



Catalyst



# The Price/Demand Relationship: An Industrial Perspective

*2007 CAMPUT Conference  
Kelowna, BC  
May 1, 2007*

*Dennis Fitzgerald, P.Eng.  
Director of Energy  
Catalyst Paper Corporation*



# Disclaimer

- This presentation contains forward looking statements that require assumptions about expected future results, including increases and reductions in energy consumption, anticipated energy and fuel costs and pricing expectations.
- These statements are subject to risks and uncertainties that may cause actual results to differ materially from those expressed or implied in the forward looking statements.
- There is significant risk that predictions and expectations contained in forward looking statements will not prove accurate, and you should not place undue reliance on them.

# Topics

1. Catalyst Paper and Importance of Energy
2. Experience With Price/Demand
3. Stepped Rates
4. Residential Programs
5. Conclusions

# Catalyst Paper

- 5 pulp and paper manufacturing plants in British Columbia
- 3,500 employees
- Manufacturing pulp and paper products
  - Telephone and specialty directories (world's largest producer)
  - Newspaper and Newspaper inserts
  - Retail flyer and Catalogue paper
  - Magazines
  - Product packaging
  - Market Kraft Pulp

# Manufacturing base in British Columbia



# Catalyst Paper at a Glance (2006)

- Sales: \$ 1.88 billion
- Net Earnings (Loss): \$ (15.9) million
- EBITDA: \$ 211 million
- Operating Earnings (Loss): \$ 3.9 million
- Assets: \$ 2.64 billion
- Production Capacity
  - Paper: 1.84 million tonnes
  - Pulp: 511,000 tonnes
- Shares trade on TSX as CTL

# An Energy Intensive Business

- Catalyst Paper consumes 180 TJ per day in fuels and electricity
  - Equivalent to a Canadian city of 200,000 people
  - Equates to about 25 GJ per tonne of product
- Annual electricity and fossil fuel costs of approximately \$220 million, biomass-based fuels are extra
- Energy accounts for about 15% of manufacturing costs

# Diverse Sources of Heat

- Biomass – 74%
    - Waste wood (hog fuel)
    - Sludges (wood and micro-organism based)
    - Black liquor (lignin based)
  - Fossil Fuels – 15%
    - Natural Gas
    - Fuel oil
- } Fuel-switching optionality
- Cogen Steam (natural gas based) – 9%
  - Alternative Fuels – 2%
    - Tire Derived Fuel
    - Coal
    - Municipal Landfill Gas

# Mechanical Paper Grades are Electricity Intensive

Thermo-Mechanical Pulping (TMP) based processes use large volumes of electricity to convert wood chips into pulp furnish, suitable for further conversion into paper products.

Catalyst vital stats:

- Purchased 4,500 GWh (2005) plus self-gen
- \$170 million per year
- 20% of production cost
- BC Hydro's largest customer

For all British Columbia TMP plants

- 11% of all electricity produced in BC



# Ability to Control Load

- 10 – 25 MW from a single refiner line can be easily “switched off” within seconds, reliability is 100%
- Multiple lines add to switching capacity
- Energy is “stored” in the form of pulp for later use on paper machines (which operate close to full capacity at all times)
- De-Inked Pulp (pulp made elsewhere from recycled paper) adds to production and load flexibility
- TMP pulp production can be profiled toward times of lightest system load
- Catalyst locations are at ends of transmission lines, adding to system value

# 2007 Electricity Pricing for Transmission Service Customers in BC (Schedule 1823)\*:

## **Average Price**

|                                |        |       |
|--------------------------------|--------|-------|
| Energy (at 100% CBL)           | \$/MWh | 28.25 |
| Demand                         | \$/MVA | 4,821 |
| Total (incl PST and at 85% LF) | \$/MWh | 38.54 |

## **Marginal Price**

|                   |        |       |
|-------------------|--------|-------|
| Tier 2 (incl PST) | \$/MWh | 58.94 |
|-------------------|--------|-------|

*Marginal price (Tier 2) provides a much more effective incentive to invest capital or to change behaviors, compared to average price.*

\* Including 2% rate rider

# Experience with Price/Demand

- Real Time Pricing (RTP) – mid 1990's
  - Allowed access to low Mid-C based pricing for incremental consumption
  - Participation stopped when Mid-C rose above tariff
- Price-Dispatched Curtailment - late 1990's
  - Paid customers to curtail blocks of load when called by Hydro
  - Very seldom used, only a few participants due to low price signals

# Experience with Price/Demand (cont.)

## Modified Demand program (Schedule 1852)

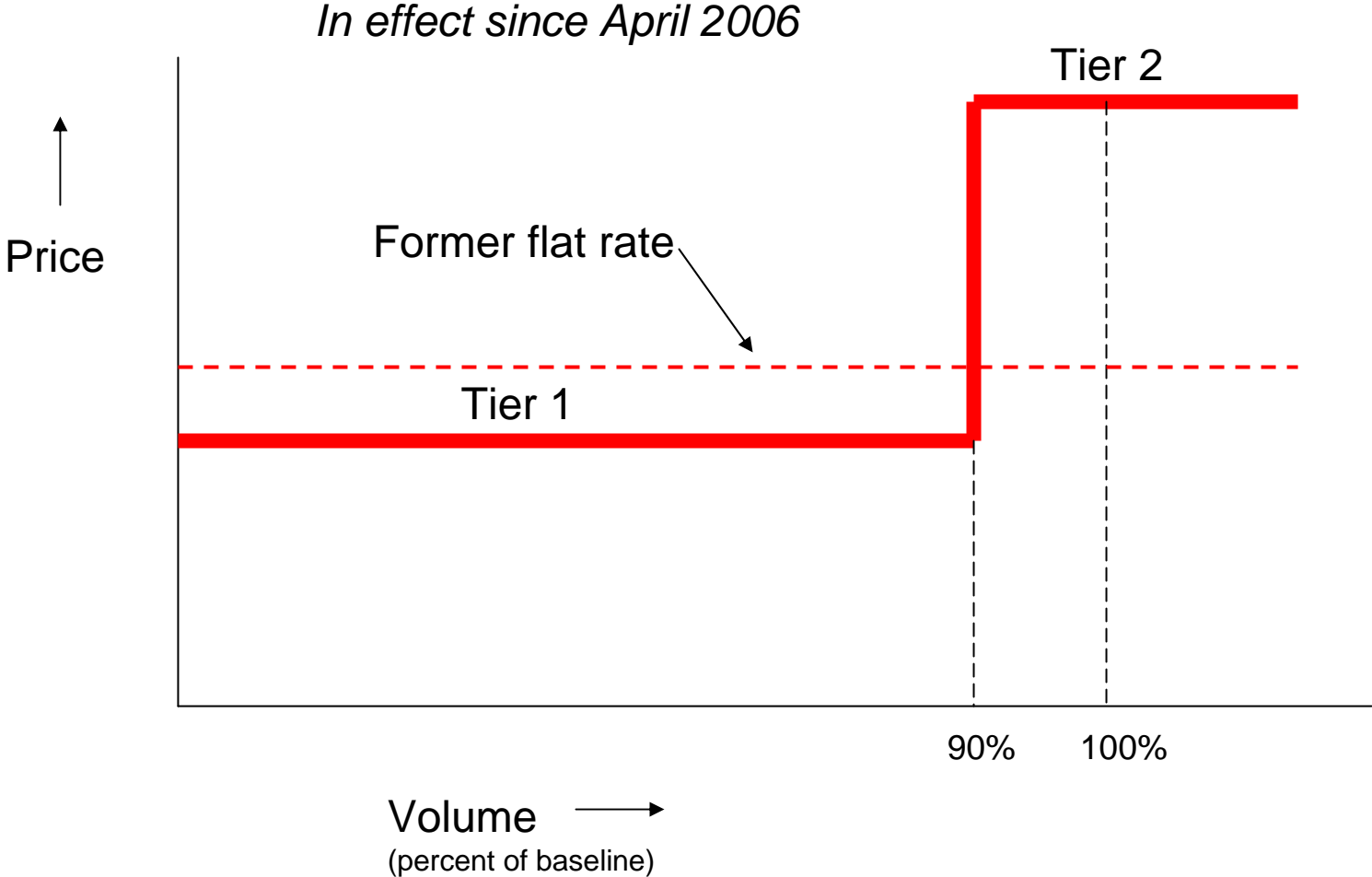
- Traded relief from peak demand charges during low-load hours for the right to curtail blocks of load during winter peaks on Vancouver Island
- Also known as the “Elk Falls program”, as it was designed around that mill’s ability to shift TMP load away from peak hours, and mill became only participant for several years
- While successful at Elk Falls, participation ended when mill no longer had surplus TMP capacity
- Today there is one other customer using this rate

# Experience with Price/Demand (cont.)

## Vancouver Island Load Coordination Pilot

- As Catalyst makes up 20% of the Vancouver Island peak winter load, this pilot in winter 2006-07 was designed to test the ability of the three Catalyst VI mills to coordinate and reduce aggregate coincident peak demand during high-load hours
- Mills received credits for the amount that the coincident peak was reduced below what is normal
- Hydro benefited through a reduced peak load from Catalyst and greater ability to serve Vancouver Island during cold-weather periods when transmission is constrained
- Results:
  - Dec 2006 - 30 MW reduction
  - Jan 2007 - 45 MW
  - Feb 2007 - 60 MW
- Program is expected to repeat next winter, and discussions are underway to design a program for non-winter periods

# Stepped Rates – The Largest Opportunity



# Electricity Conservation is Now Very Attractive

- Electricity has not been a focus as the hydro-based average rate has been relatively low
- Tier 2 provides the correct incentive consistent with the cost of supply
- Catalyst has achieved better than 2% reduction in Tier 2 consumption in 2006 ( >\$5 million) and is targeting another 2% in 2007
- Examples where energy can be conserved include:
  - Lighting
  - Compressed air
  - Fans, HVAC
  - unused equipment
  - VFD's
  - optimizing TG's
- What's next after 10% reduction achieved?

# Residential Programs

Catalyst is pleased to be at the forefront of, and to participate in current pilots directed at residential customers:

- Conservation Research Initiative (started Nov 2006):
  - Three communities in BC, including Campbell River (site of Elk Falls), where 2,000 participants are equipped with advanced metering and are placed on time-of-use rates
  
- Catalyst Residential Program (2007)
  - Catalyst employees at all sites can sign-up to program that provides incentives for different levels of conservation over a year.
  - Level of incentive varies by site, program will test response rates to different levels of incentives

# Conclusions

1. A limited number of programs have been tested in recent years with mixed success
2. Recent winter Vancouver Island pilot very promising
3. Stepped Rates successful for Catalyst Paper and other large customers, but further conservation restricted due to 10% limit
4. Success with industrial programs can spill over to residential area, and vice versa

# Questions and Further Information:

Website:

[www.catalystpaper.com](http://www.catalystpaper.com)

Dennis Fitzgerald:

(250) 287-5419

[dennis.fitzgerald@catalystpaper.com](mailto:dennis.fitzgerald@catalystpaper.com)

