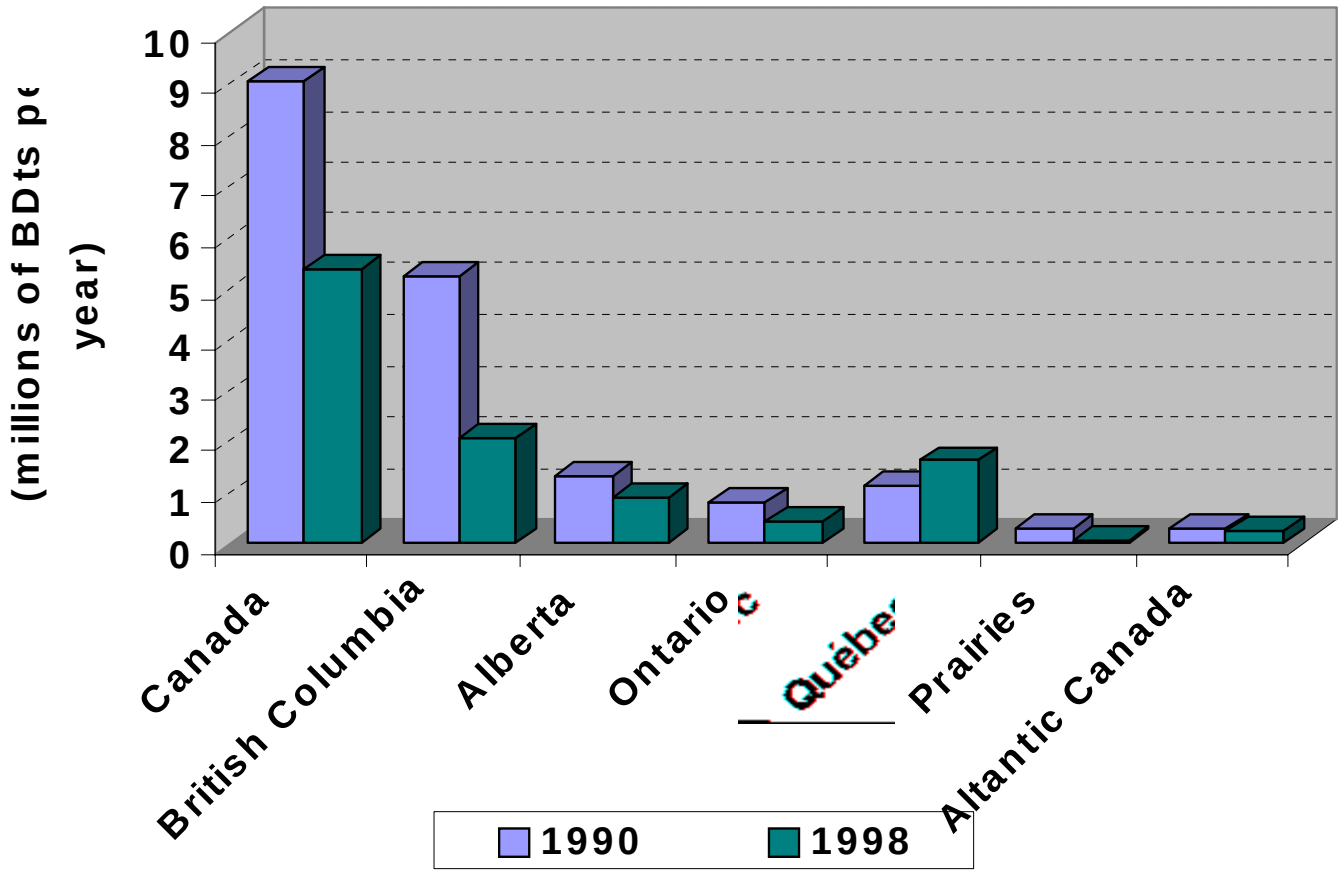
Western Canadian Wood Residue Production and Consumption Trends

BW McCloy & Associates

Historic Trends in Surplus Mill Wood Residue Production (Millions BDt)



Canadian Mill Wood Residue Estimates - 2004 (BDt)

	Bark	Sawdust	Shavings	Total
Canada				
Production	11,553,549	5,355,054	4,319,934	21,228,536
Consumption				17,821,286
Exports				669,445
Surplus				**2,737,805**
Western Canada				
Production	5,169,983	2,632,900	1,960,886	9,763,769
Consumption				6,940,872
Exports				349,905
Surplus				**2,472,992**
Eastern Canada				
Production	6,383,566	2,722,154	2,359,048	11,464,767
Consumption				10,880,414
Exports				319,540
Surplus				**264,813**

Trend in Canadian Lumber Production (MMfbm)

Province	2000	2001	2002	2003	2004	% Change 02-04
British Columbia	13,627	13,818	15,044	15,012	16,614	10%
Quebec	7,475	8,111	8,641	8,200	8,426	-2%
Ontario	3,002	3,615	3,983	3,770	3,698	-7%
Alberta	2,671	2,899	3,025	3,204	3,413	13%
New Brunswick	1,434	1,522	1,658	1,607	1,712	3%
Nova Scotia	732	626	793	712	756	-5%

British Columbia

- **BC has the largest residue production and surplus**

British Columbia	Bark	Sawdust	Shavings	Total Volume BDt
Production	2,981,633	2,057,163	1,514,958	6,553,754
Consumption				4,388,894
Export				349,905
Surplus				1,814,955

British Columbia

- **Current consumption includes:**
  - **Pulp and plywood mill combined heat and power production**
  - **Sawdust pulp production**
  - **Particleboard**
  - **MDF**
  - **Wood Pellets (300,000 BDt to Europe)**
  - **Sawmill Energy Systems**
- **Surplus mill residues located primarily in the Peace River and Vanderhoof to Houston corridor.**

Impact of mountain Pine Beetle Infestation

- More than 700 million m3 of dead standing lodgepole pine.
- Only viable plan is to salvage dead pine stands rather than live standing spruce fir stands.
- Infestation has spurred expansion of BC Interior sawmilling industry.
- BC now has two sawmills producing more than 600 million board feet annually. These are now the two largest sawmills in the world.
- Increase in sawmilling production is reversing the trend of decreasing mill wood residue surplus in BC
- Also leading to a glut of pulp chips as pulp industry is not expanding.

Mountain Pine Beetle Infected Stand

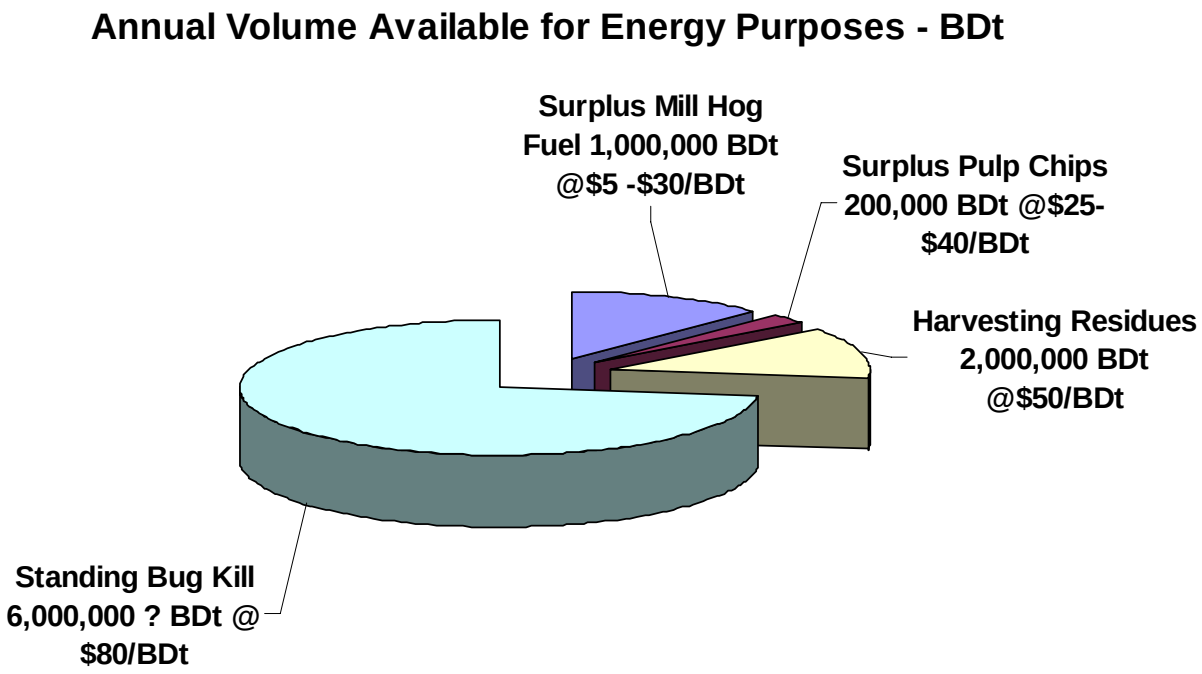
MPB Roadside Harvesting Debris

MPB Energy Opportunities

- Not all MPB timber will be salvaged for traditional FP therefore significant wood energy opportunity with dead standing timber.
- Also surplus pulp chips and an increase in chip fines.
- Most immediate opportunity likely from roadside harvesting debris.
- But all new sources of wood energy come at a higher cost.

Example of Severe Checking Associated with MPB Timber

Sources of Potential Wood Energy
1m3 = 0.4 BDt 1BDt = 20 GJ energy or 1.6MWh



Alberta

- **Alberta has the second largest mill surplus**

Alberta	Bark	Sawdust	Shavings	Total Volume BDt
Production	1,566,549	472,238	366,828	2,405,615
Consumption				1,924,478
Surplus				481,137

Alberta

- Current consumption includes:
  - Pulp mill combined heat and power systems
  - Particleboard
  - MDF
  - Mill energy systems
  - Wood pellet production
- Surplus residues are approximately one half of what they were six years ago.
- Most surplus residues are located in Slave Lake and High Level areas.

Saskatchewan

Saskatchewan	Bark	Sawdust	Shavings	Total Volume BDt
Production	465,000	64,500	50,000	579,500
Consumption				415,600
Surplus				163,900

Saskatchewan

- **Unique feature of Saskatchewan are the wood residue piles that have accumulated over the decades. Storage piles estimated to retain two thirds of original heat value.**

Storage Pile	Location	BDt
Weyerhaeuser	Hudson Bay	400,000
Weyerhaeuser	Prince Albert Pulp Mill	>1,000,000
L&M Wood	Glaslyn	700,000
Clearwater FP	Meadow Lake	150,000
Provincial FP	Prince Albert	150,000
Zelensky Bros	LaRonge	500,000
Total		**2,900,000**

Wood Residue Stockpile - Saskatchewan

Manitoba

- **Manitoba surpluses relatively minor. Tolko's sawmill at The Pas produces almost half the mill residues in the Province.**

Manitoba	Bark	Sawdust	Shavings	Total Volume BDt
Production	156800	39000	29100	224,900
Consumption				211,900
Surplus				13,000

Where to From Here?

- Today's natural gas prices (>$8/GJ) have increased the pay back on wood energy systems to <2years. Value of wood residue >$100/BDt as a substitute for natural gas once wood energy system fully depreciated.
- But sawmills only require 20% of their residues for heating purposes.
- Develop markets for hog fuel wood pellets here and abroad.
- Wean pulp mill power boilers and lime kilns off natural gas by further use of wood residues.
- Need incentive program for fuel switching?
- Require new technology to make mills not only thermal energy self-sufficient but also electrical energy self-sufficient.
- 2006 BC call for new electrical energy $74/MWh up from $54/MWh in 2003.