



# Energy

Capital Markets Day 6 September 2011

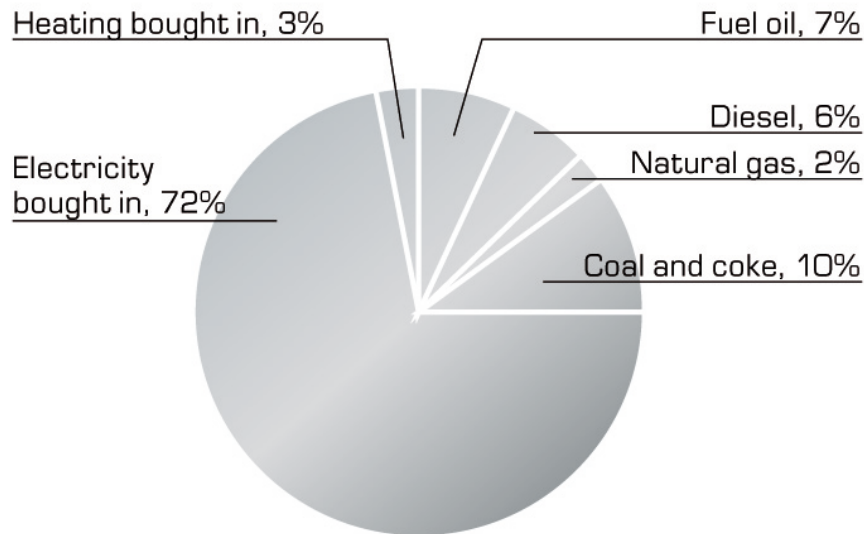
Mats Gustavsson  
Director Energy

# Energy Boliden

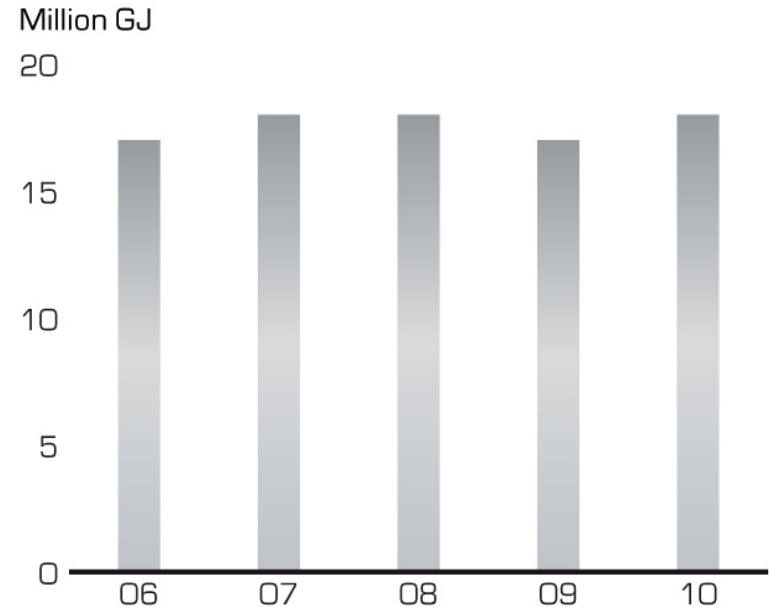
## Energy consumption

Kokkola	1 120 GWh
Aitik	780 GWh
Odda	680 GWh
Rönnskär	590 GWh
Harjavalta	275 GWh
Boliden	175 GWh
Tara	179 GWh
Garpenberg	110 GWh
Bergsöe	15 GWh

## Energy consumption, sources



## Energy consumption 2005- 2010

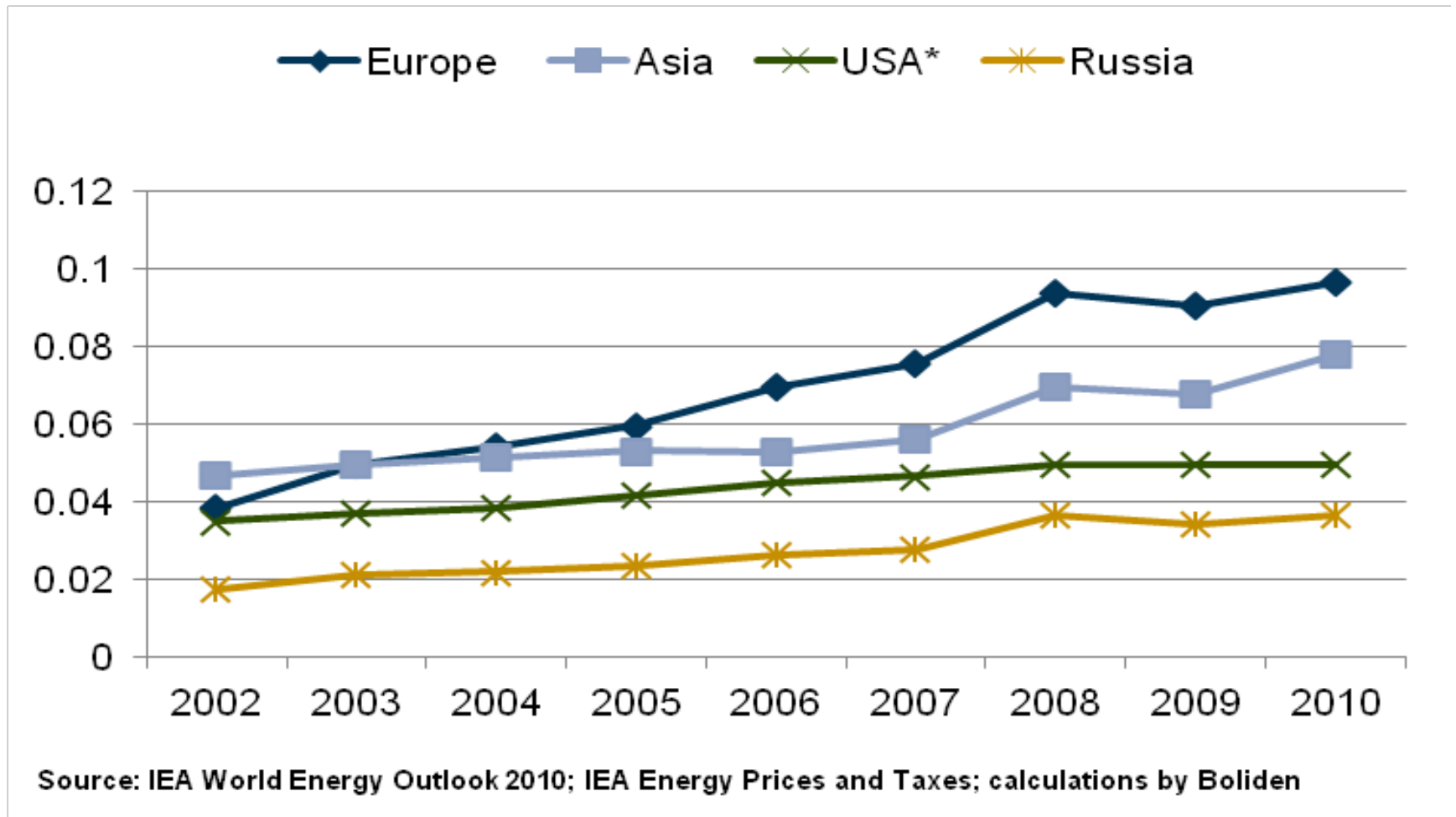


# Energy market

- Consumption, recovery – increase
- Greener energy mix, expansive energy
- Energy producers reduces debts – high volatility driving
- Transmission capacity expansion
- Control of CO2, major policy issue for Europe
- Nuclear power's future
  - Fukushima
  - Germany

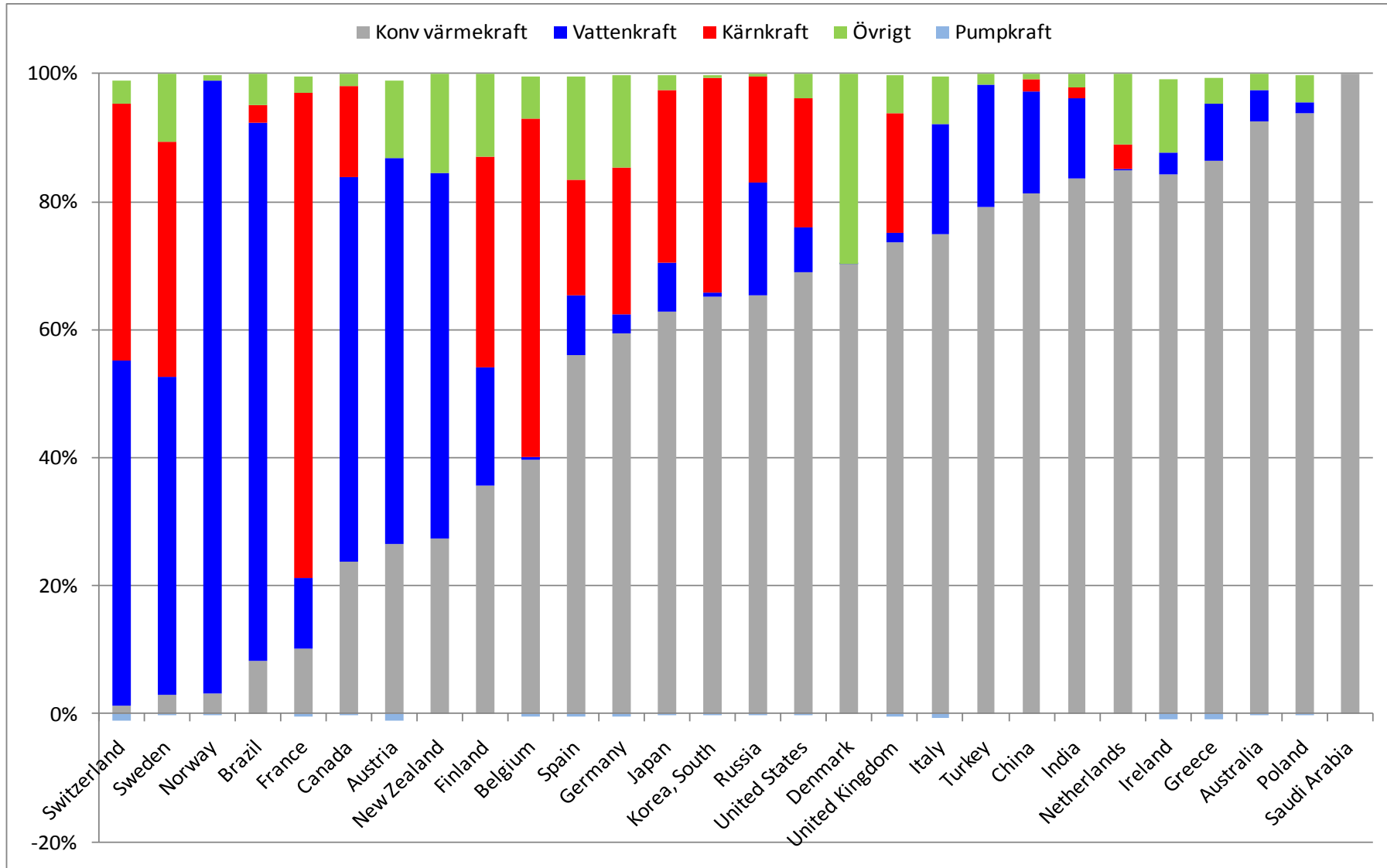


# Average electricity cost\*

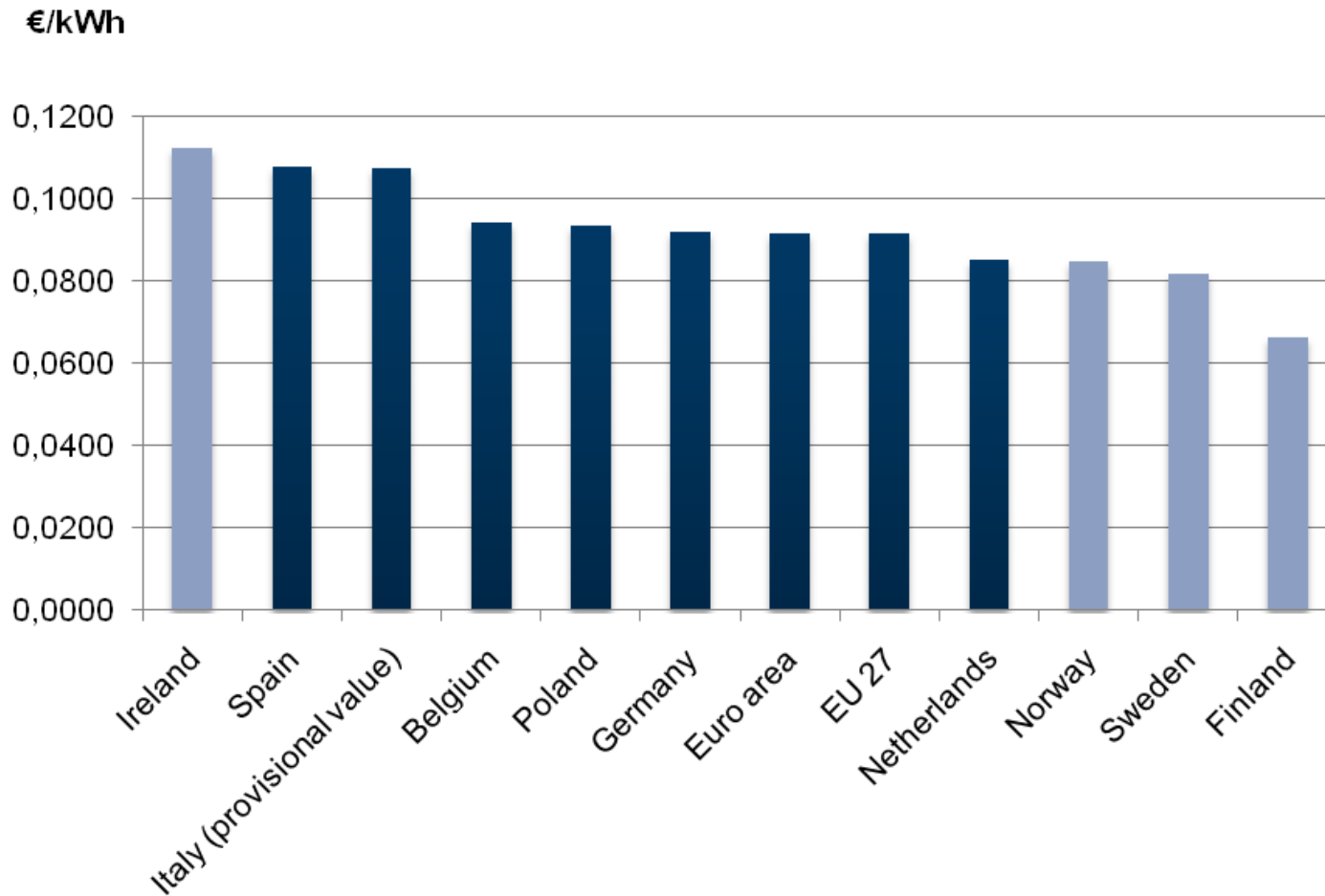


\*Costs for industry

# Shares of electricity generation by power sources



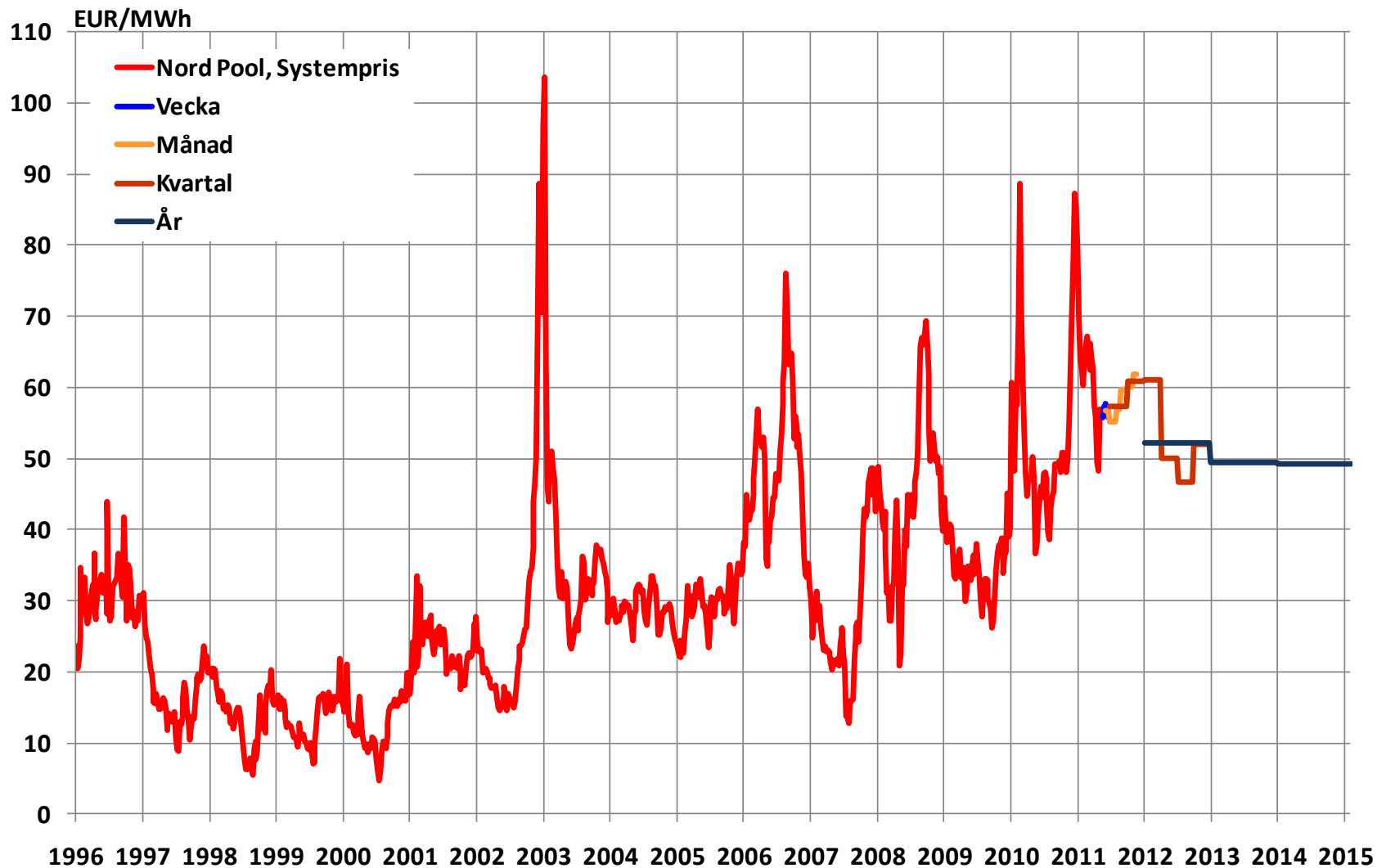
# The 2010 average electricity price in Europe incl. tax



Source: Eurostat (Electricity - industrial consumers - half-yearly prices - New methodology from 2007 onwards [nrg\_pc\_205] )

**BOLIDEN**

# Electricity prices on Nord Pool

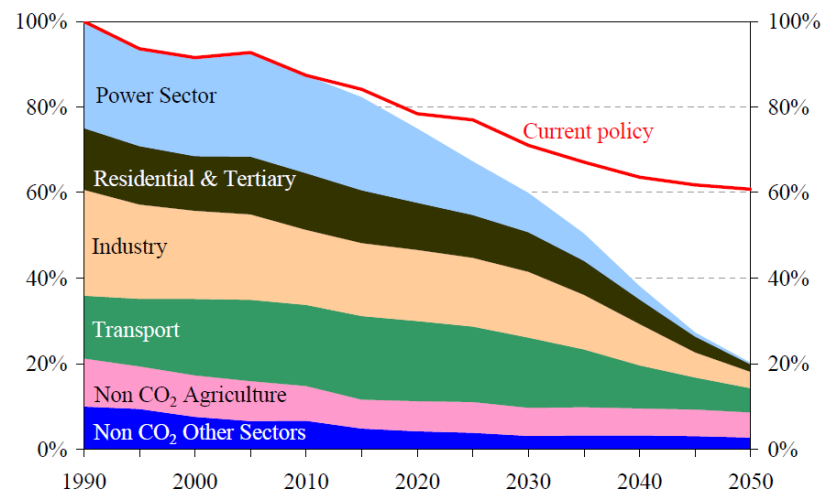


# EU's 'Low Carbon Roadmap'

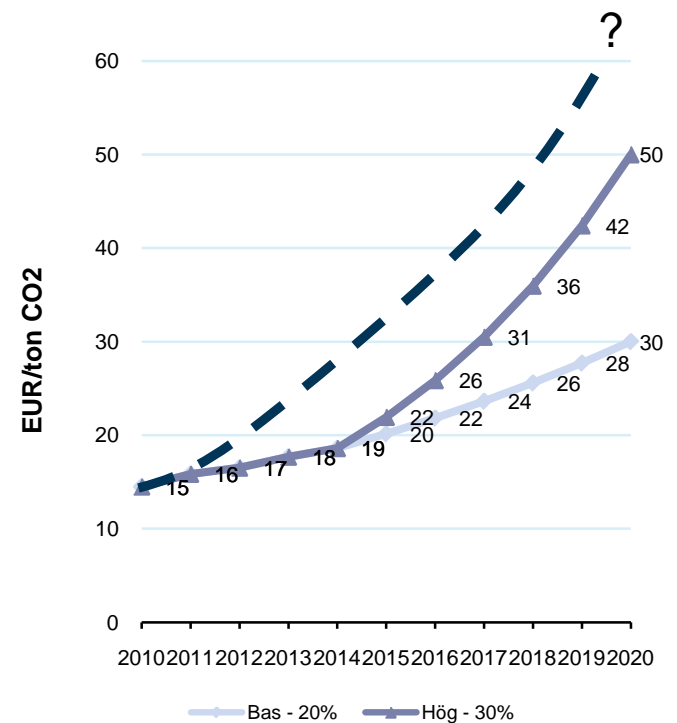
## CO2 emissions reduced by 80% 2050 from 1990

*EU's new path for CO2 emissions based on low-carbon roadmap...*

Figure 1: EU GHG emissions towards an 80% domestic reduction (100% =1990)



*... expected to increase the price of allowances.*





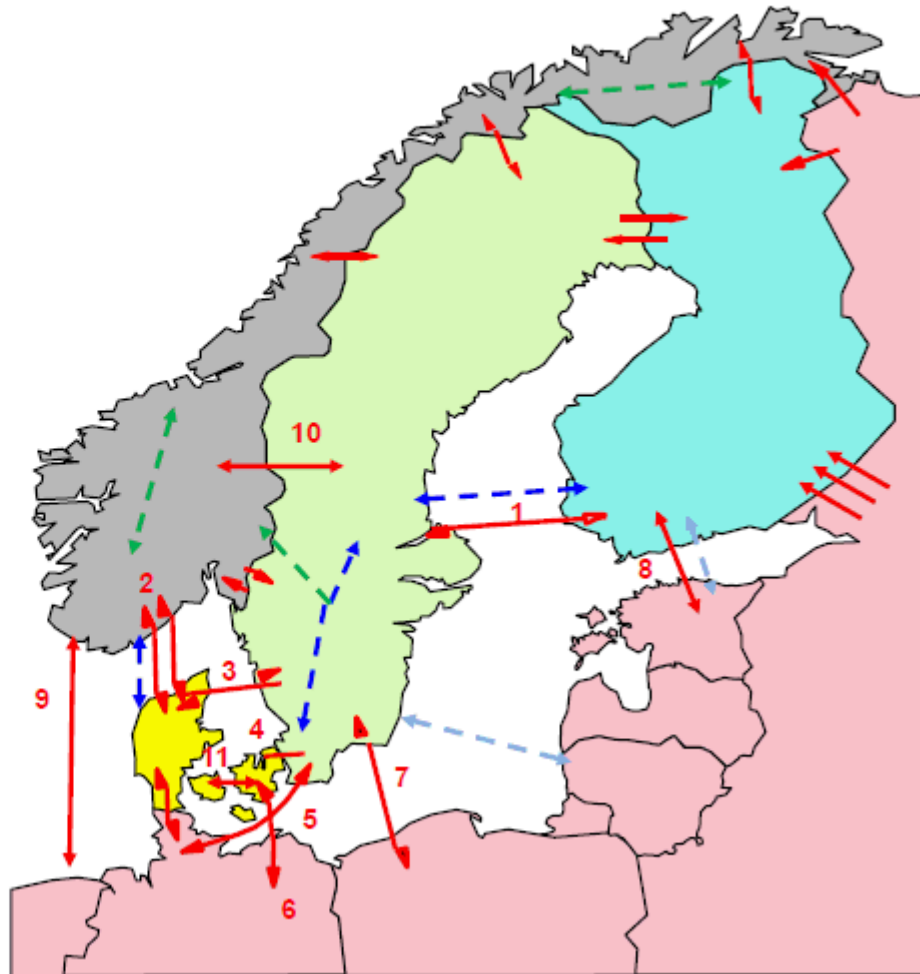
# Transmission lines

## Existing

- 1) Fenno-Skan
- 2) Skagerrak 1-3
- 3) Konto-Skan 1-2
- 4) Öresund
- 5) Baltic Cable
- 6) Kontek
- 7) SwePol Link
- 8) Estlink
- 9) NotNed
- 10) Nea-Järpströmmen
- 11) Stora Bält

## Planned (Nordel)

- Fenno-Skan II (SE-SF, autumn 2011)
- Skagerrak 4 (NO-DK, autumn 2014)
- Sydvästlänken (SE, Q4 2013/2015)
- Arctic (NO)
- Örskog-Fardal (NO)
- NordBalt (SE-LI, 2015/2016)
- EstLink II (SF-ES, 2014)
- NO-TY?
- NO-NL?
- NO-UK?



# Nuclear power, a good deal?

- Transmission makes the EU the same electricity price
- Reduction of CO2 will increase the price for all
- Germany remove nuclear power, new energy needs to replace
- Metals and Mining sensitive to energy prices
- We have to be involved...
- Boliden nuclear interests:
  - Fennovoima, Finland
  - Industrikraft, Sweden