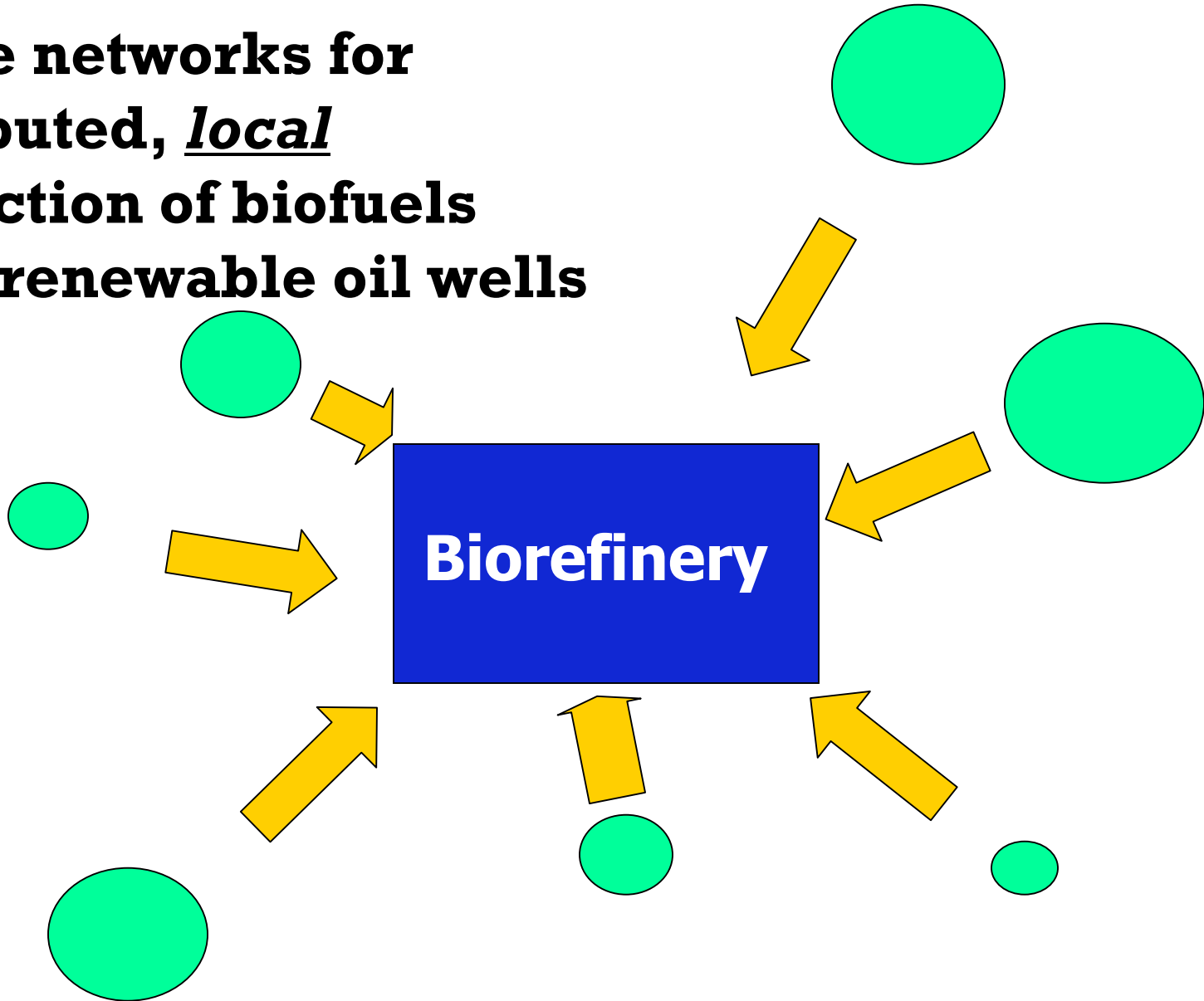
- “As is” for fueling boilers, certain combustion turbines and internal combustion engines
- In blends with petroleum-based fuels
- Upgraded into Green Diesel, Green Gasoline, and chemicals



FAST PYROLYSIS FOR ENERGY AND CHAR PRODUCTION

Establish Distributed Production

**Create networks for
distributed, *local*
production of biofuels
using renewable oil wells**



**Distributed, local production
with many small plants (the
personal computer model)**



Some Advantages of Fast Pyrolysis Plants

- The fast reactions means that small plants can process large quantities of materials
- Simplicity of design means small plants can be made modular and transportable
- Small plants can be factory fabricated which reduces costs for plants and their installation, making them cost effective at a small scale
- Smaller plants, especially mobile plants, can be located close to the biomass sources
- This minimizes transportation of low density, low value biomass feedstocks (bio-oil has ~ 6x the energy density of green whole tree chips)

Additional Advantages of the ROI Fast Pyrolysis Process

- Does not require process water
- Relatively easy to scale up
- Relatively simple to construct and operate
- Process can handle dirt, twigs, leaves, small stones in feedstock
- Relatively low capital and O&M costs
- Can be cost effective at small or large scale

WRAP UP

- Addresses Global Climate Change through carbon sequestration and reduction in fossil fuel use
- Addresses sustainability through nutrient recycle and soil productivity enhancement
- Can reduce wildfires and mitigate the cost of forest fuel reduction activities
- Can mitigate the cost of storm damage cleanup and provide a means to recover value from downed and damaged wood
- Can provide markets for unmerchantable wood