

Harvest Engineering Research: Lessons from Oregon State University

Tom Hobby -SCR Management Inc.

Woody Biomass Thermal Heating Project Development Workshop

Castlegar BC, October 5, 2010



Economic Factors Affecting Feedstock Costs

The challenge is to move low value fibre to
produce bioenergy commodities

- Limited by harvesting/collection and processing costs; and
- Transportation costs



Economics

❖ Feedstock general economics

- Mill residues cheapest - \$ hauling costs
- Wood demolition waste may be a possible income stream from tipping fees in some areas of BC
- Logging residues may be utilized economically if slash is yarded to roadside, piles are kept clean and sites are close to bioenergy plants
- Whole tree harvesting may work with payments for ecological services and with some merch components



Economic Factors: Various Harvesting Systems

These systems need project specific analyses

- One pass harvesting vs. sawlog/pulp only harvesting
- Roadside vs. satellite chipping/grinding
- Chipping in the stand



Economic Factors: Various Harvesting Systems

A one pass harvesting for biomass test hypotheses

- Once sawlogs/pulp is removed, re-entry is typically too costly
- One pass logging for non-merch/small diameter fibre could cost an additional \$4-7/ m³ for mechanically harvested fibre



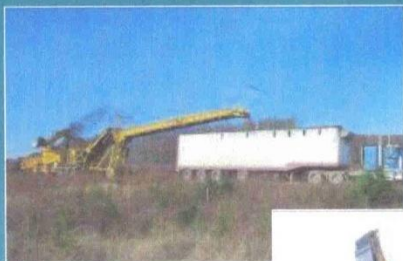
Economic Factors: Harvesting Systems

- Chipping in the stand may be equal cost to roadside chipping under some situations (OSU)



Recovery Methods and Equipment

A variety of equipment and methods are available



Mar 29, 2007

Economic Factors: Harvesting Systems

Harvesting costs – FERIC comparison

- Logging residuals – chipping grinding est. \$25-35/BDT



Harvesting lessons

- Many cost savings are yet to be realized;
- Continued applied research in this area will lead to reducing costs;
- Oregon State will have engineering studies available soon that will focus on biomass production costs; and
- The Scandinavians may provide knowledge transfer that may be able to save biomass harvesting costs

Economic Factors: Transport Systems

- Innovative transport systems are being researched to reduce transport cost. Research is underway and will results will be in the public domain soon



Transport Systems

- Roll off bins
 - Bins can be 2.6m wide highway and 3.6m wide for off highway use

Load biomass –tops, limbs, non-merch



Transport Systems

Satellite yard for chipping and grinding
May be more economical vs. road building

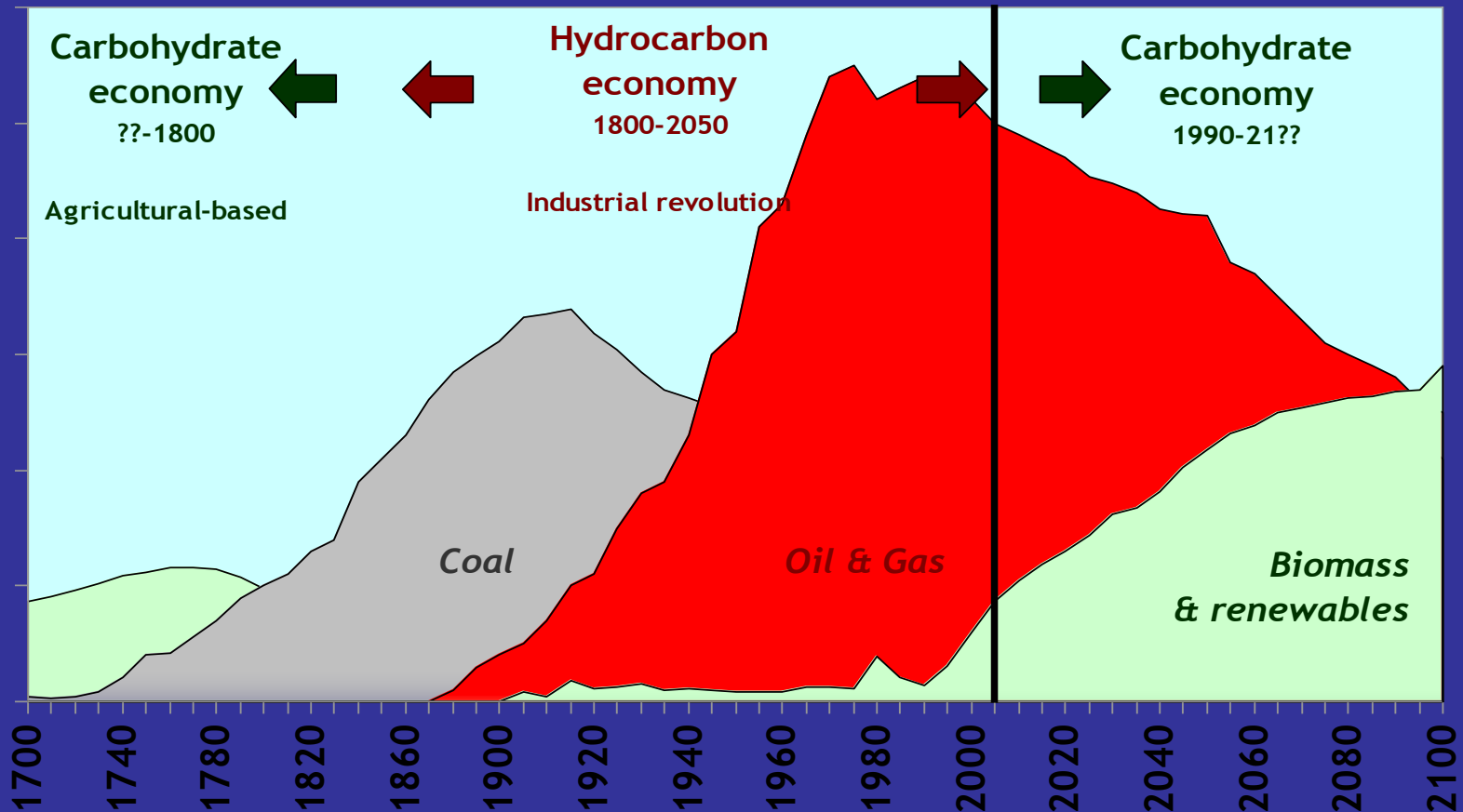


Biomass Feedstock Take Home Messages

- Cost savings may open up the door for viable fibre recovery that current studies say are “uneconomical”;
- Risks will be taken by early adopters to test the various methods outlined; and
- The Kootenays region is a great location to test these hypotheses as there are large quantities of non-merch fibre that would be best suited for bioenergy development.

New Technologies Looking Back and Forward...

log (primary energy use) by category



Biomass Feedstock Take Home Messages

- Oil and gas will rise in future years ahead;
- Added value for energy will only make thermal heat and bioenergy more attractive; and
- Logging residues and non-merch material will have increased value over current levels.

Biomass Feedstock Take Home Messages

- Energy prices and value for bioenergy commodities will outweigh harvest/transport increased energy costs; and
- We need to be forward thinking – times will change and those ready for the changes will be rewarded.

Thank you for your time

For more info about thermal bioenergy development,
feasibility and due diligence

SCR Management Inc.



Tom Hobby

tomhobby@sustainingcreation.com

250-743-5353