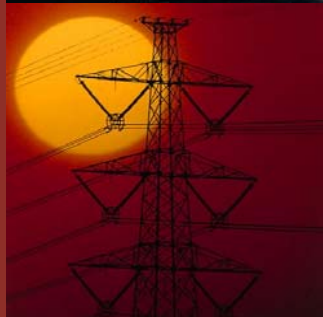


Peter Fritz EME Analys

ENERGY WELFARE AND INDUSTRY

-a complex link which is
difficult for politicians to
consider in the decision-
making process



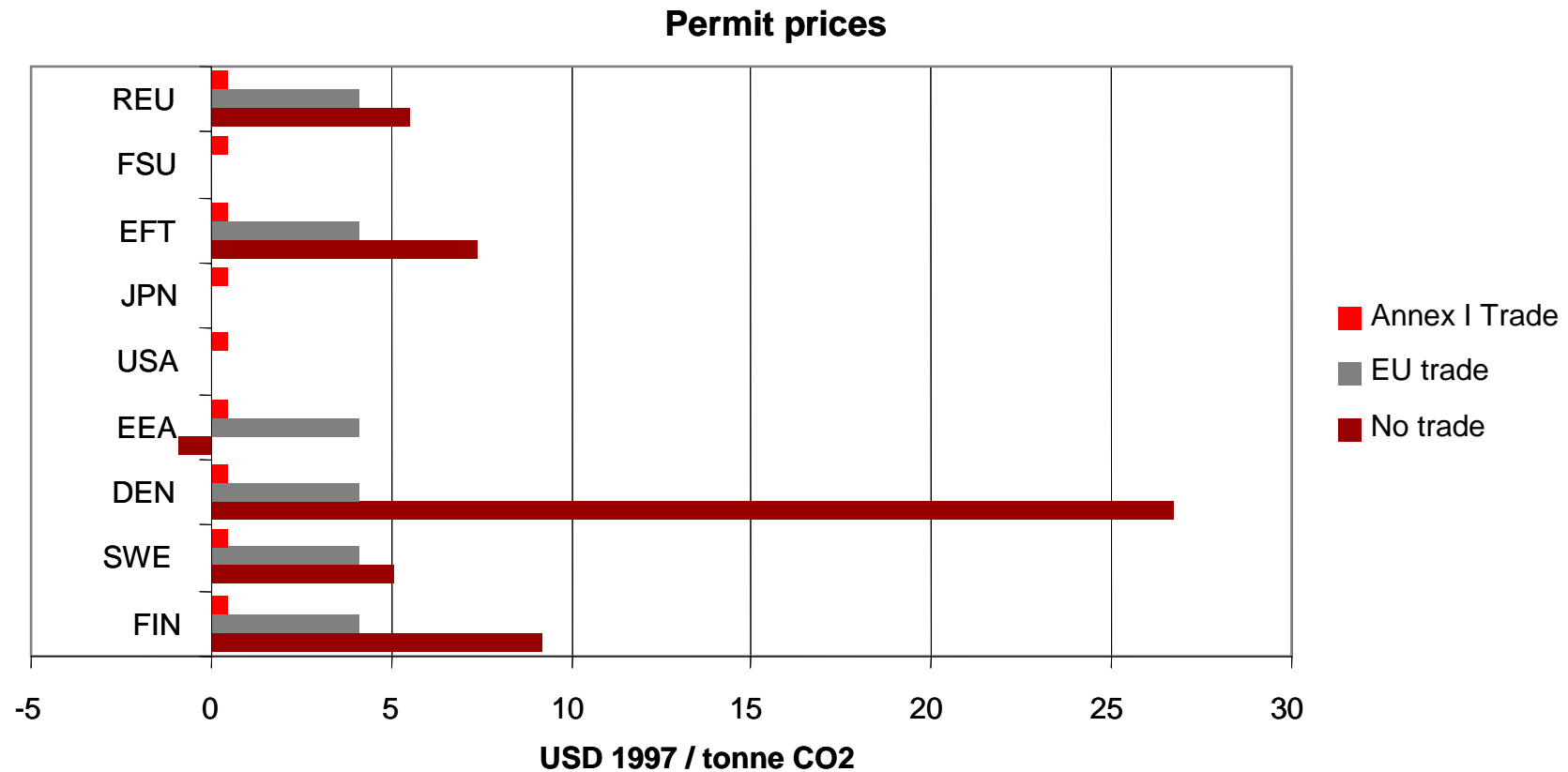
Complex link

- "aggressive" energy and environmental policy will create new jobs
- High prices is a threat to the energy intensive industry
- General Equilibrium models captures the dependency between sectors and countries – but may underestimate the negative effects.
- Partial analysis will probably overestimate the welfare consequences

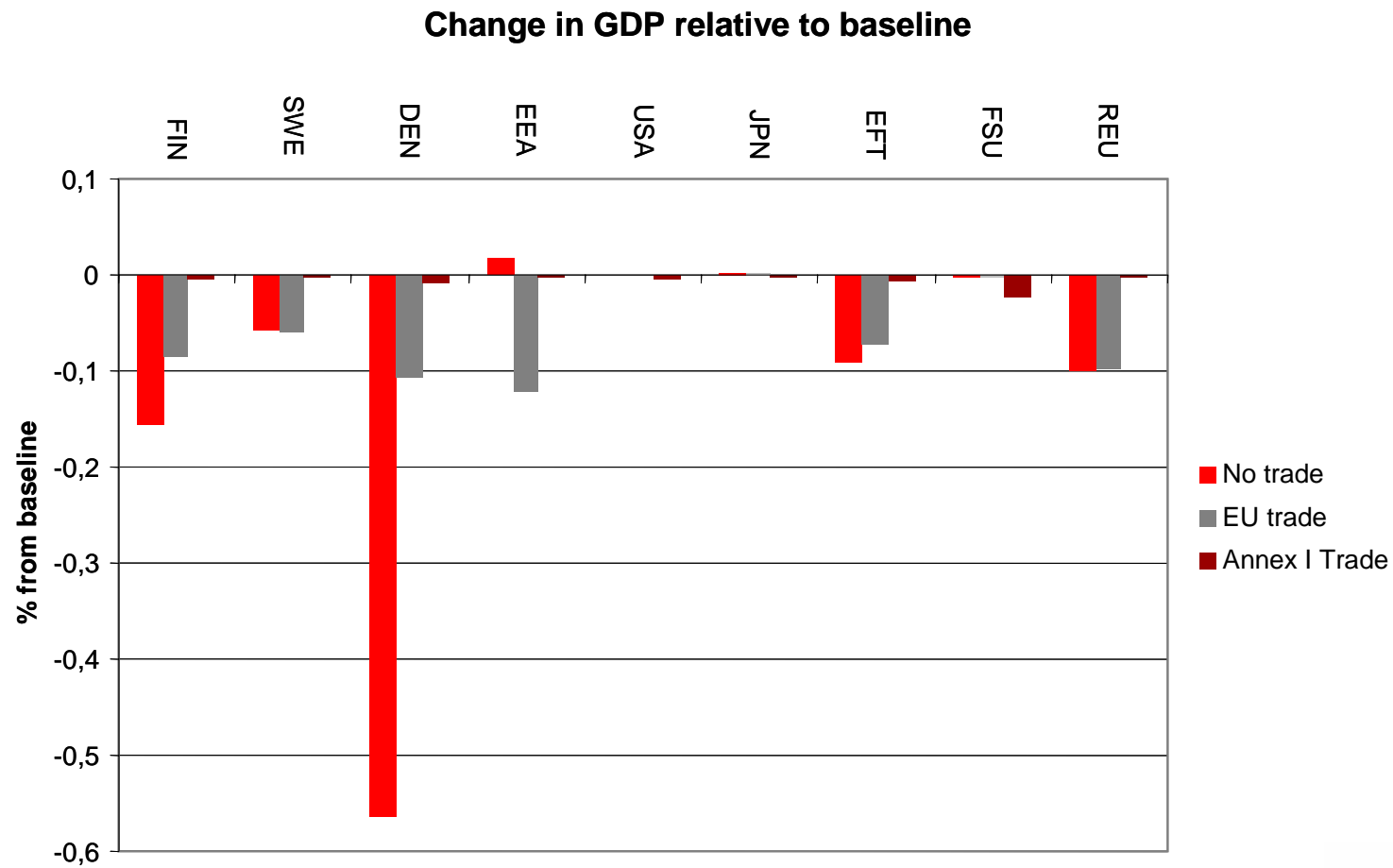
Conclusions from CGE- model approach

- Emission trading has a favorable effect on the cost of abatement costs compare to a do-it-alone alternative.
- The calculations show relatively low permit prices and relative low welfare cost.
- When the electricity price effect is introduced the negative impact on GDP is significant

Permit prices in three scenarios

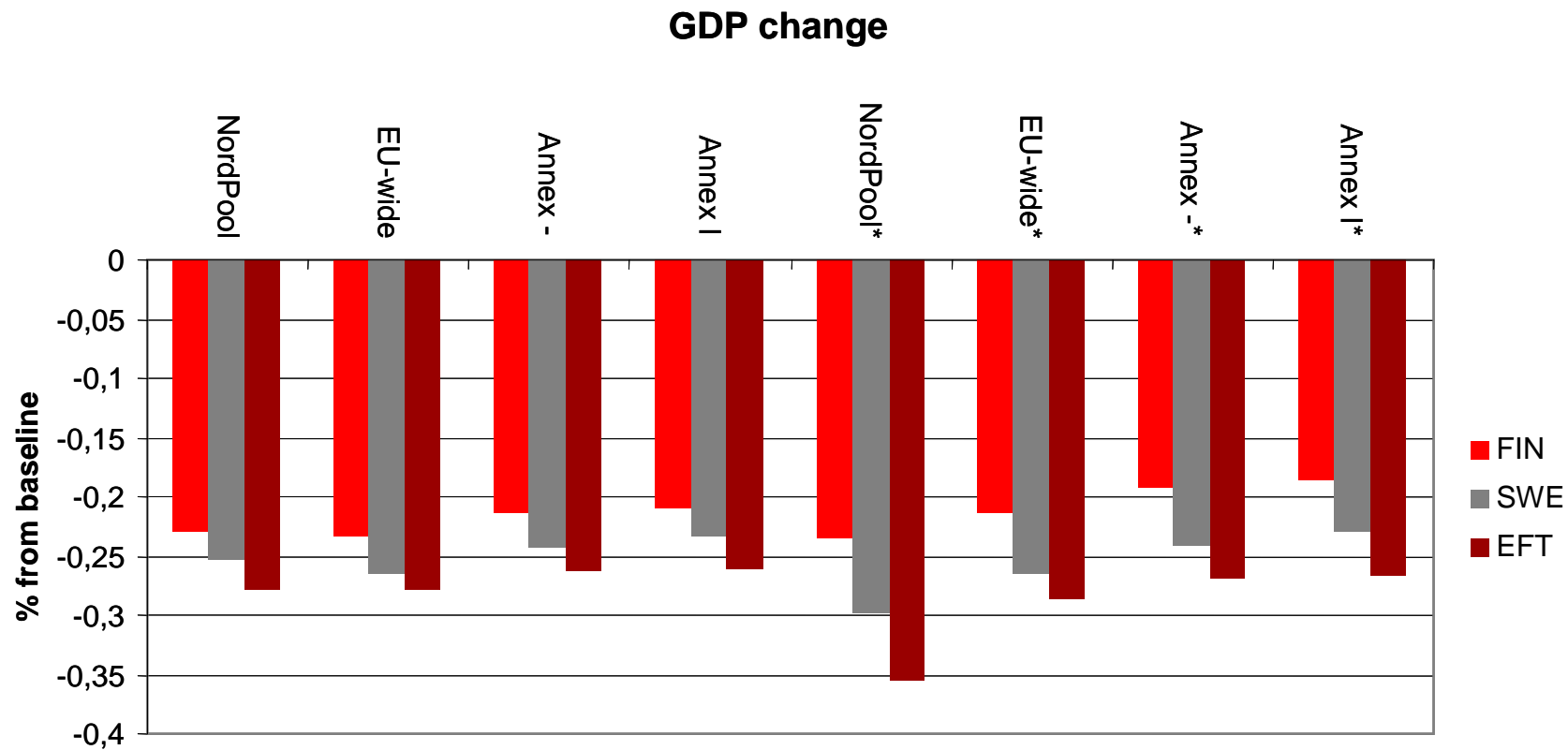


Changes in GDP



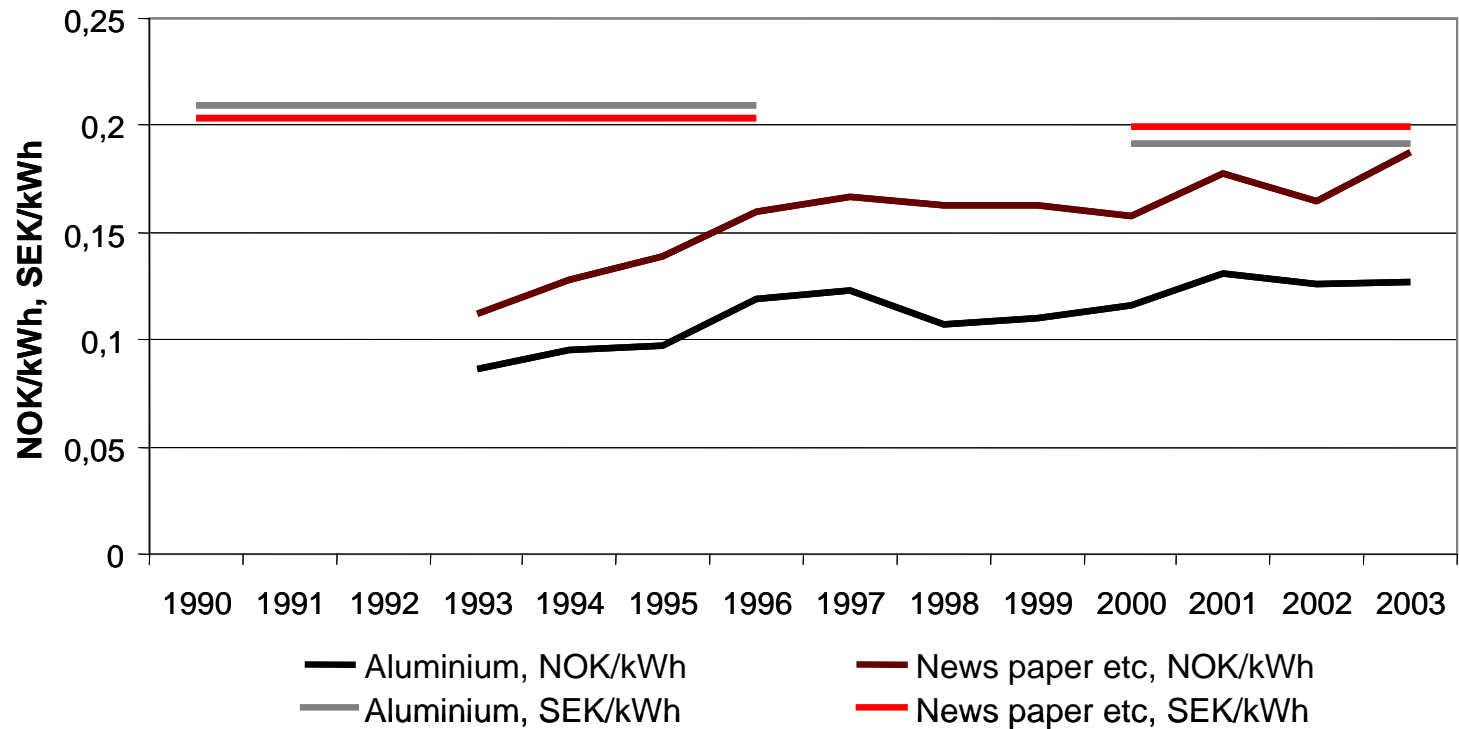
Changes in GDP with a 50 % electricity price increase

* Alternative elasticity's corresponding to the DoS model

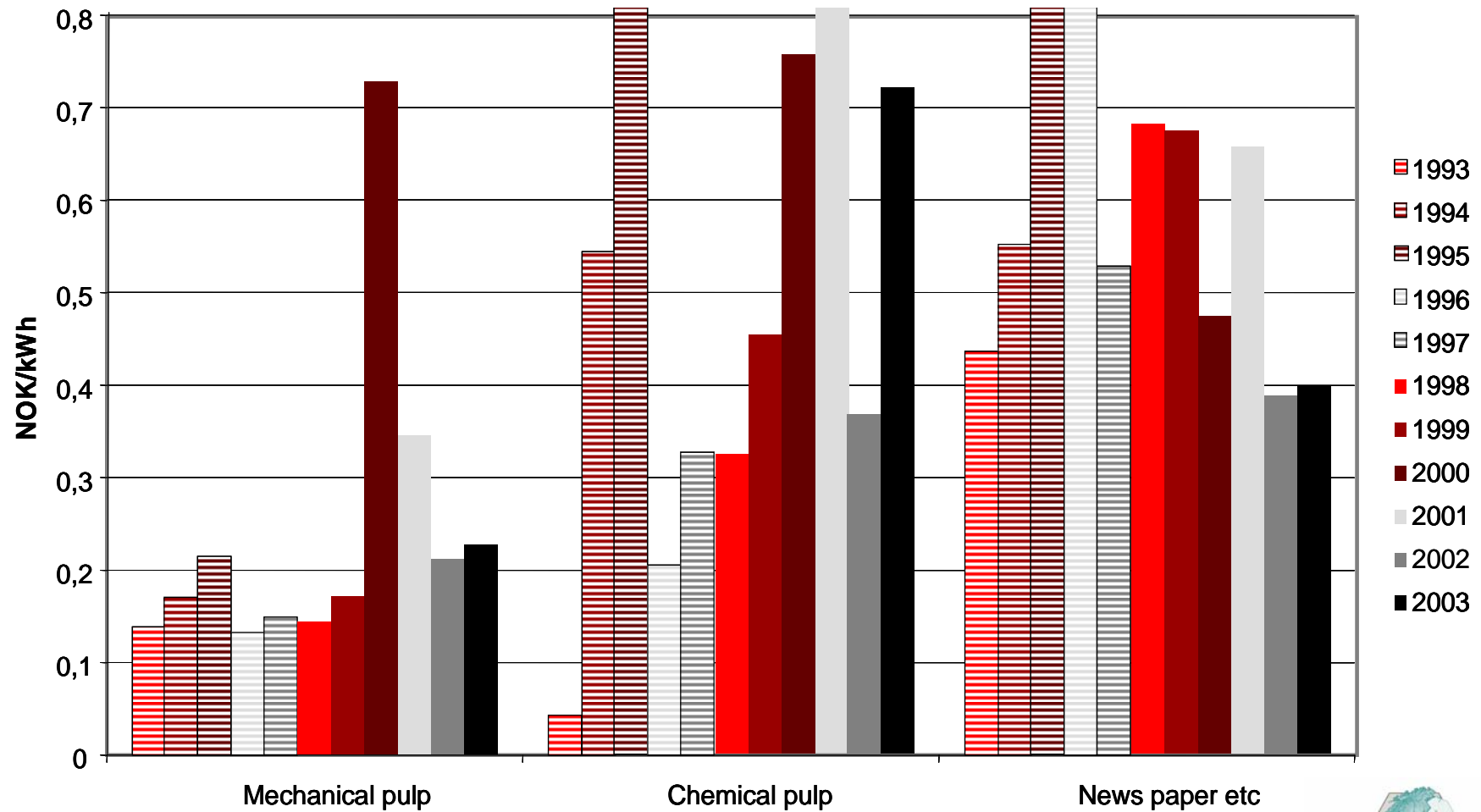


- Have negative impacts from electricity price increase caused by EU ETS been neglected by policy makers?
- Would results like these have made the politicians hesitate before introducing EU ETS in full scale?

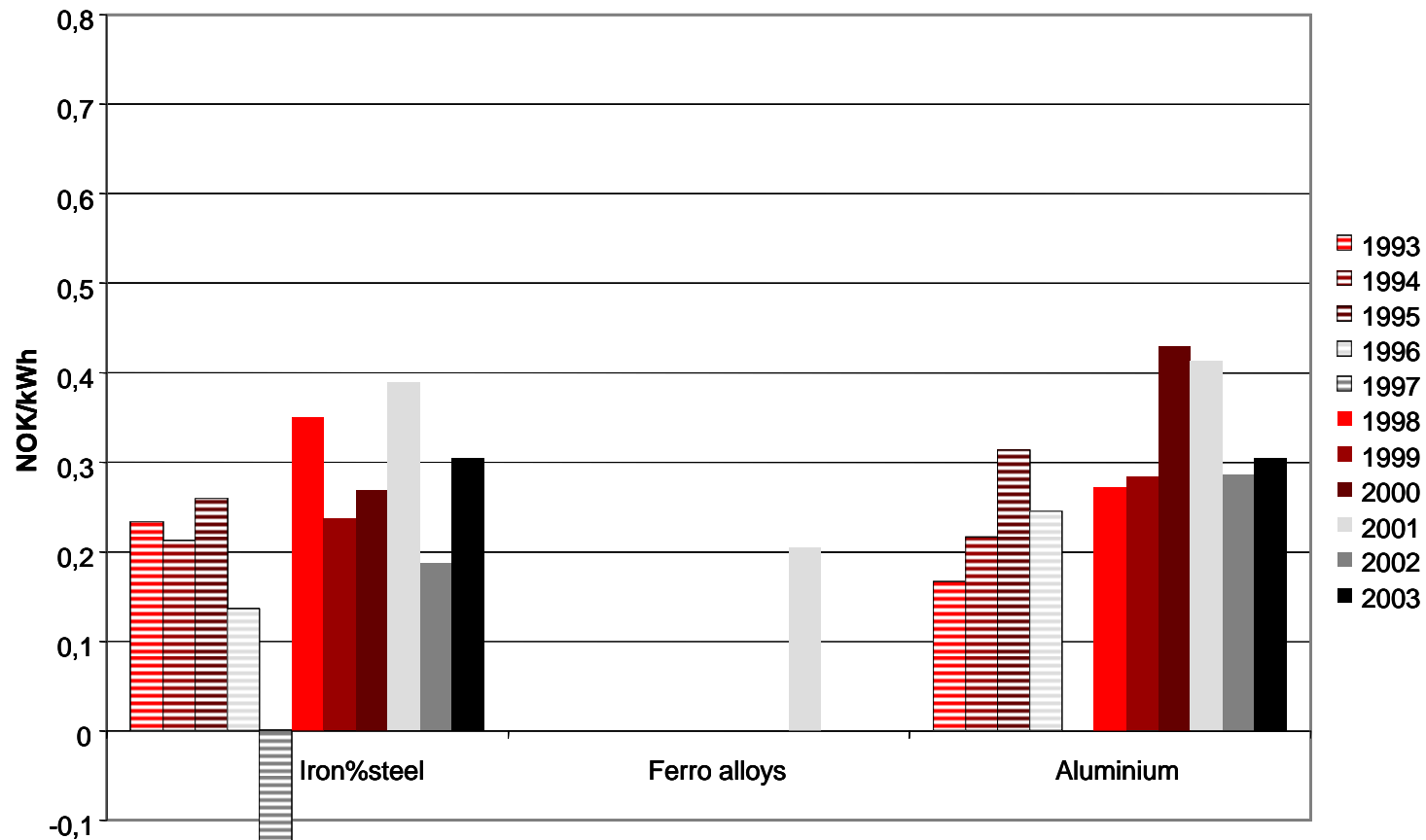
Real power costs for some electricity intensive industries in Norway and Sweden,



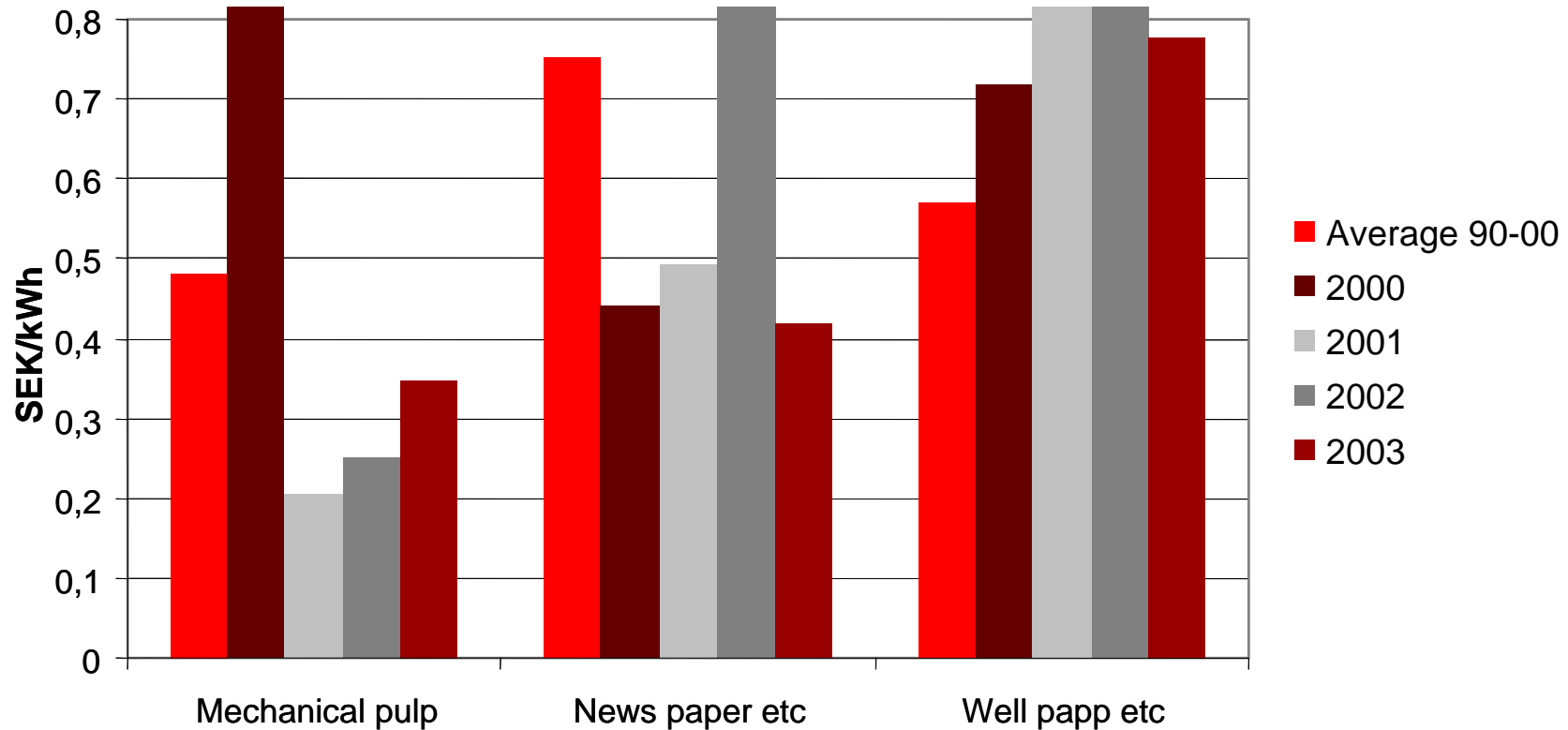
Ability to pay for power for the Norwegian pulp and paper industry 1993-2003, NOK/kWh. Source: SSB in Norway.



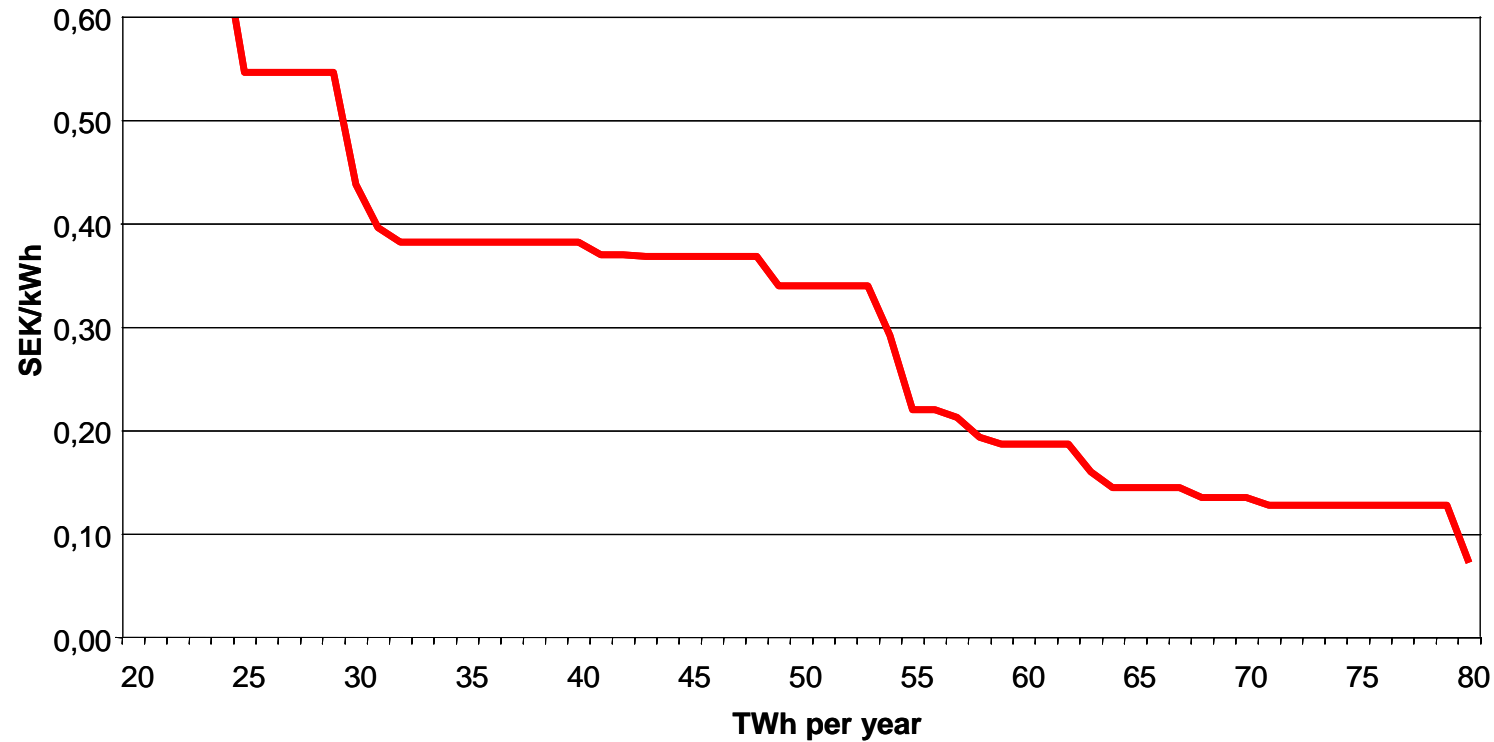
Ability to pay for power for electricity intensive parts of the Norwegian metal industry 1993-2003, NOK/kWh. Source: SSB in Norway.



Ability to pay for power for electricity intensive parts of the Swedish pulp and paper industry. Source: SCB in Sweden.

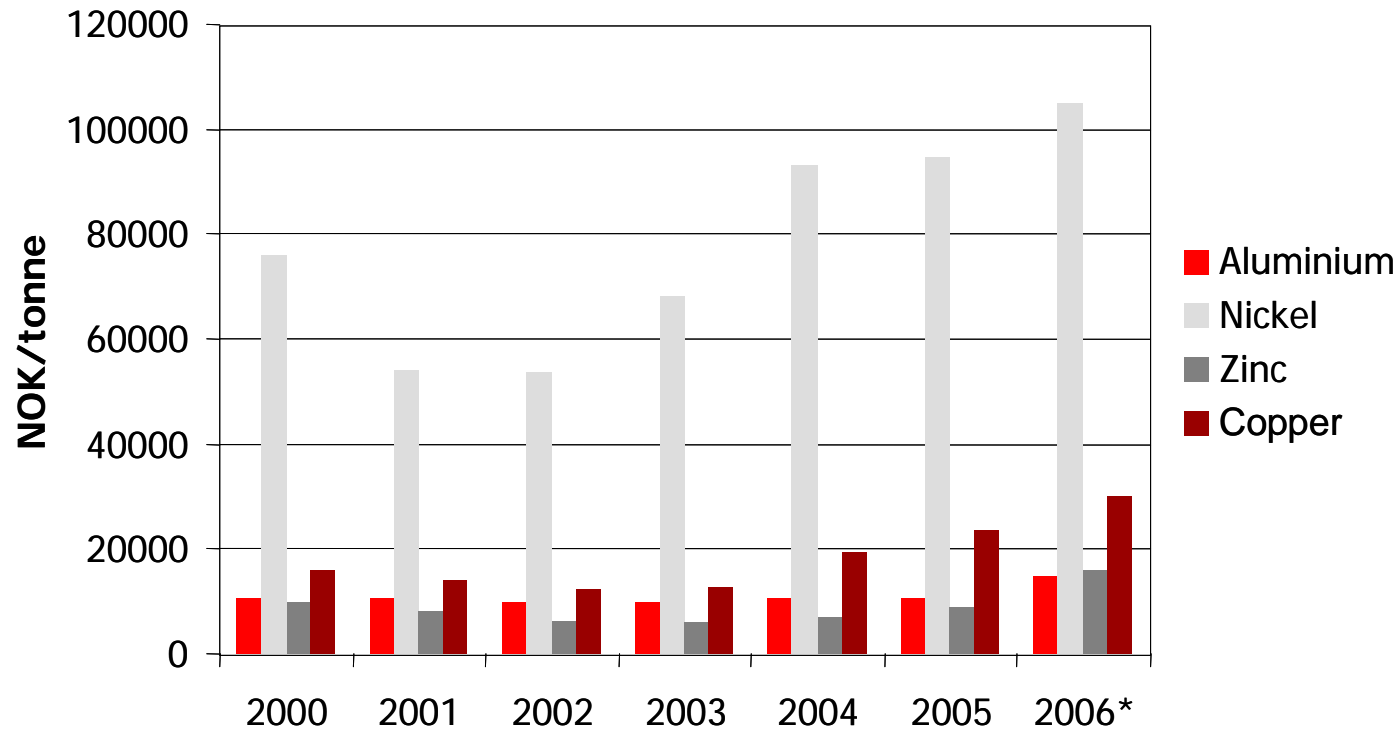


- Power demand from the electricity intensive industries in Norway and Sweden,



Will high prices on “electricity intensive products” save the electricity intensive industries?

Metal prices 2000-2005



- **Chinese impact**
 - **Increasing demand**
 - **Difficulties to increase supply caused by lack of electricity**

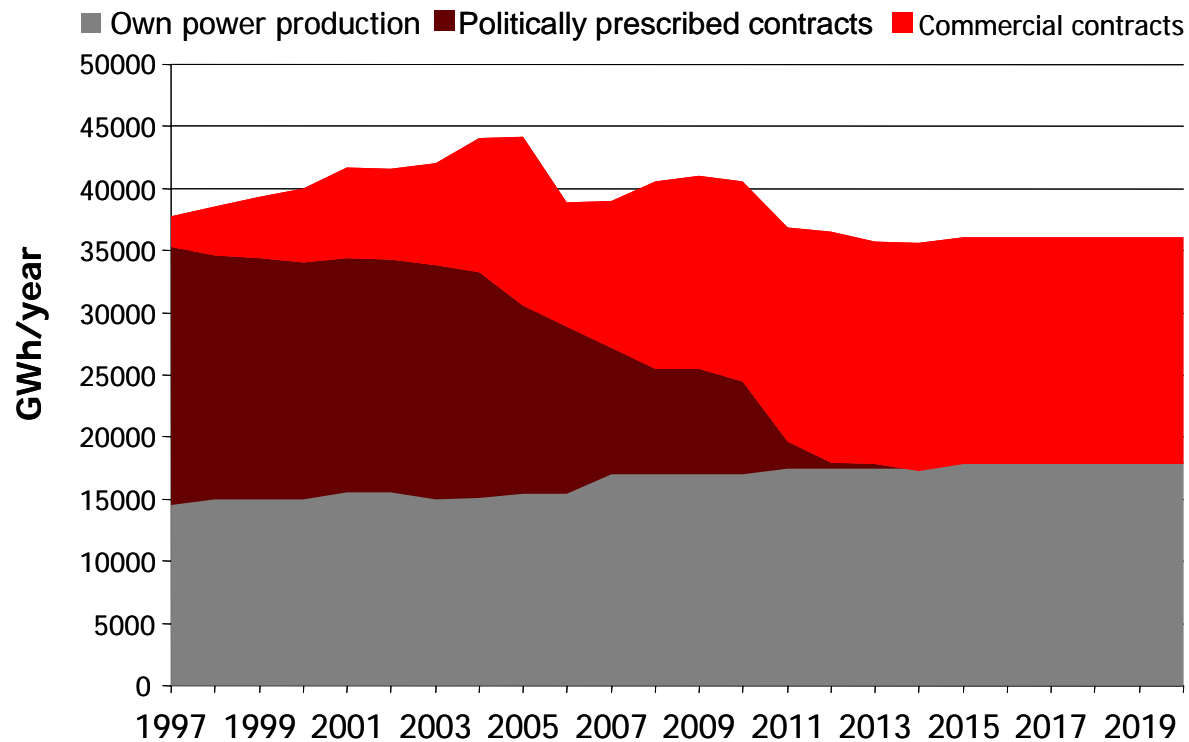
- **Potential of power pockets in the future for metal industries will cease. Exceptions are parts of Africa (Angola, Mozambique) and Siberia in Russia.**

- **Paper and pulp industry sees a number of threats**
 - **Less demand increase**
 - **Increased competition from eucalyptus**
 - **More competition from recycled paper**
 - **Higher prices on wood caused by competition from the energy sector**

Long term electricity contracts and other hedging strategies

- Power supply to the Norwegian electricity intensive industry 1997-2020, source PIL in Oslo.

Power access in industry



Different strategies i Finland, Norway and Sweden

- Norwegian industry signed long term commercial contracts 97-2001
- Finnish industry have invested in own generation
- Swedish companies are the one most exposed to the market price in the short run.

The cost of electricity for a company is never lower than the market price!

Conclusions

- The short run effects on the electricity intensive industry will be limited.
- The problem is that there will be very few investments in the sector as long as the power price is this

Main conclusions

- **A statistical estimation of the power price sensitivity in the industry in the Nordic countries paints a negative picture.**
- **The interview study modifies the negative picture painted in the first study, but confirms that today's electricity price drastically dampens the interests for investments in these industries.**
- **With a classic CGE-model attempt, the welfare effects caused by emission trading are small, but with a few realistic modifications the effects increases a lot.**