



For what purpose are estimates of external costs needed?

Internalising external costs – ,getting the prices right' and concretising other instruments

Cost-Benefit-Analyses, e. g. for measures and directives to protect the environment and human health

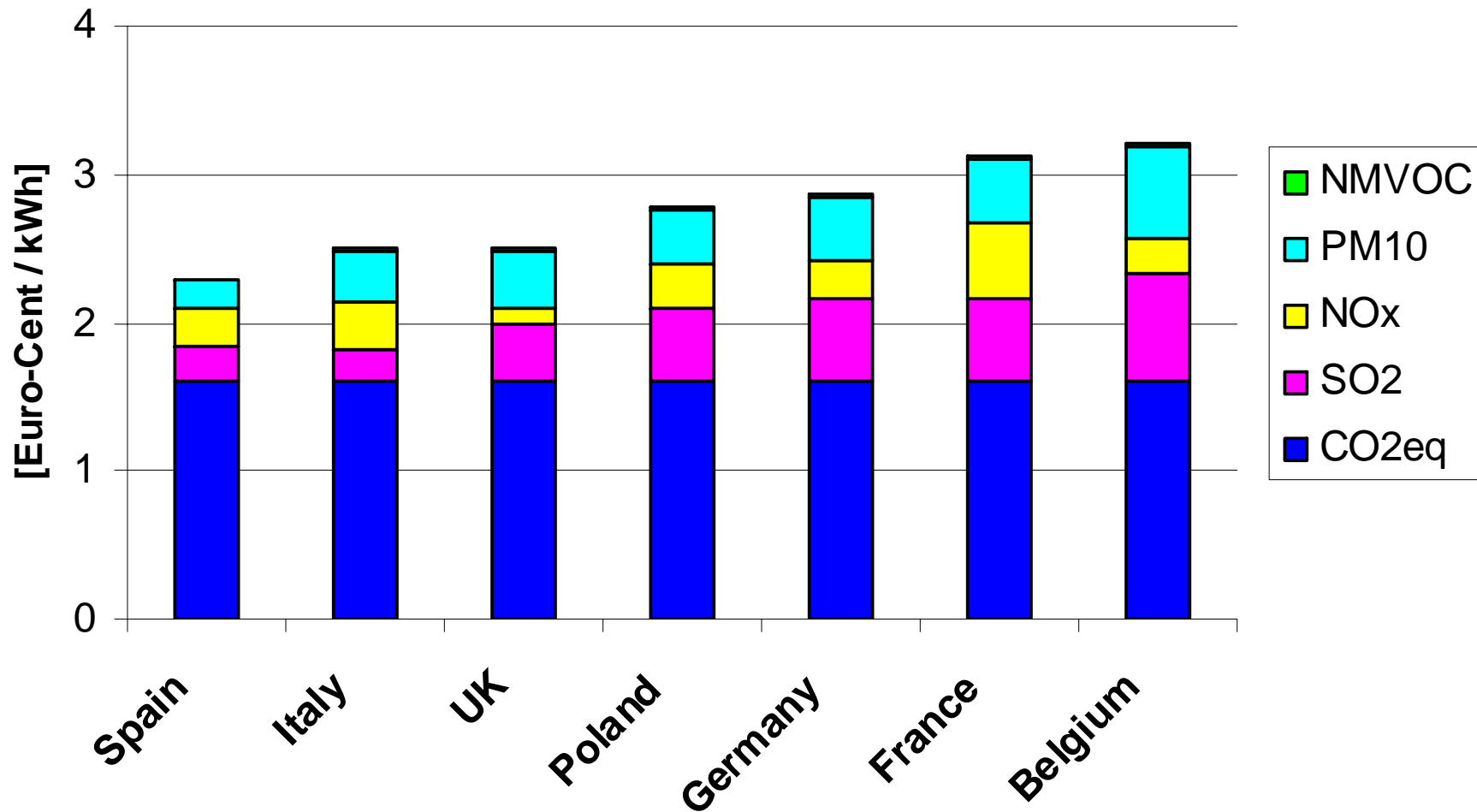
Technology assessment: comparison of techniques, identification of weak points

Sustainability and welfare indicator, comparison of impacts,





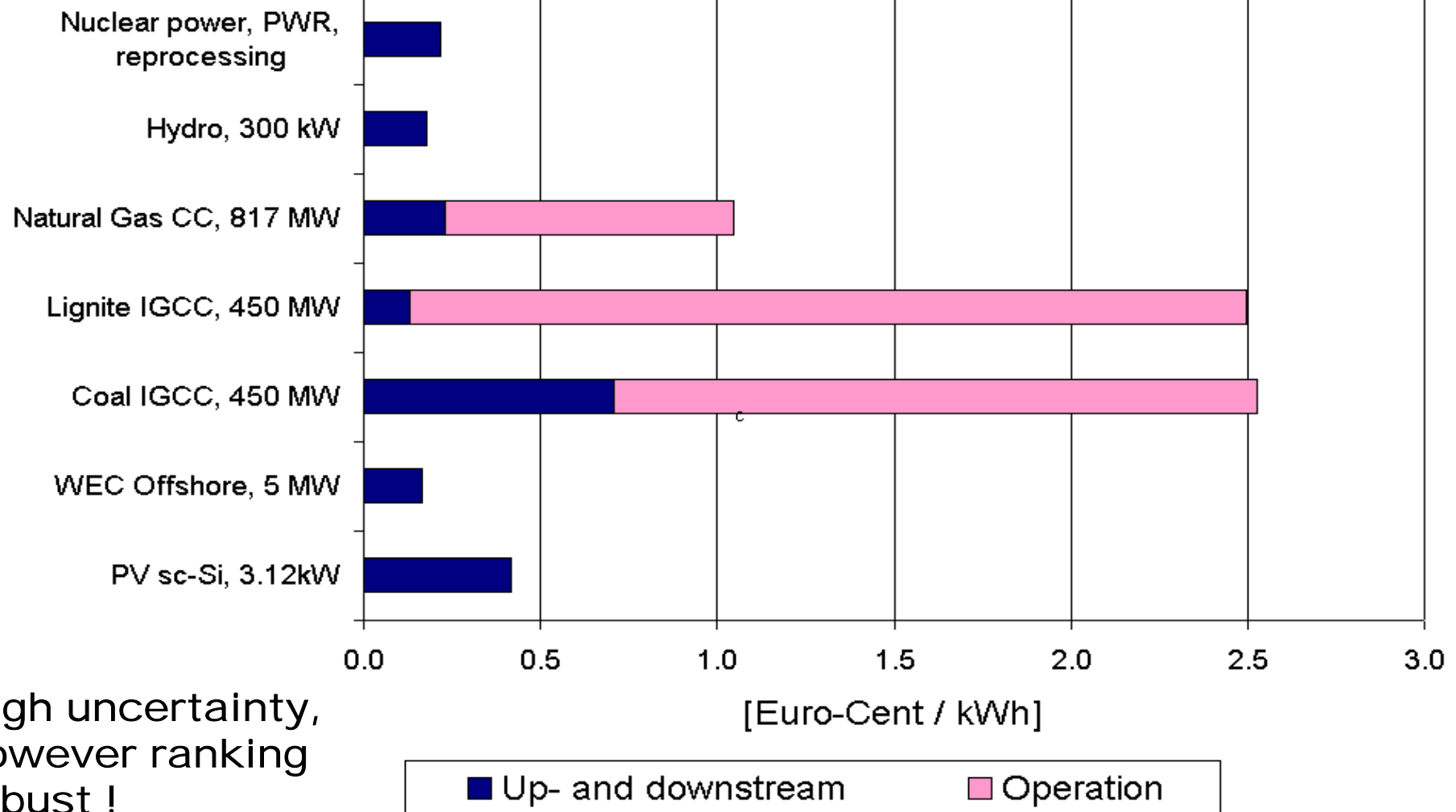
External Costs [Euro-Cent / kWh] of a modern Coal Fired Power Station (steam turbine)





External Costs of New Power Plants in Germany

mean values, newest technologies !

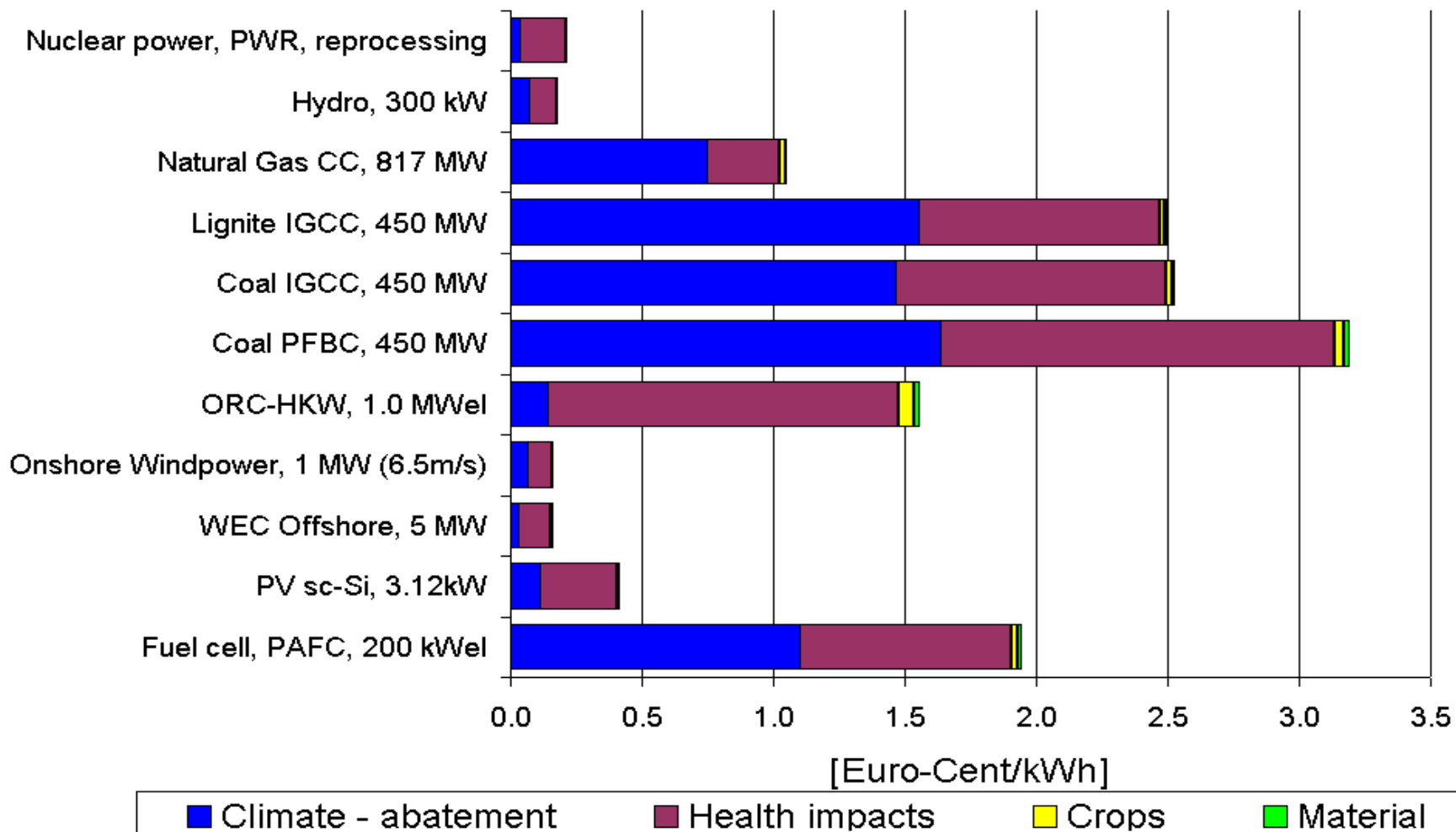


High uncertainty,
however ranking
robust !



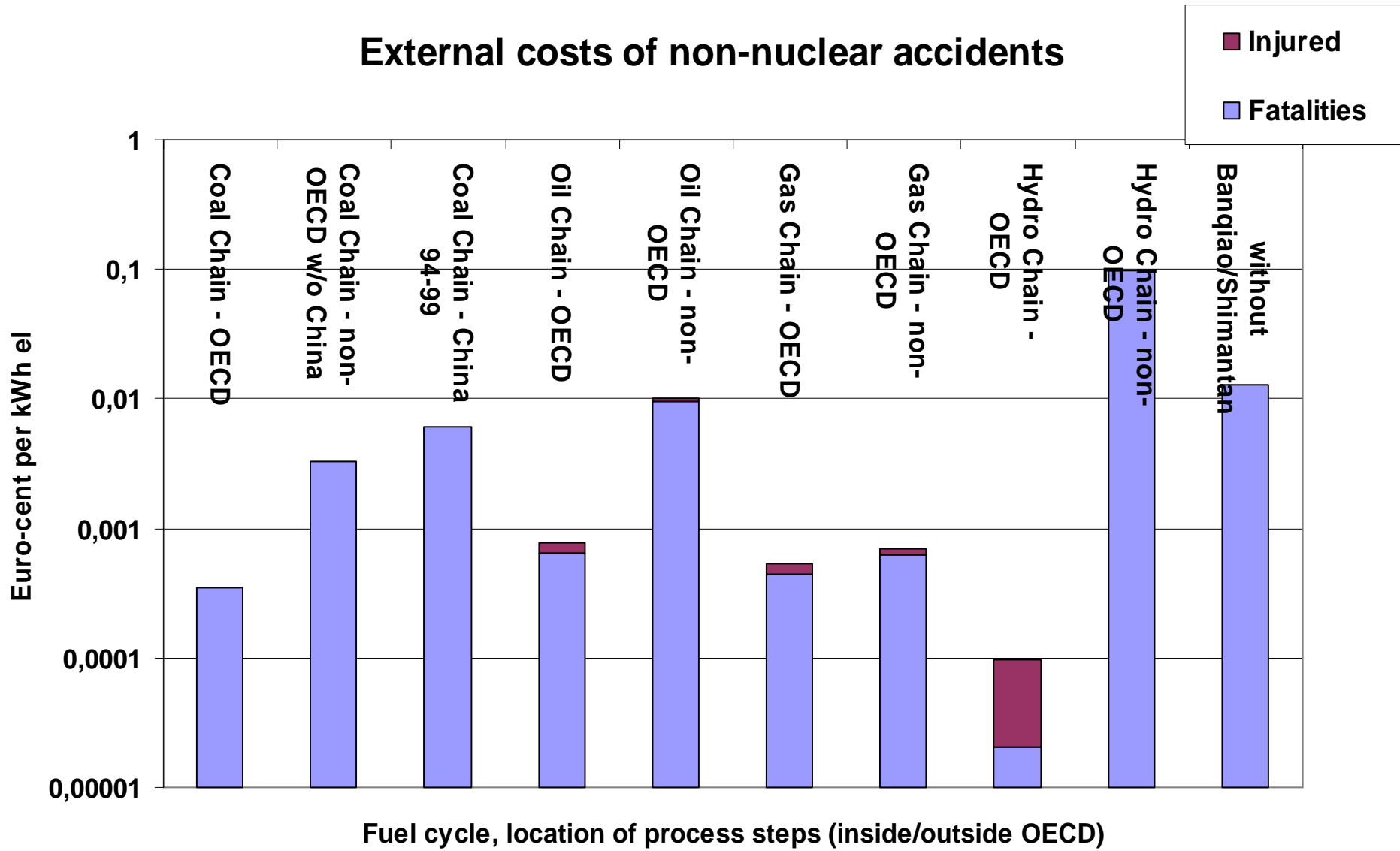
External Costs for Germany – Impact Categories

mean values, newest technologies



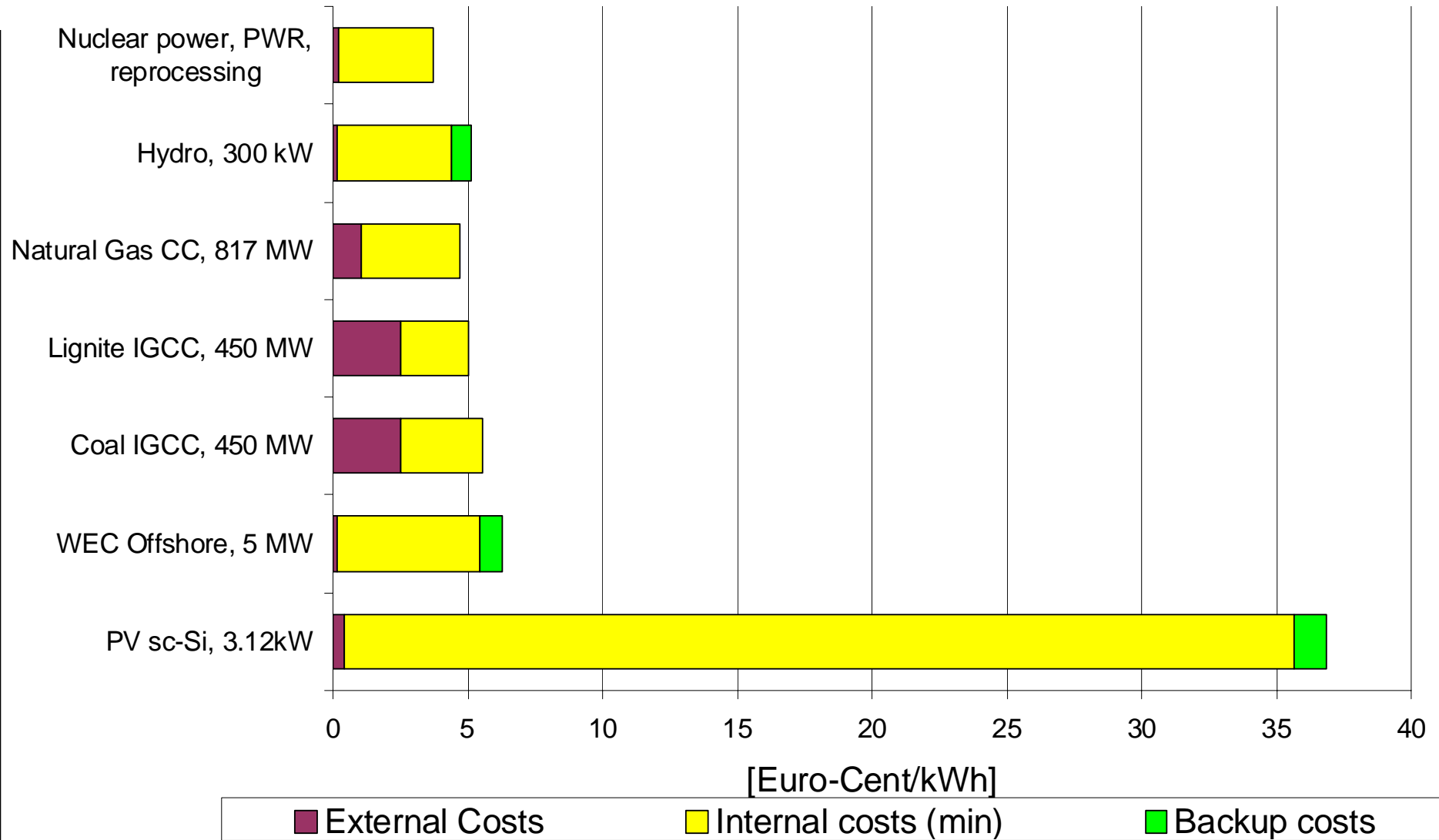


External costs of non-nuclear accidents





Social Costs of Electricity Production – Germany, new Plants





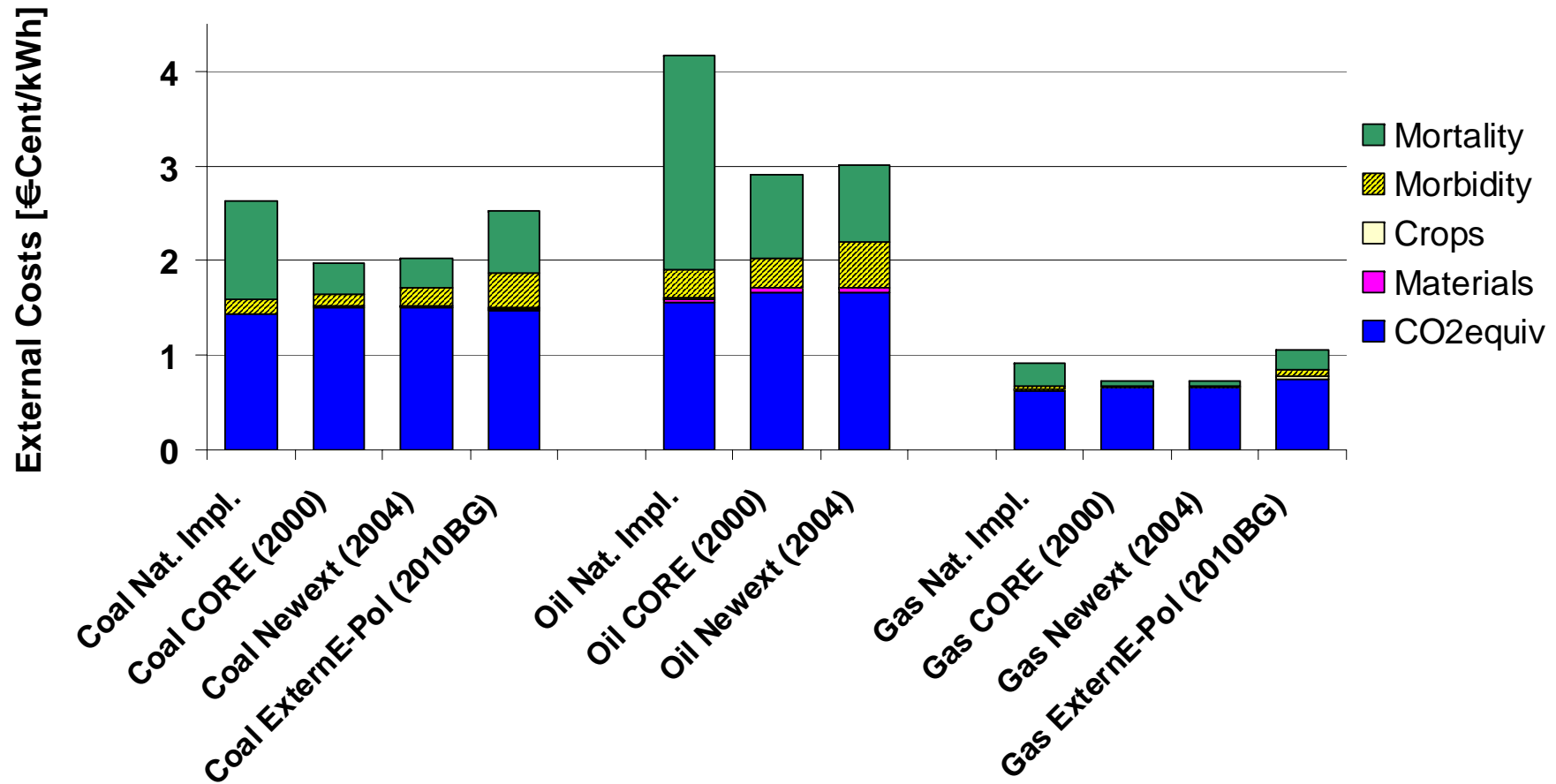
Quantification of Externalities of Heat Supply

Euro / GJ	Gas-CB OFH	Solar-Gas- CB OFH	Gas-CB MFH	Fuel oil- LT MFH	Wood chips MFH
Damage costs					
Health	0,81	0,96	0,63	1,45	2,24
Material	0,01	0,02	0,01	0,03	0,02
Crops	0,01	0,02	0,01	0,16	-0,04
Total					
Damage Costs	0,83	1,00	0,65	1,64	2,22
Abatement costs (Standard-Price-Approach)					
Global warming	1,67	1,36	1,47	2,01	0,34
"Total"^a	2,50	2,36	2,12	3,64	2,57

^a Note: different valuation approaches included
(CB = condensing boiler, MFH = multi family house, OFH = one family house)



External Costs – Progress of Methodology





For what purpose are estimates of external costs needed?

Internalizing external costs –,getting the prices right‘

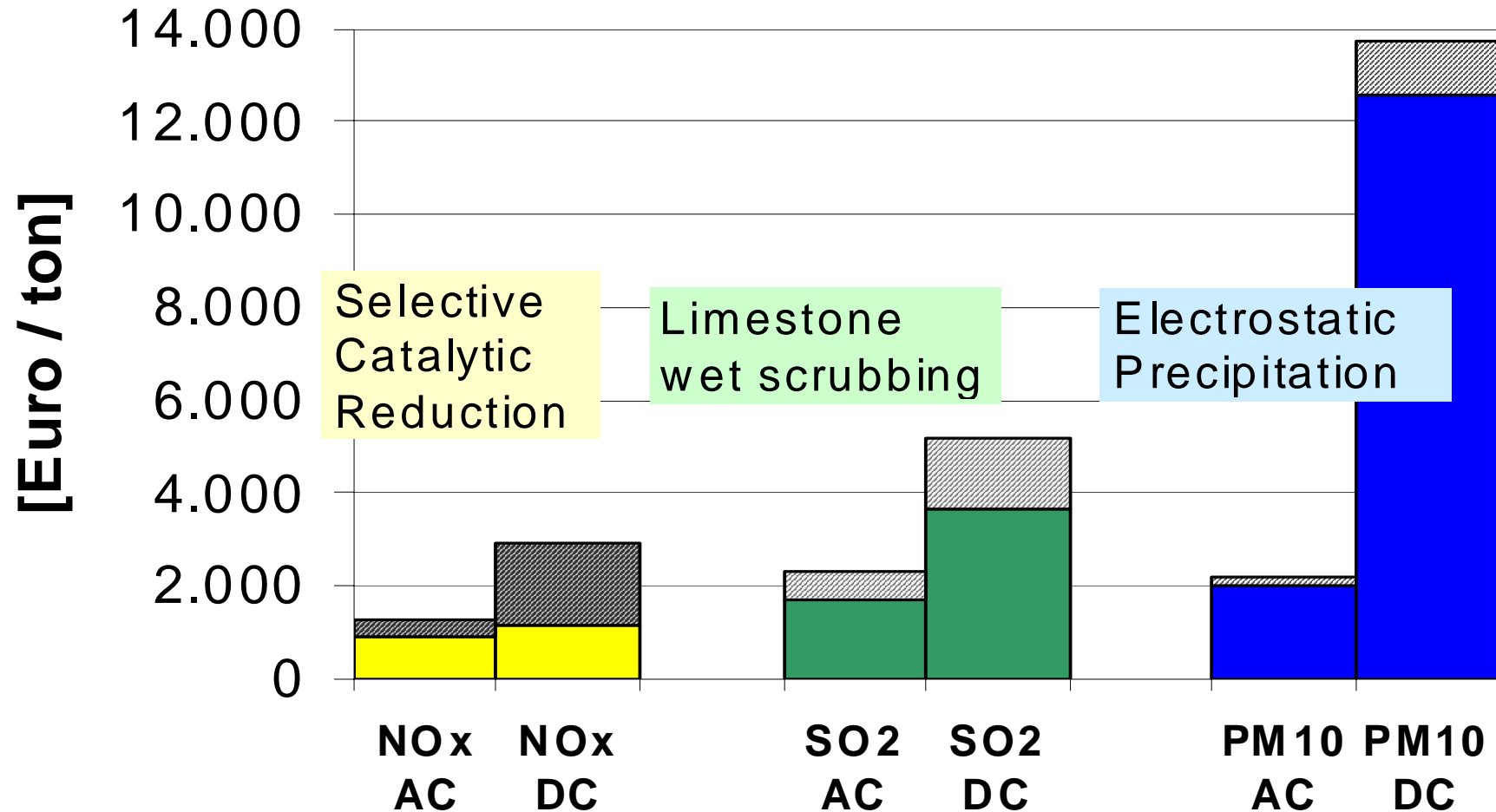
Cost-Benefit-Analyses, e. g. for measures and directives to protect the environment and human health

Technology assessment: comparison of techniques, identification of weak points

Sustainability and welfare indicator: including sectoral impacts and import/export relationships



Cost-Benefit-Analysis: Abatement and Damage Costs



AC = Abatement Costs, lower and upper value

DC = Damage Costs - lower value for UK, upper for Germany



For what purpose are estimates of external costs needed?

Internalizing external costs – ‚getting the prices right‘

Cost-Benefit-Analyses, e. g. for measures and directives to protect the environment and human health

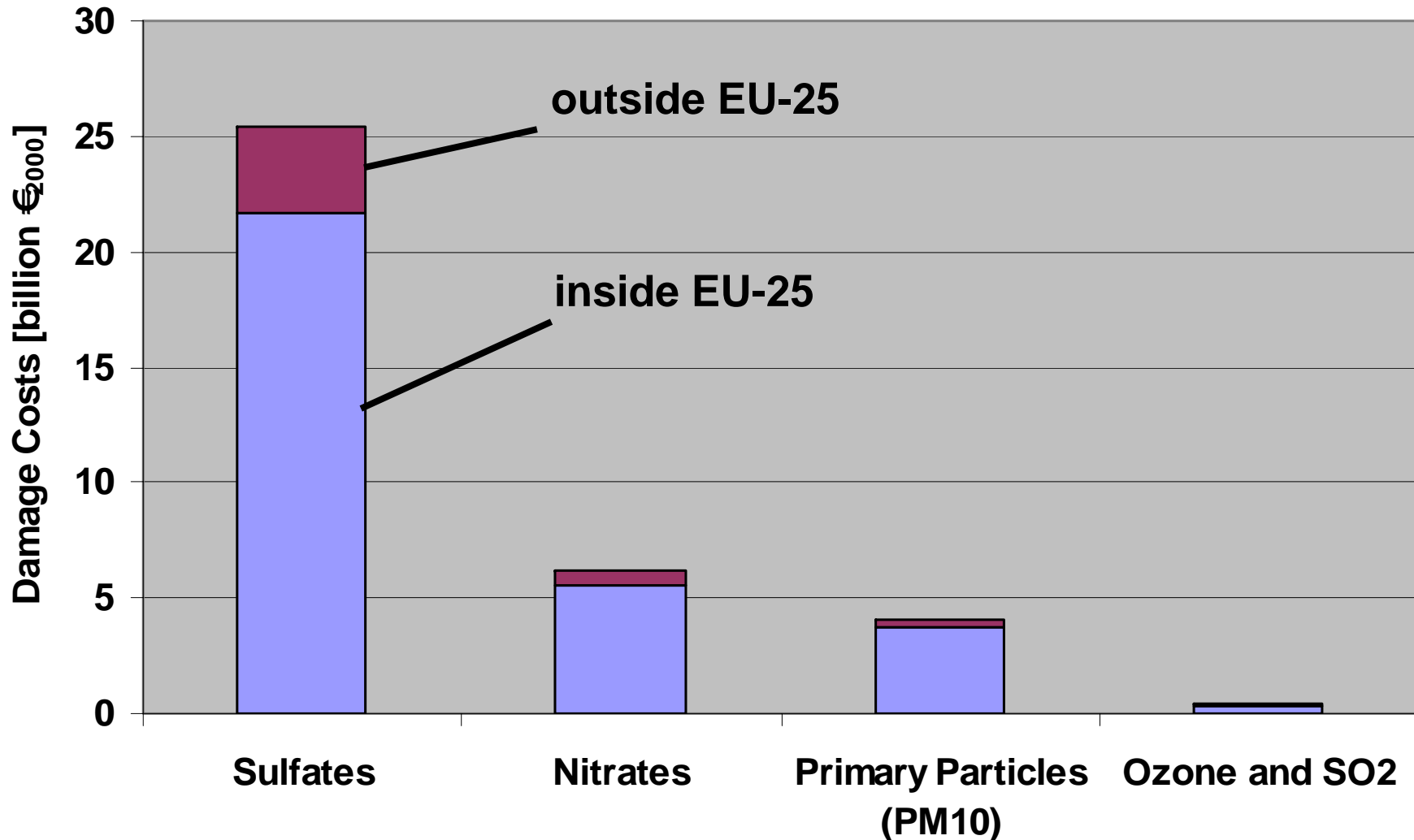
Technology assessment: comparison of technologies, identification of weak points

Sustainability and welfare indicator; comparison of impacts



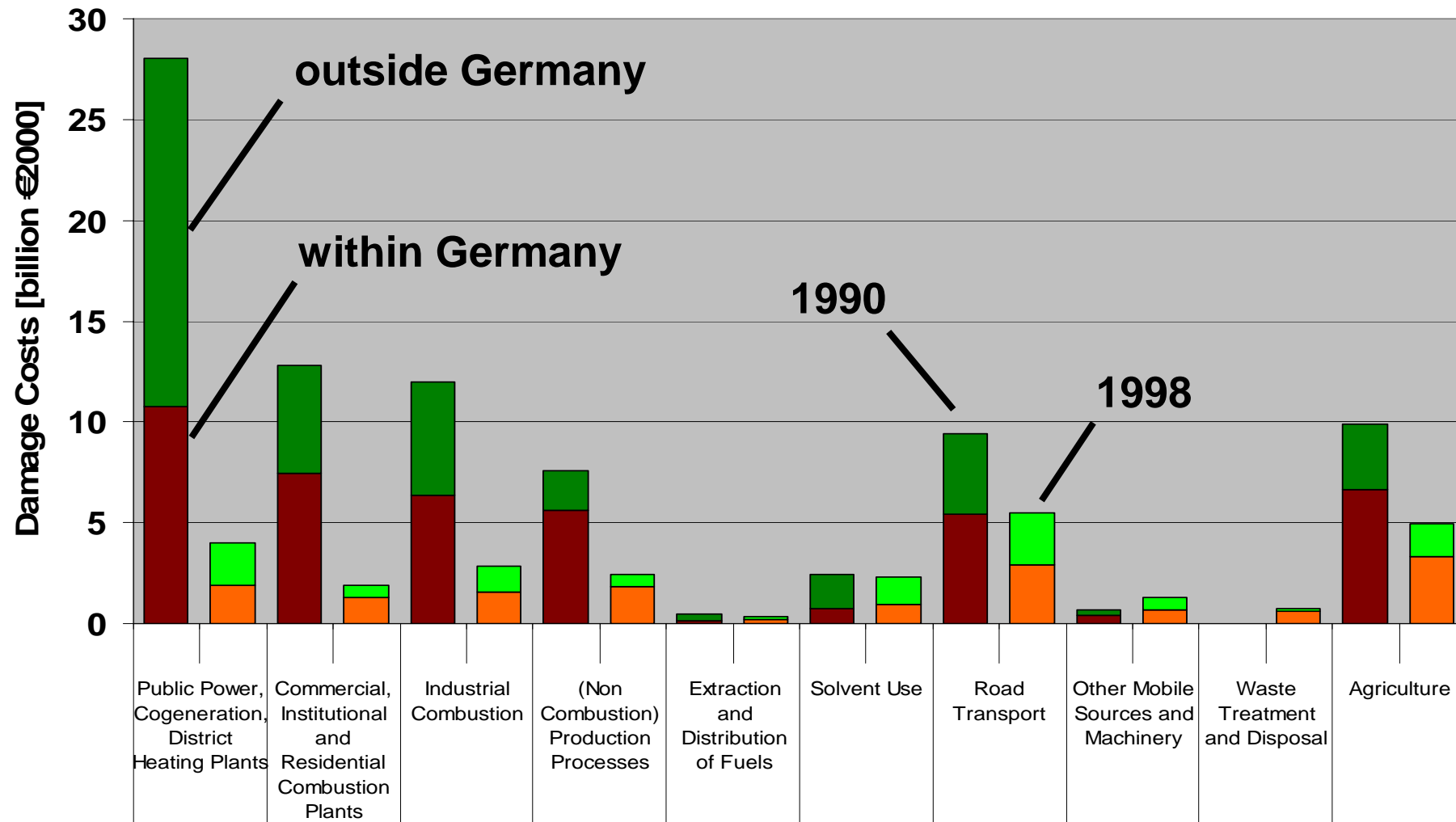


Damage Costs caused by Electricity Production in the EU-25 states 1998





Damage Costs caused by German Source Sectors





Damage Costs within the EU-15 states 1990/1998

1990															
[billion € ₂₀₀₀]	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxemb.	Netherl.	Portugal	Spain	Sweden	UK
Own emissions	1.0	2.7	1.0	1.0	19.7	51.8	2.7	0.6	20.2	0.1	2.3	1.4	9.7	0.8	20.5
Import from EU	2.9	4.8	1.6	0.2	13.2	20.3	0.8	0.2	5.4	0.2	6.5	0.9	3.5	1.2	5.5
Export to EU	0.8	6.4	1.0	0.1	16.2	14.2	0.1	1.0	3.0	0.4	4.4	1.4	5.0	0.4	12.8
1998															
[billion € ₂₀₀₀]	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxemb.	Netherl.	Portugal	Spain	Sweden	UK
Own emissions	1.2	2.2	0.7	0.7	16.9	17.1	2.7	0.4	19.6	0.1	1.7	2.2	10.8	0.9	12.2
Import from EU	1.3	2.7	0.6	0.1	6.6	12.9	0.6	0.1	3.6	0.1	3.5	1.1	2.7	0.5	3.1
Export to EU	0.7	3.9	0.5	0.1	10.3	5.3	0.1	0.8	2.2	0.3	2.9	1.8	3.7	0.3	6.6



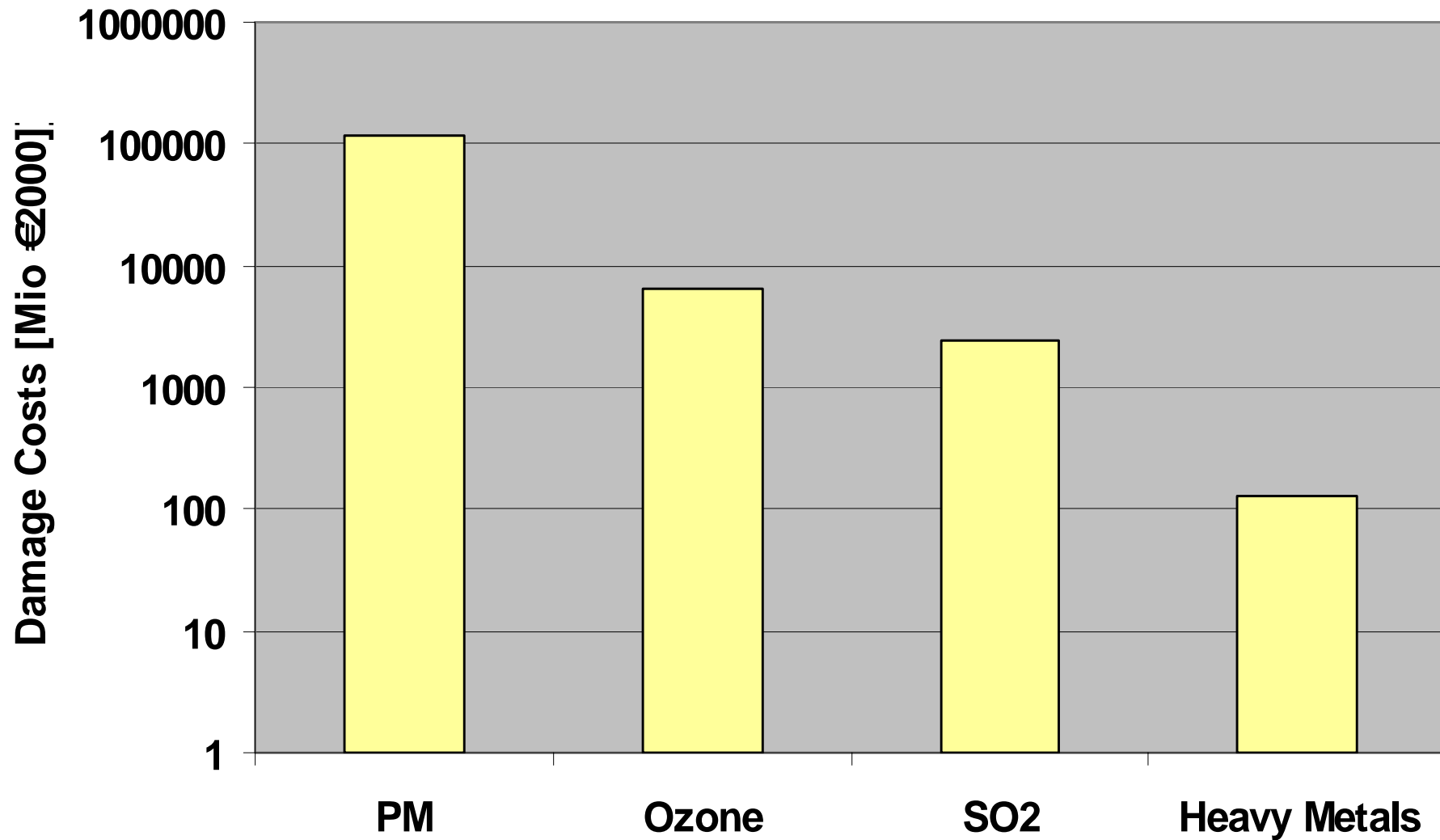
Net exporter within the EU



Net importer within the EU



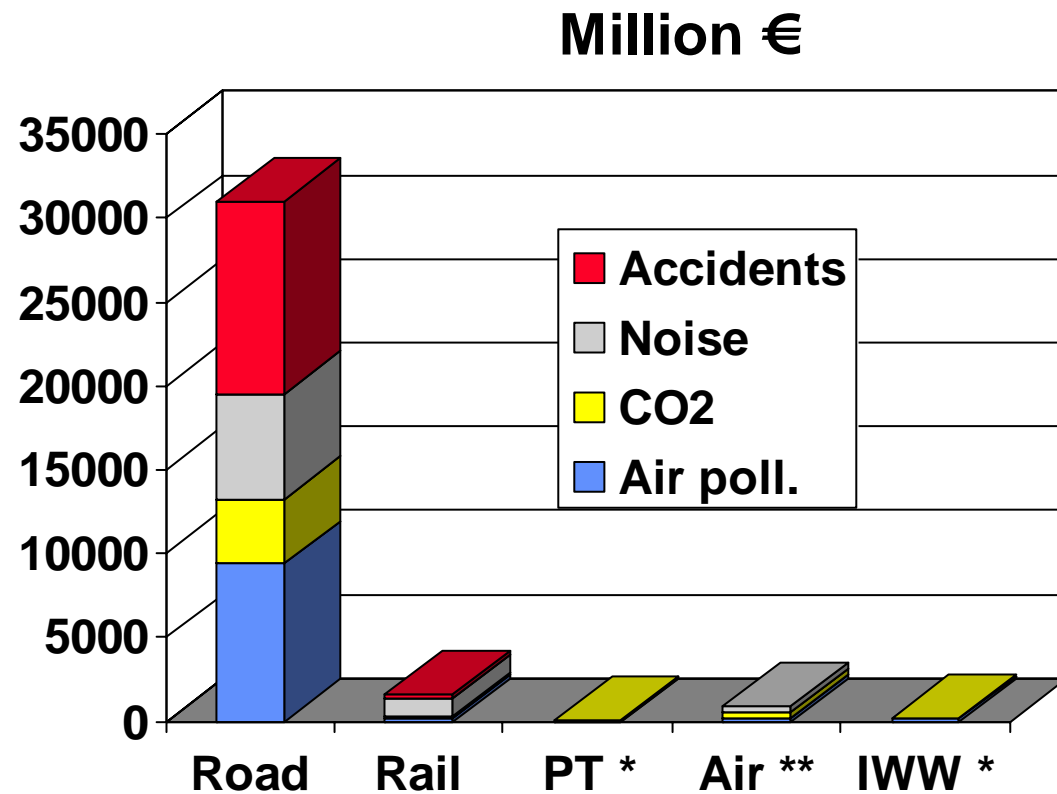
Damage Costs of Air Pollution in the EU-15 states 1998





Quantifiable externalities due to transport in Germany

Total: 33 700 Million € (1.8% of GDP 1998)



* Air poll. and CO2 only ** excl. accident externalities