



# **The Pulp and Paper Industry and Energy Indicators in the G8 Industry Task**

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# Presentation Outline

- G8 Industry Task & next steps
- The indicators challenge
- ETP scenario analysis
- Conclusions



# G8 Industry Task & Next Steps



# Goal

- Partner in the Dialogue - advise on alternative energy scenarios & strategies;
- **Transforming the way we use energy (End-use efficiency), *amongst which industry:***
  - ◆ Develop indicators to assess energy efficiency
  - ◆ Assess energy efficiency performance in industry;
  - ◆ Identify areas for further analysis of energy efficiency measures by industry;



## Steps

- **Energy Technology Perspectives – scenarios and strategies for 2050**
  - ◆ Published June 2006
  - ◆ Contains analysis for pulp & paper
  - ◆ Builds on WBCSD work
- **Indicators for Industrial Energy Efficiency and CO<sub>2</sub> Emissions**
  - ◆ Will be published April 2007
  - ◆ Submitted to G8 summit in Germany
  - ◆ Focuses on country comparison of indicators
  - ◆ Work has started



## Next Steps

- Rome workshop 30-31 October, focusing on the broader picture of Energy and the Wood Products Industry
- Analysis of technology potentials for CO<sub>2</sub> emission reduction, including:
  - ◆ New drying technologies
  - ◆ CHP
  - ◆ CO<sub>2</sub> capture & storage
  - ◆ Industrial ecology (recycling, materials efficiency)
- Energy Technology Perspectives 2008
  - ◆ Updated scenario analysis
  - ◆ Competitiveness & strategy issues
  - ◆ Submitted to G8 summit in Japan
- Section in the IEA progress reports for German + Japanese G8 summit



# Proposed Cooperation Themes

- Energy efficiency & CO<sub>2</sub> emission indicators on a country level
  - ◆ Data & analysis validation
- Explanation of differences on a country level
  - ◆ Pulp & paper grades
  - ◆ CHP diffusion rate
  - ◆ Recycling rates
  - ◆ Technological characteristics of the capital stock
- Advice on what can be done realistically
  - ◆ Cost & competitiveness
  - ◆ Time path
  - ◆ Technology & resource issues
- Advice on a transition path
  - ◆ Who should be involved
  - ◆ What is the role of various actors



# Workshop Goals

- 1<sup>st</sup> step in data collection & validation
- Agreement on viable efficiency indicators & data for pulp and paper
- There will be a workshop statement, including:
  - ◆ Your data on efficiencies & emissions worldwide, and where to find missing data
  - ◆ Your feedback on suitable indicators
  - ◆ Your feedback on ETP scenario analysis & technology diffusion
  - ◆ Your advice on technology focus for energy efficiency & CO<sub>2</sub> reduction analysis
  - ◆ Your advice on cooperation & policy framework analysis
  - ◆ Your advice on G8 recommendations



# The Indicators Challenge



## Issues

- Our current indicators track only energy use/value added
- Better indicators are needed
- The goal is country level analysis, NOT benchmarking (IETS IA Annex)
- Data in IEA statistics include printing
- CHP can not be tracked properly
- Data quality in the IEA statistics is not clear
- Pulp & paper not separated
- Various paper qualities not separated

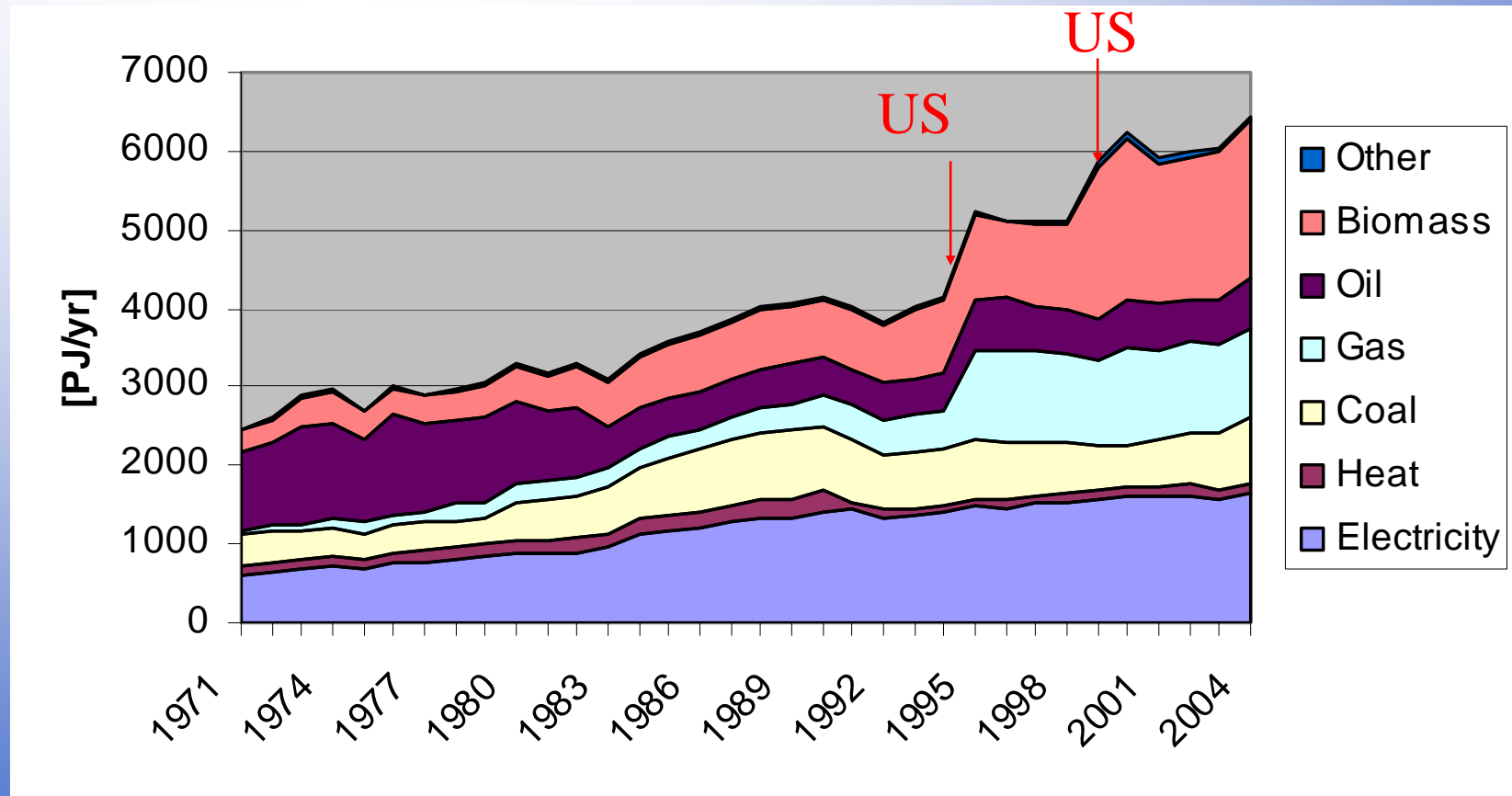


# The CHP Challenge

- Very important for pulp & paper
- Largely black liquor boilers & gas fired systems
- Combined cycles & back-pressure turbines
- In the IEA statistics:
  - ◆ Fuel use of CHP units is allocated to electricity & heat
  - ◆ Fuel part for electricity is (should be) allocated to the power sector
  - ◆ Is not split by sector
  - ◆ Fuel use for heat is allocated to pulp & paper industry



# Pulp, paper & printing energy use According to IEA statistics





# Our Proposed Approach

- Impossible to split available country data for individual products
- Develop an aggregate index instead
  - ◆ Use BAT data for mechanical, chemical, and paper making
  - ◆ So far no differentiation integrated/non-integrated mills
  - ◆ Multiply production volumes (FAO) and BAT
  - ◆ Combine country data & IEA statistics
  - ◆ Take statistical energy use data & assume steam generation efficiency
  - ◆ Subtract estimated electricity use for printing (when no pulp & paper energy use data is available)
  - ◆ Calculate the ratio of estimated energy use & BAT-based best case



## Consequences of This Proposed Approach

- It accounts for certain variations in the industry structure (pulp/paper mix)
- So far it does not account for different paper quality grades
- No credit for higher recycling rates
- No credit for higher CHP use rates
- Bioenergy is also counted as energy
- It can be applied based on existing data



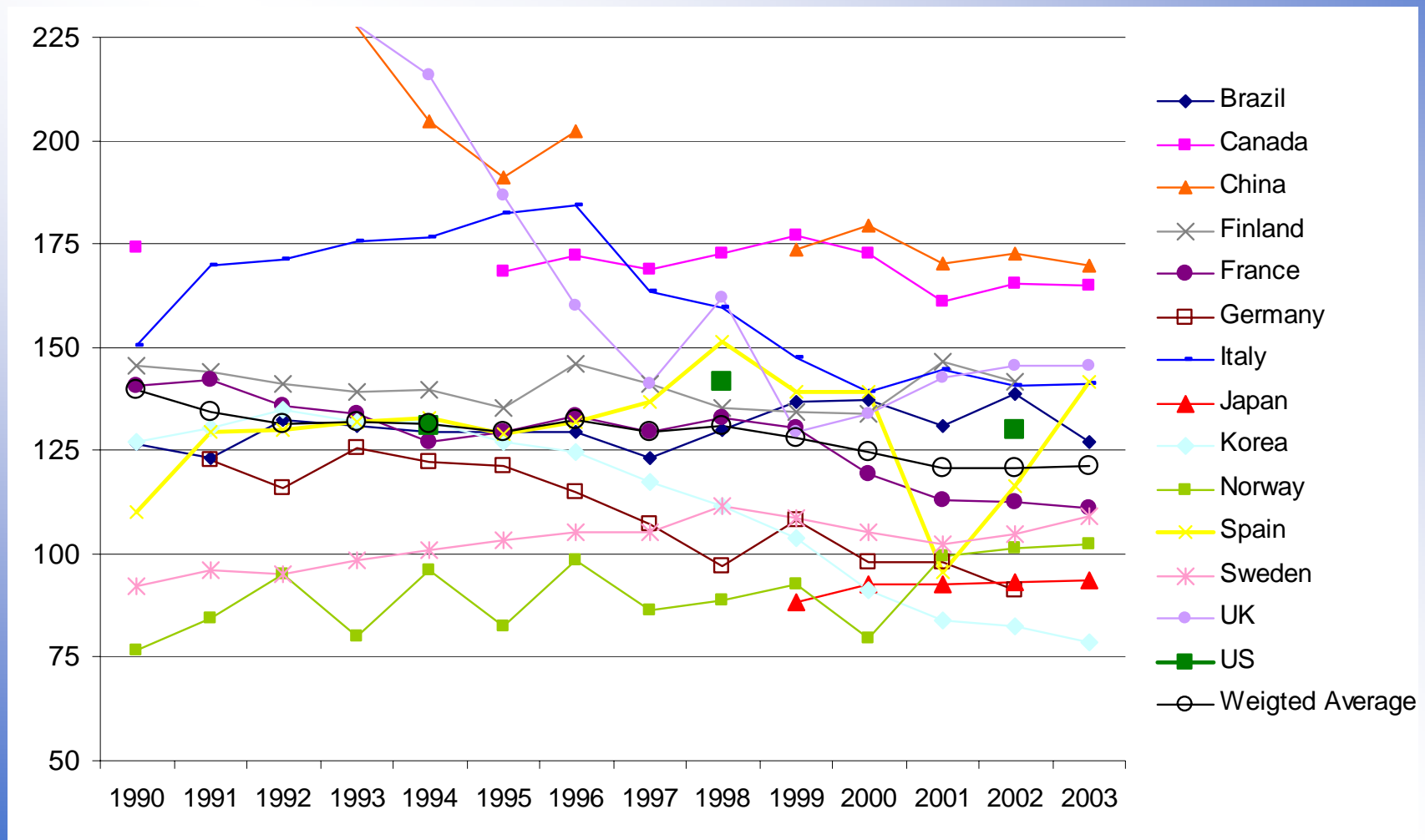
# Paper making quality

## Add further detail?

	Heat	Electricity
	[GJ/t]	[kWh/t]
Newsprint	5.04	600
Uncoated wood-containing	5.04	600
Coated wood-containing	5.04	800
Uncoated fine paper	6.84	700
Coated fine paper	7.56	900
Tissue	6.84	1000
Kraft liner	5.76	500
Fluting	5.76	500
Liquid packaging board	6.84	900
Folding box board	6.84	800

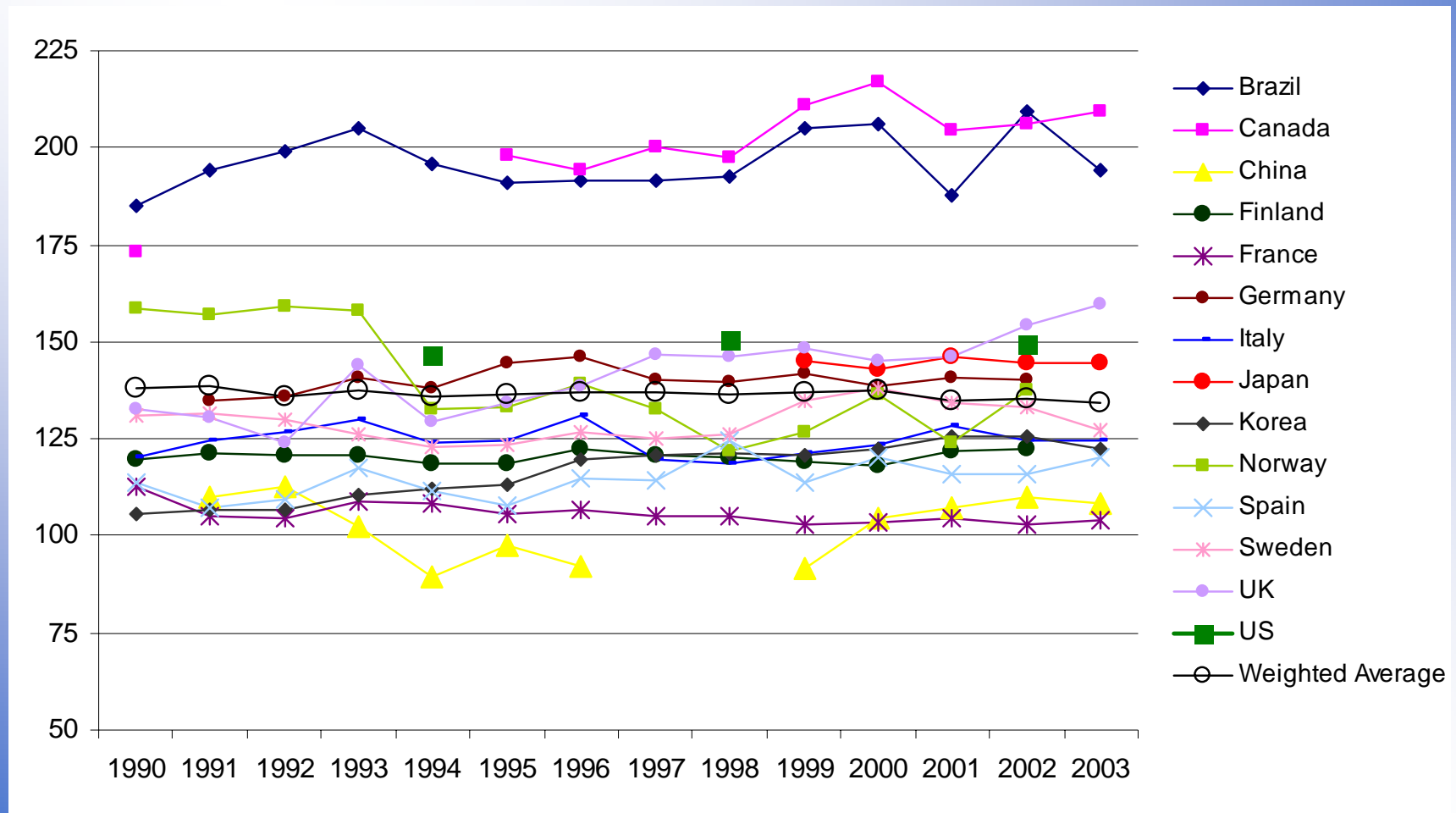


# Heat (Steam) Use Index





# Electricity Use Index





# Questions

- Are the trends properly reflected?
- Does the country ranking make sense, compared to benchmarking insights? (Japan, Finland, Korea etc.)
- Are BAT figures for steam consumption too conservative?
- How can this be improved (*in the next 4-5 months*)?
- Are other indicators needed to reflect recycling/CHP efforts?



# ETP Scenario Analysis

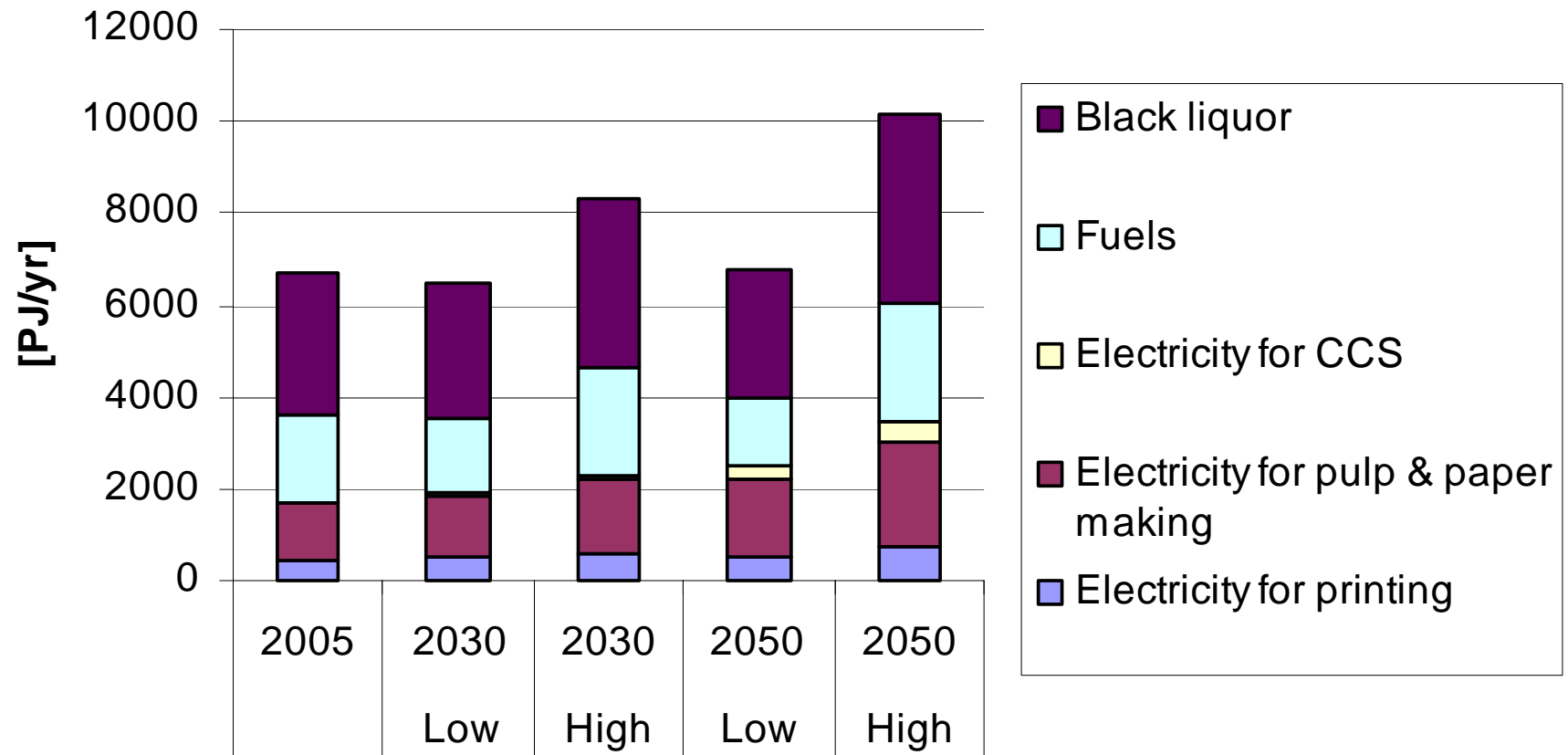


# ETP Scenario Analysis

- Energy Technology Perspectives 2006
- Scenarios & strategies for 2050 (incentive USD 25/t CO<sub>2</sub> emission reduction)
- Analysis on the level of major pulp & paper technologies
- Total demand growth 2005-2050: 25-60% (2 scenarios)
- Important efficiency gains 20-30%
- Important changes in power generation
- Black liquor boilers/CCS
- Recycling rate grows to 55-63%



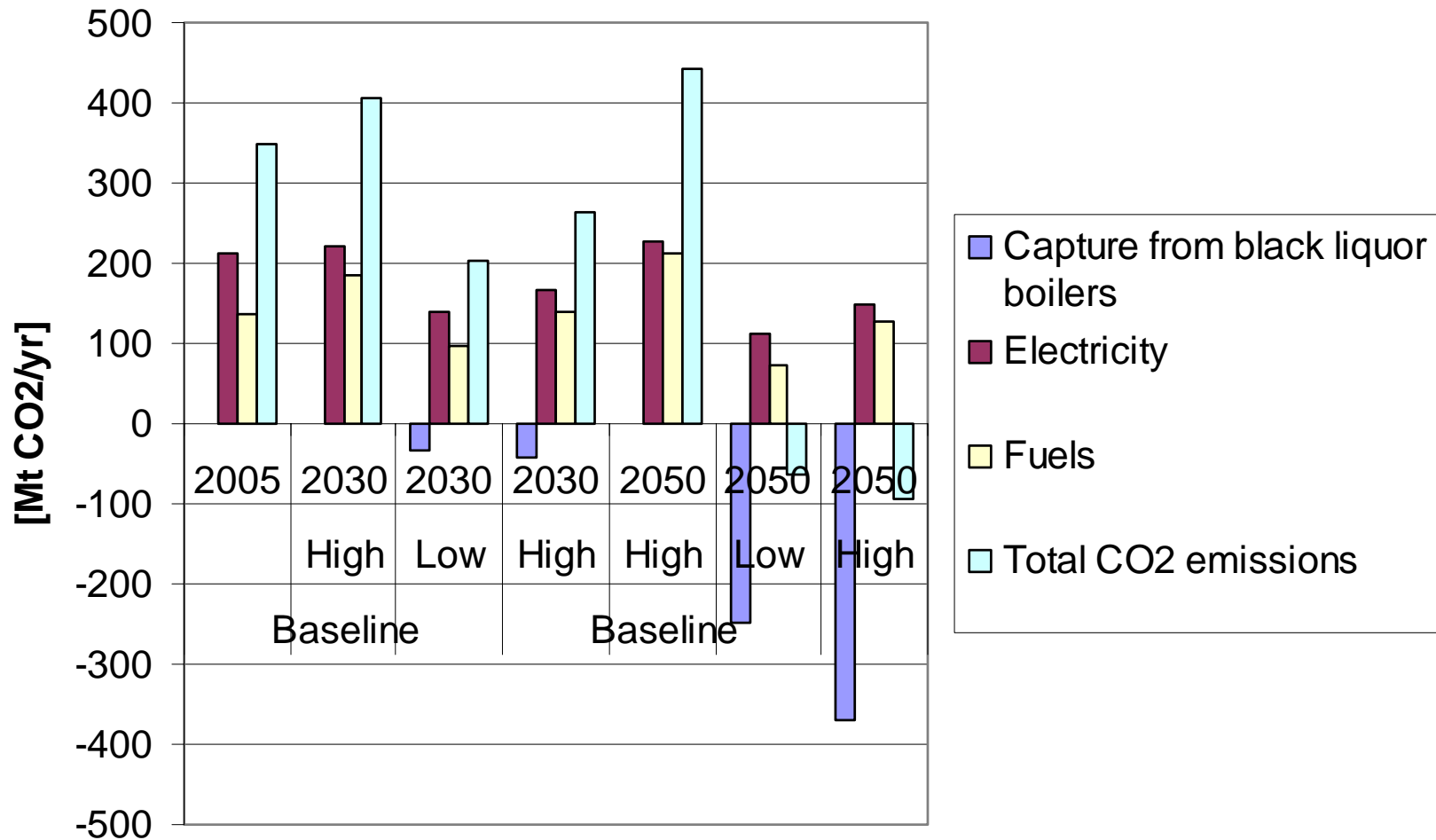
# Final Energy Demand





# CO<sub>2</sub> Emissions

## 500 Mt Emissions reduction in 2050





# Conclusions

- **An Indicators Challenge**
- **Good prospects for energy efficiency & CO<sub>2</sub> emissions reduction**
- **New technology plays an important role**
- **New technology demonstration could be a challenge**
- **Implementation is a challenge as industry relocates**



**Thank You**

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