

Energy Supply and Sustainable Development: The need for Nuclear Power

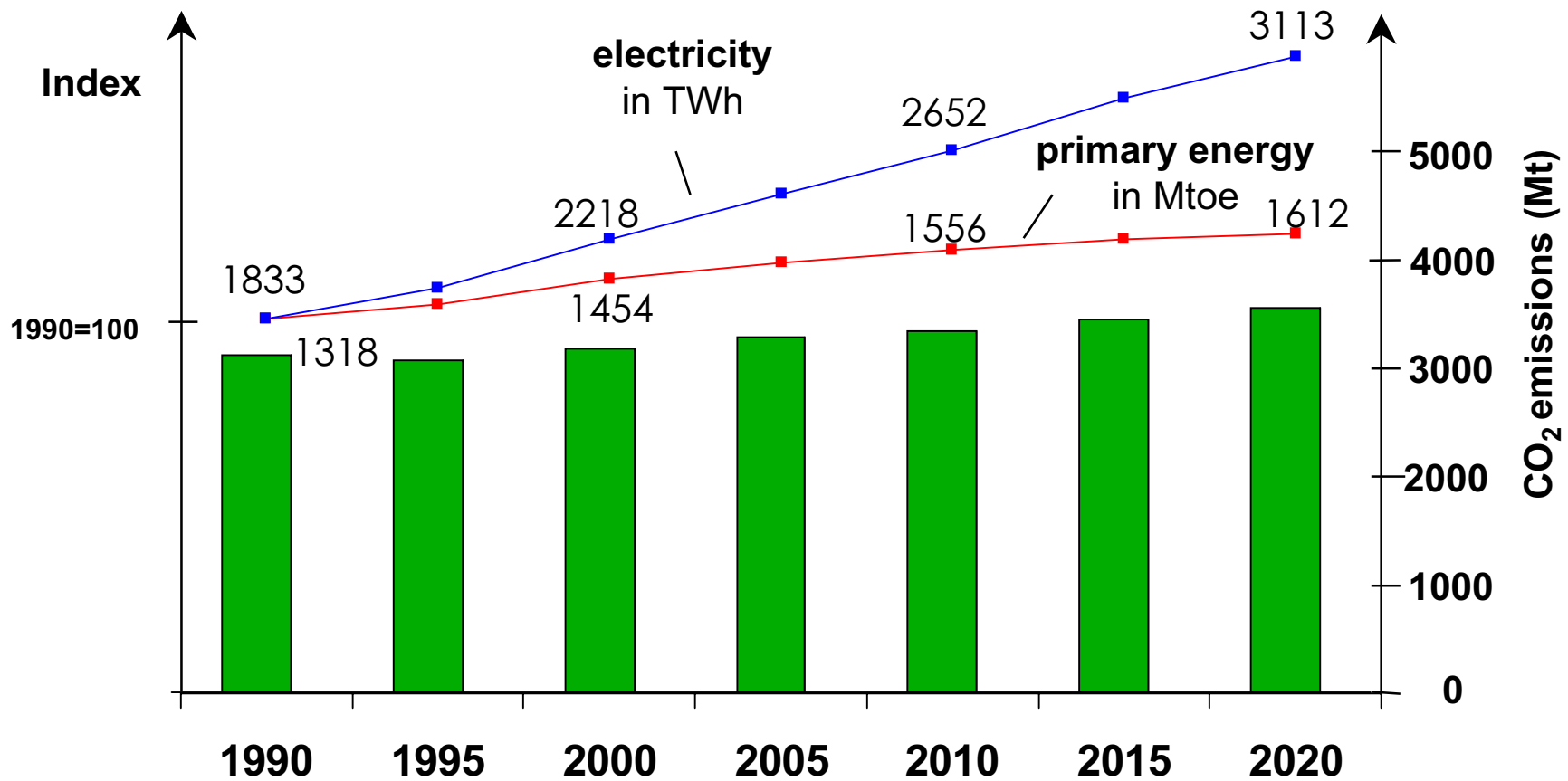
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FRAMATOME ANP Convention

Paris, January 18 - 20, 2001

Primary Energy Demand, Electricity Demand and CO₂ Emissions of EU-15 countries (Baseline Scenario)



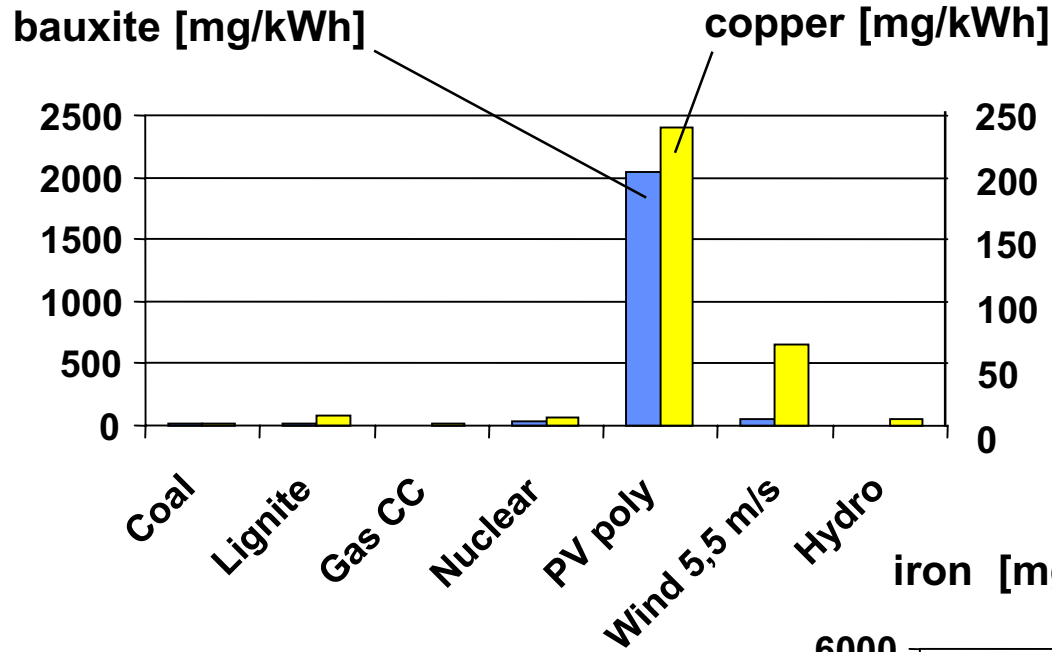
source: Energy in Europe: European Energy Outlook to 2020, 1999

The Brundtland Commission's Definition of Sustainable Development

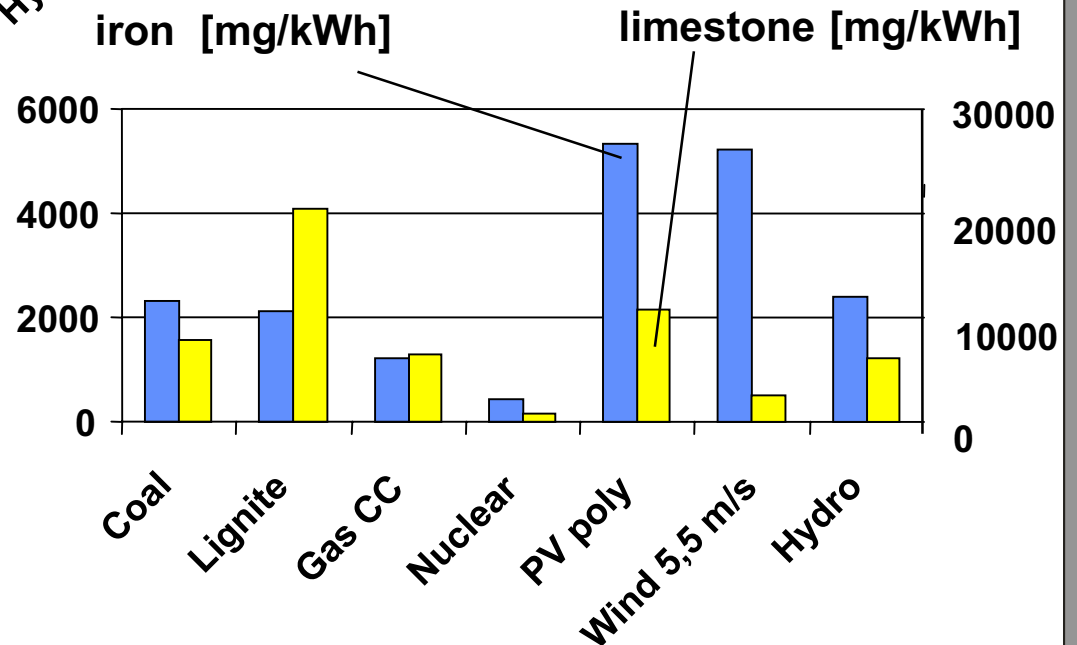
"Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

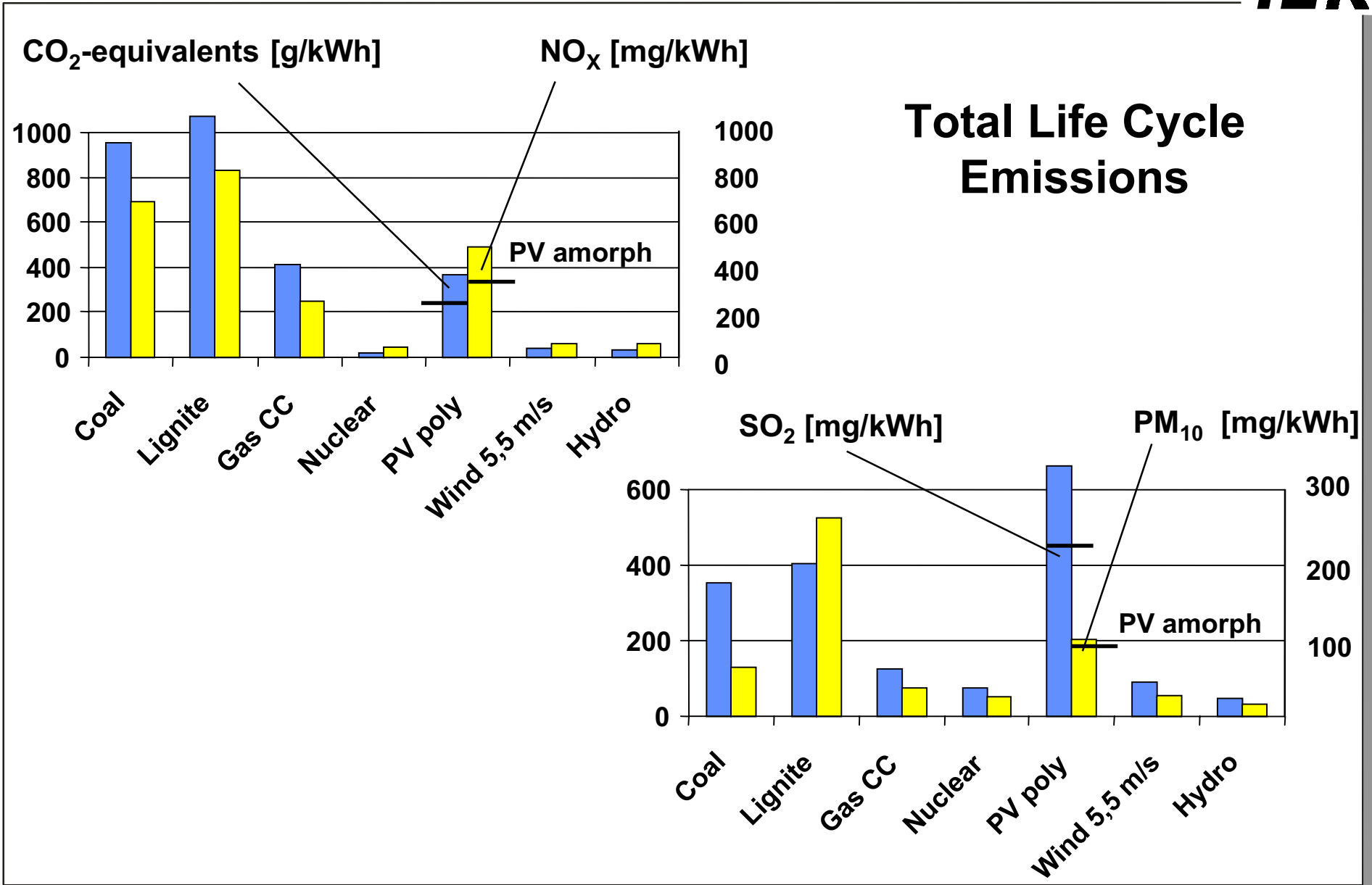
Cumulative energy requirement (CER) and energy payback periods (EPP)

	CER without fuel [kWh _{Prim} / kWh _{el}]	EPP [months]
Coal	0.29	3,5
Lignite	0.17	2,7
Gas CC	0.16	0,8
Nuclear	0.08	2,9
PV poly (amorph)	1.24 (0.67)	140 (76)
Wind (5,5 m/s)	0.07	6,4
Hydro	0.04	10,9

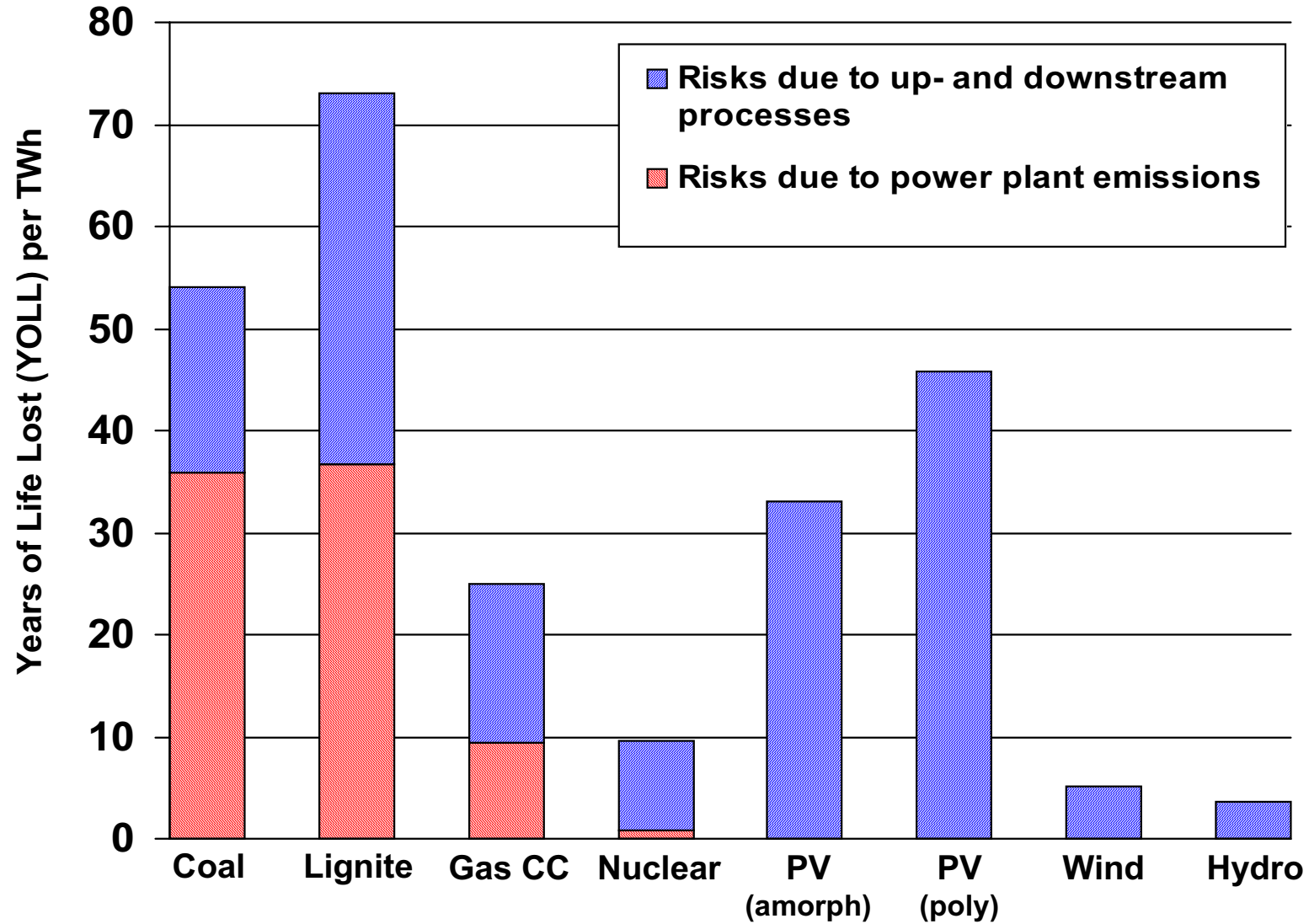


Total Life Cycle Raw Material Requirement

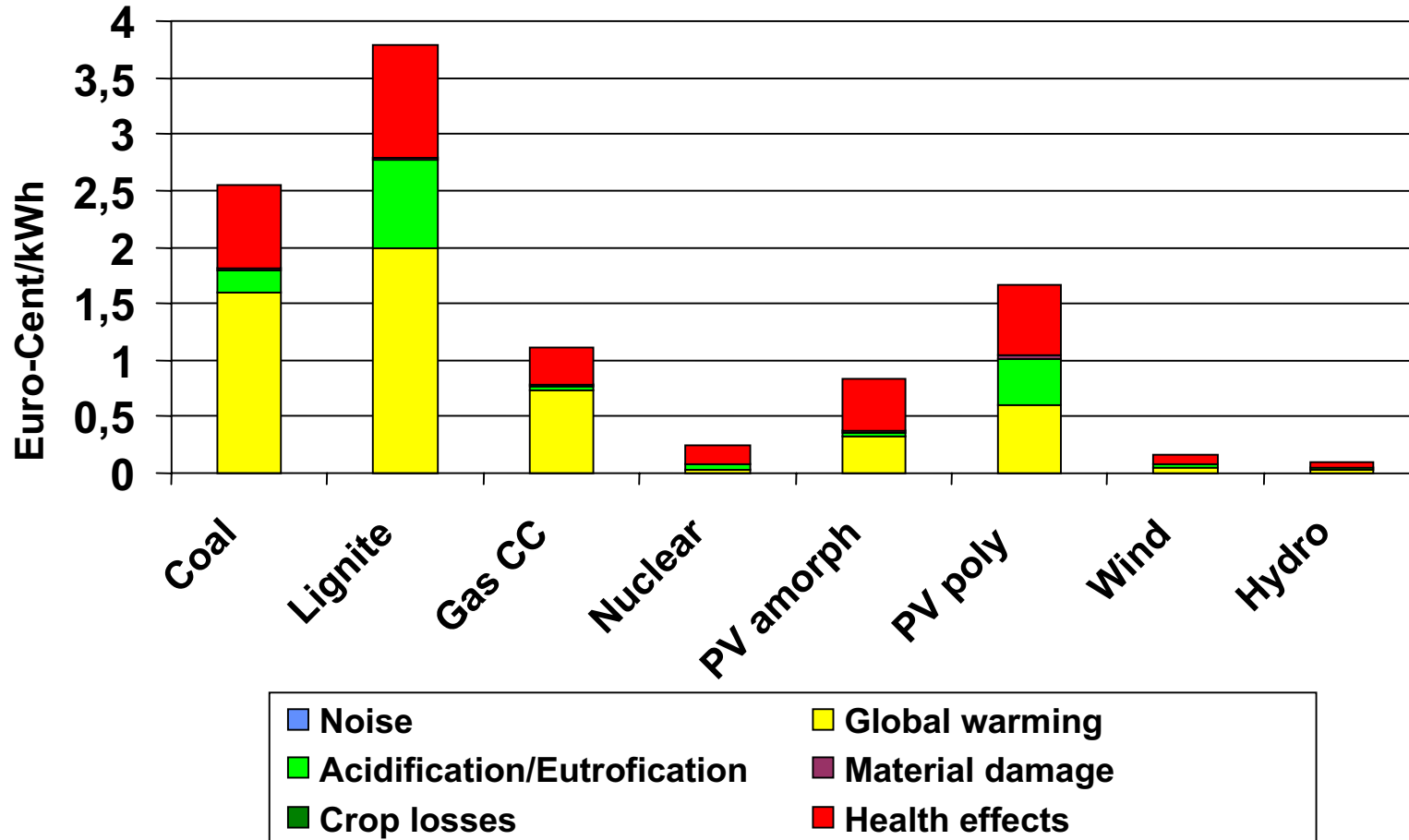




Health Risks of Energy Systems



External Costs of Energy Systems



Acidification/Eutrofication: Valuation based on marginal abatement costs required to achieve the EU "50%- Gap Closure" target to reduce acidification in Europe

Global warming: Valuation based on marginal CO₂-abatement costs required to reduce CO₂-emissions in Germany by 25% in 2010 (19 Euro/tCO₂) 16.1.2001

Costs of electricity production

