

Wood Energy Production and Consumption in BC

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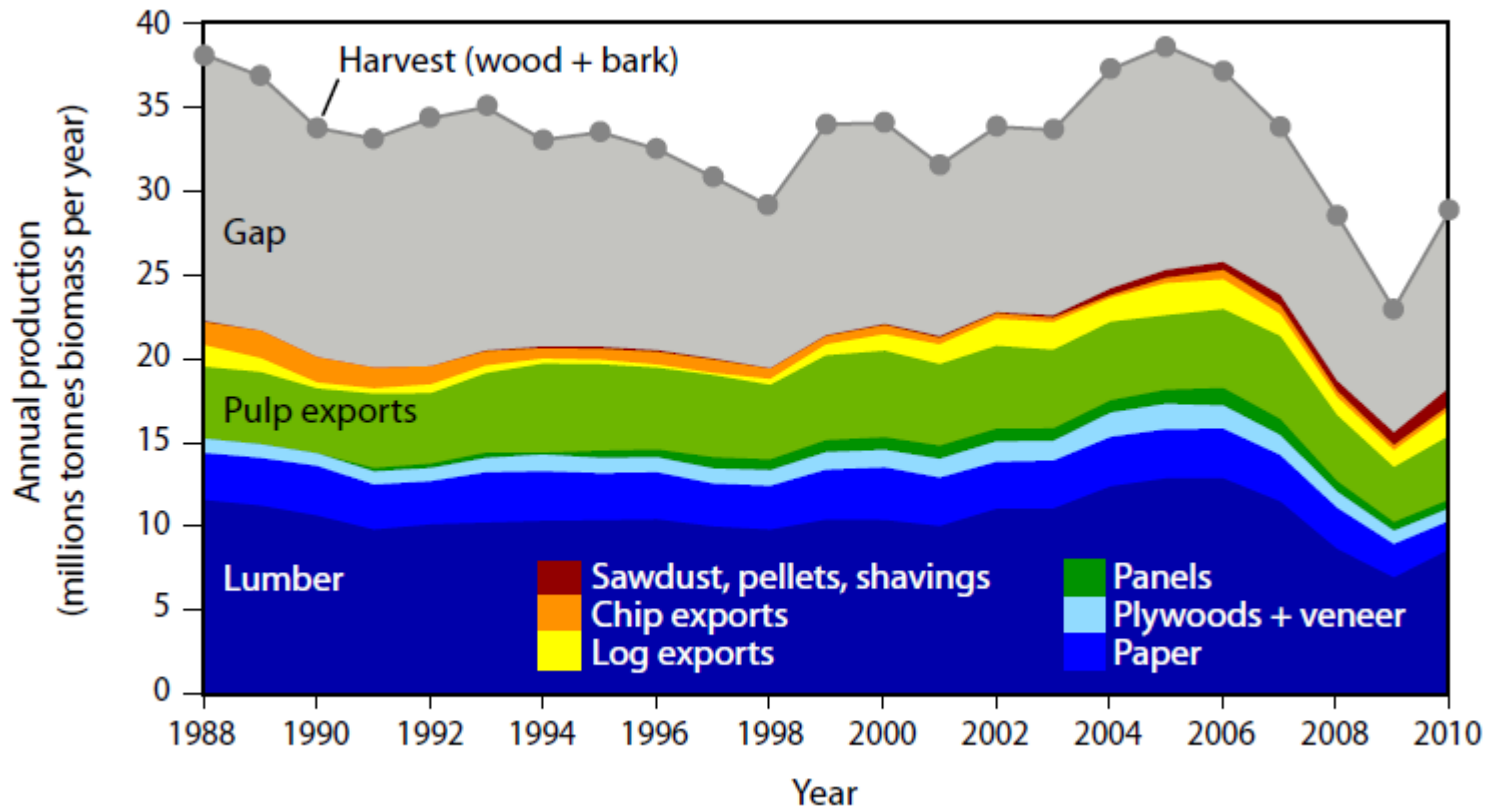
Acknowledgements

- Funding provided by the Pacific Institute for Climate Solutions and FLNRO
- 48 mills, and energy plants participated
- 28 companies
- Advice and data from
 - BC Bioenergy Network,
 - Canbio,
 - COFI,
 - CIEEDAC, and
 - Murray Hall



Forest Products in BC

- Mostly lumber and pulp but gap between harvest and sum of products



Dymond 2012 <http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En107.pdf>



Bioenergy in BC

- Feedstock supplies?
- Capacity?
- Production?
- Consumption?
- Efficiency?
- Potential?
- Atmospheric benefit?
- Markets?
- Policies?



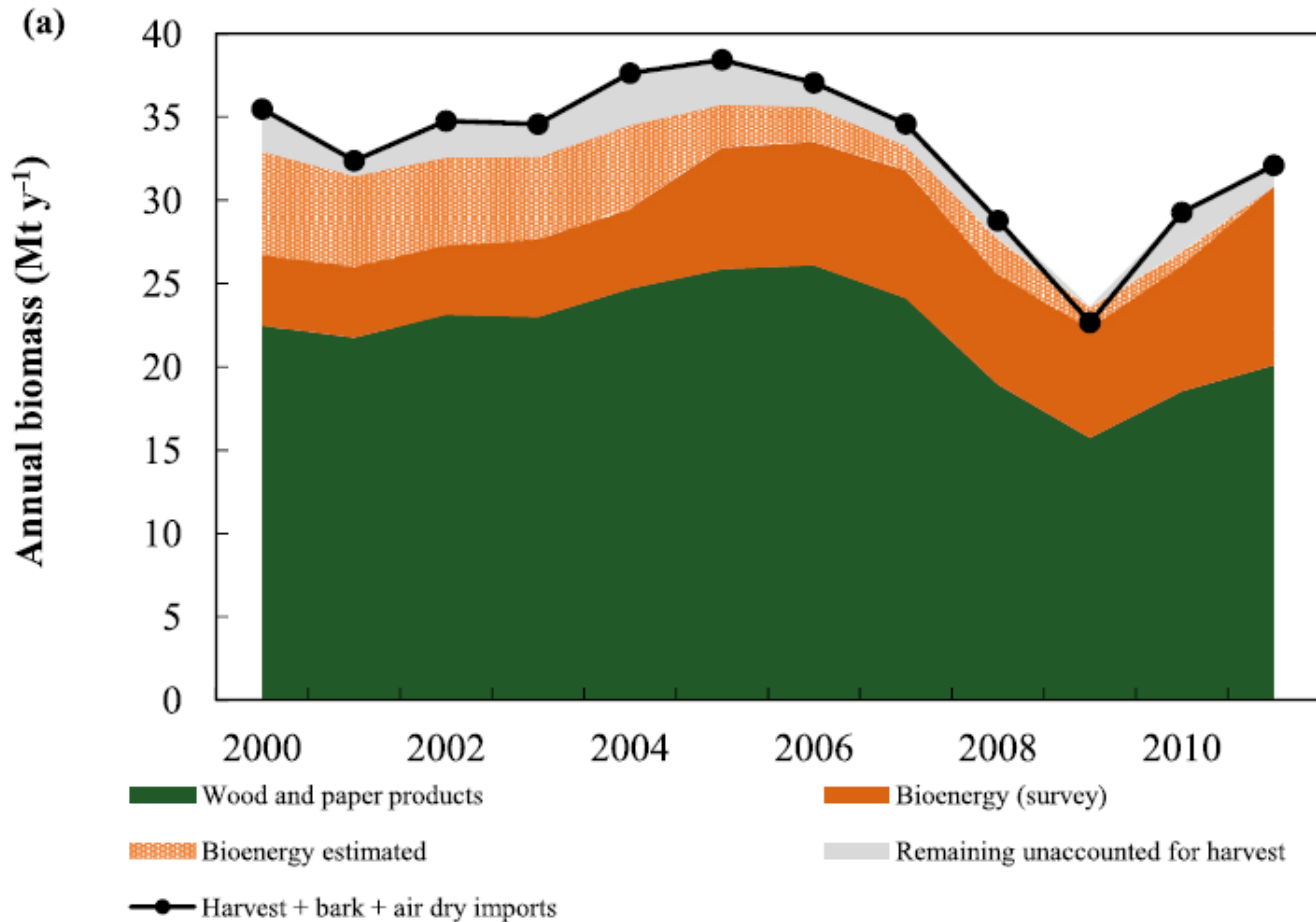
Company Survey

- Amount of fibre used for bioenergy production in 2011;
- Type of fibre used (hog fuel, pulping liquor, etc) and;
- Source of the biomass
- First year of bioenergy production;
- Thermal and electric energy production for 1990-2011;
- Current bioenergy capacity;



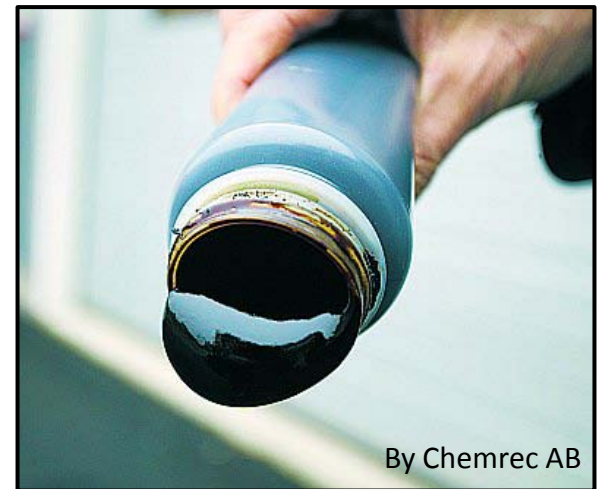
Fibre use

- About 1/3rd of harvested fibre ends up in bioenergy

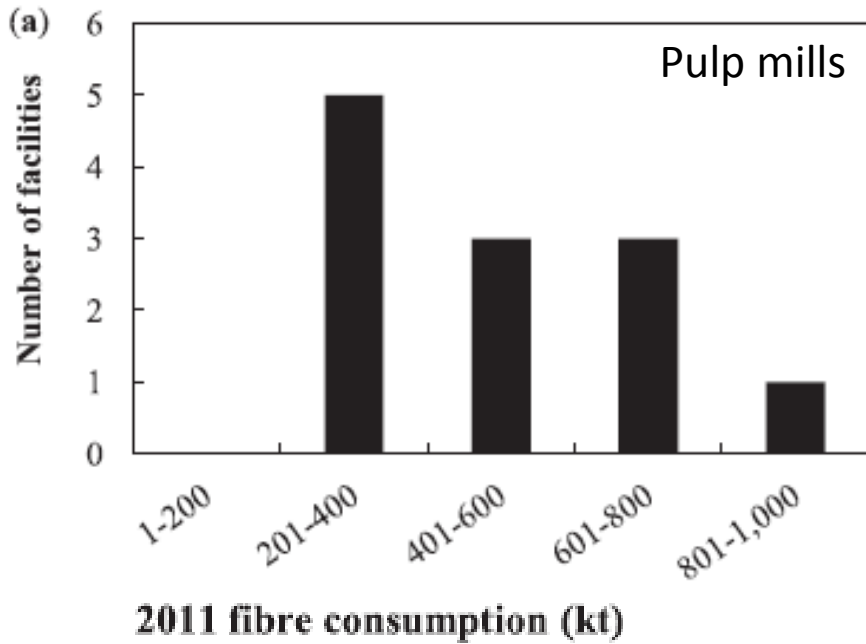


Feedstock

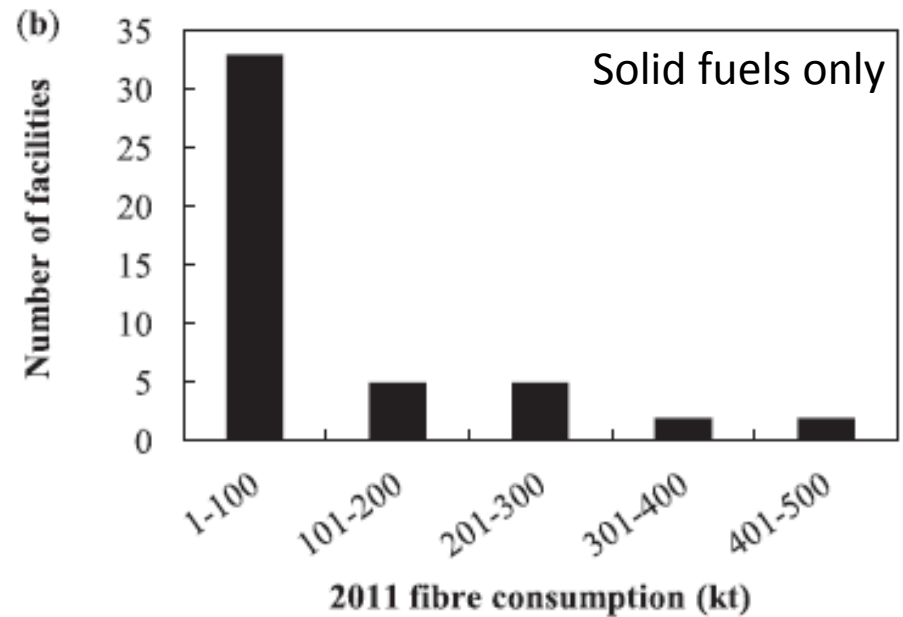
- 94% of feedstock from mill residues, 5% harvest residues
- 5.8 Mt pulping liquor organics
- 4.2 Mt solid fuels



Facilities

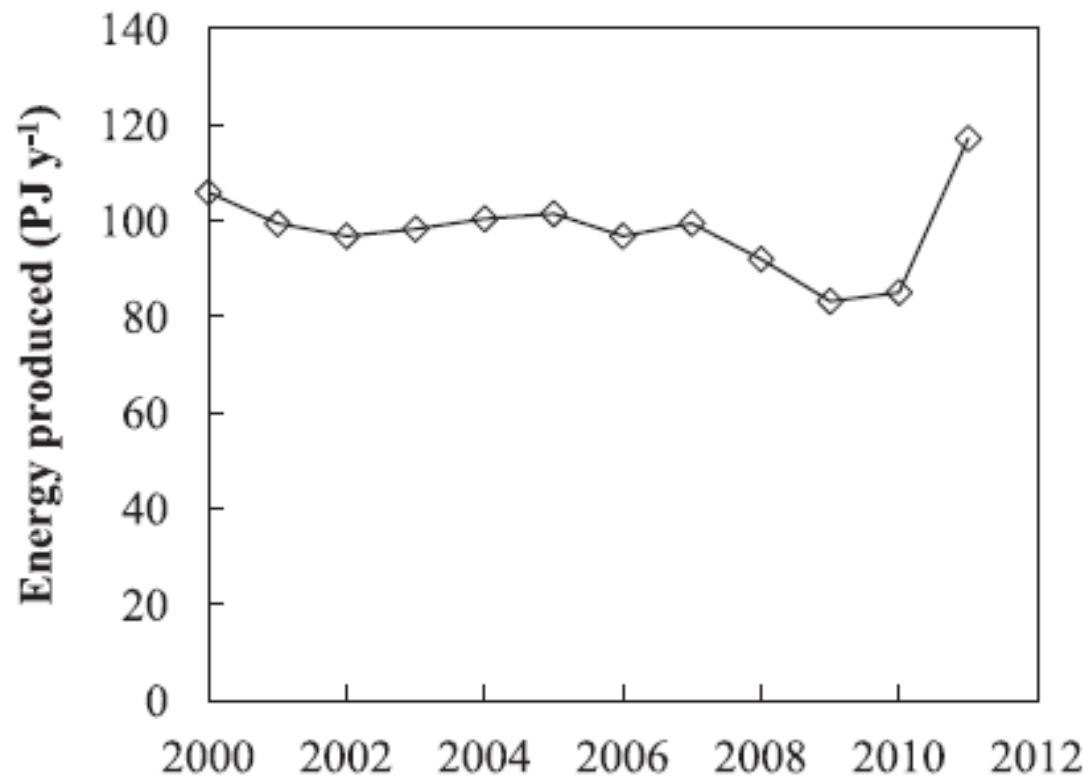


- Facility profile differs with feedstock

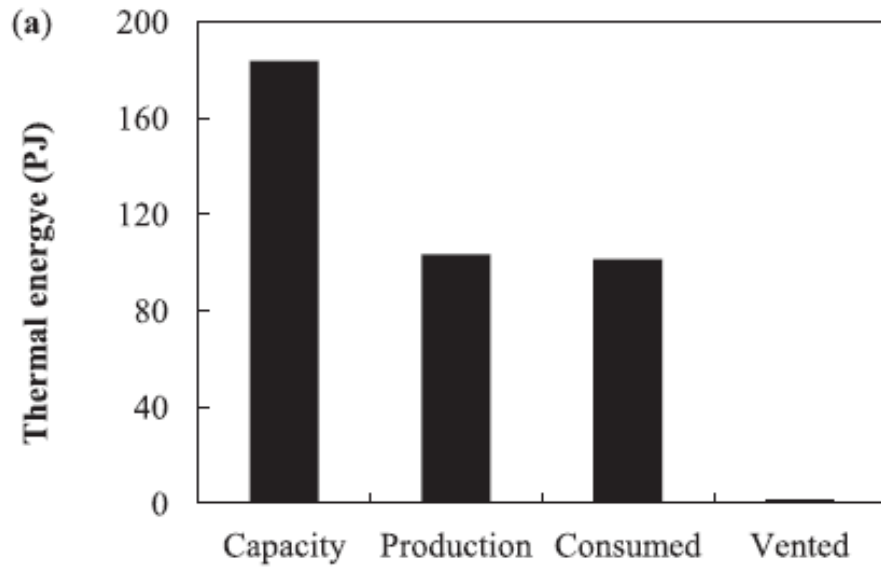


Energy production

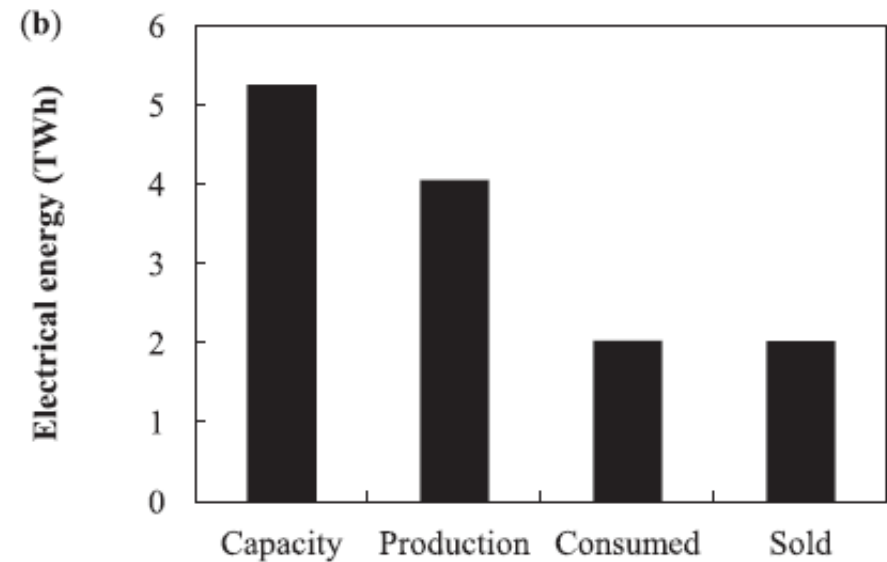
- About 10% of BC's energy demands being met by bioenergy in 2011
- Approximately 640 M\$



Capacity

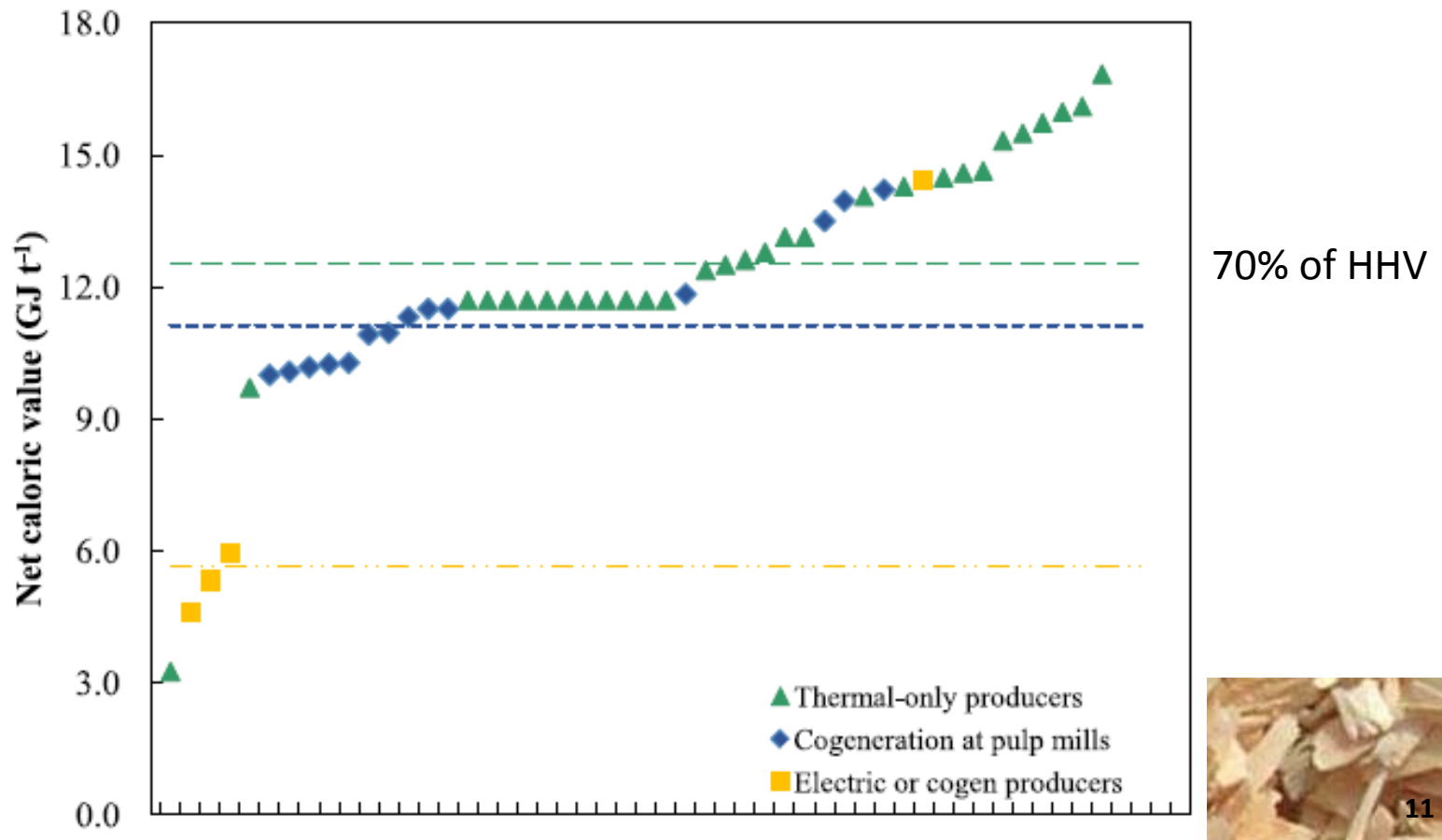


- Excess capacity in 2011



Efficiency

- Need measurement standards
- Room for improvement?



Comparison

- More than CIEEDAC but less than Stats Can

Characteristic		This survey 2011	CIEEDAC* 2009	Statistics Canada 2009
Number of facilities		48	21	Pulp mills
Capacity (MW)	Thermal energy	5,825	3,767	
	Electric energy	600	544	
Annual production	Thermal energy (PJ)	103.3		
	Electric energy (GWh)	4,054		1,711
	Total (PJ)	118	25	201.5
	Total (GWh)	32,763	6,977	55,972

* Canadian Industrial Energy End-Use Data and Analysis Centre (CIEEDAC)

Conclusions

- On average from 2000 to 2011, 9.4 Mt y⁻¹ of wood used
- About 98 PJ of energy
- Together with pellets, 38% of the wood fibre supply went into bioenergy in 2011
- We should probably be using low heating value or operational efficiencies.
- Energy important forest product.



Further information

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Dymond, C.C. & A. Kamp 2014. *Fibre use, net calorific value, and consumption of forest-derived bioenergy in British Columbia, Canada.*

Biomass and Bioenergy 70, 217-224

<http://www.sciencedirect.com/science/article/pii/S0961953414004036>

