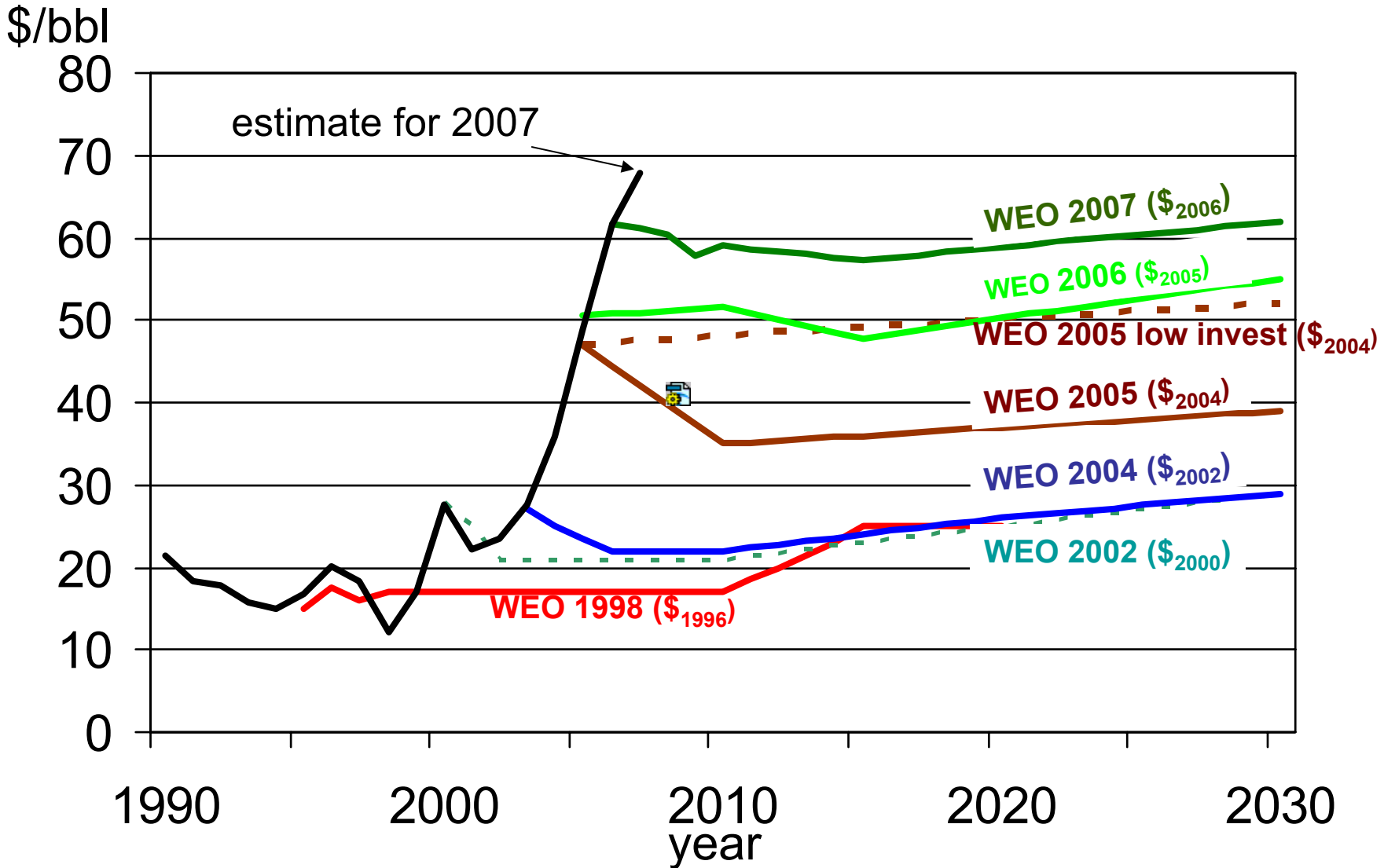


Sun, wind, hydro, plants, geothermal
replace
oil, gas, coal and Uranium

The Energy crisis and the solution:
Solarcentury

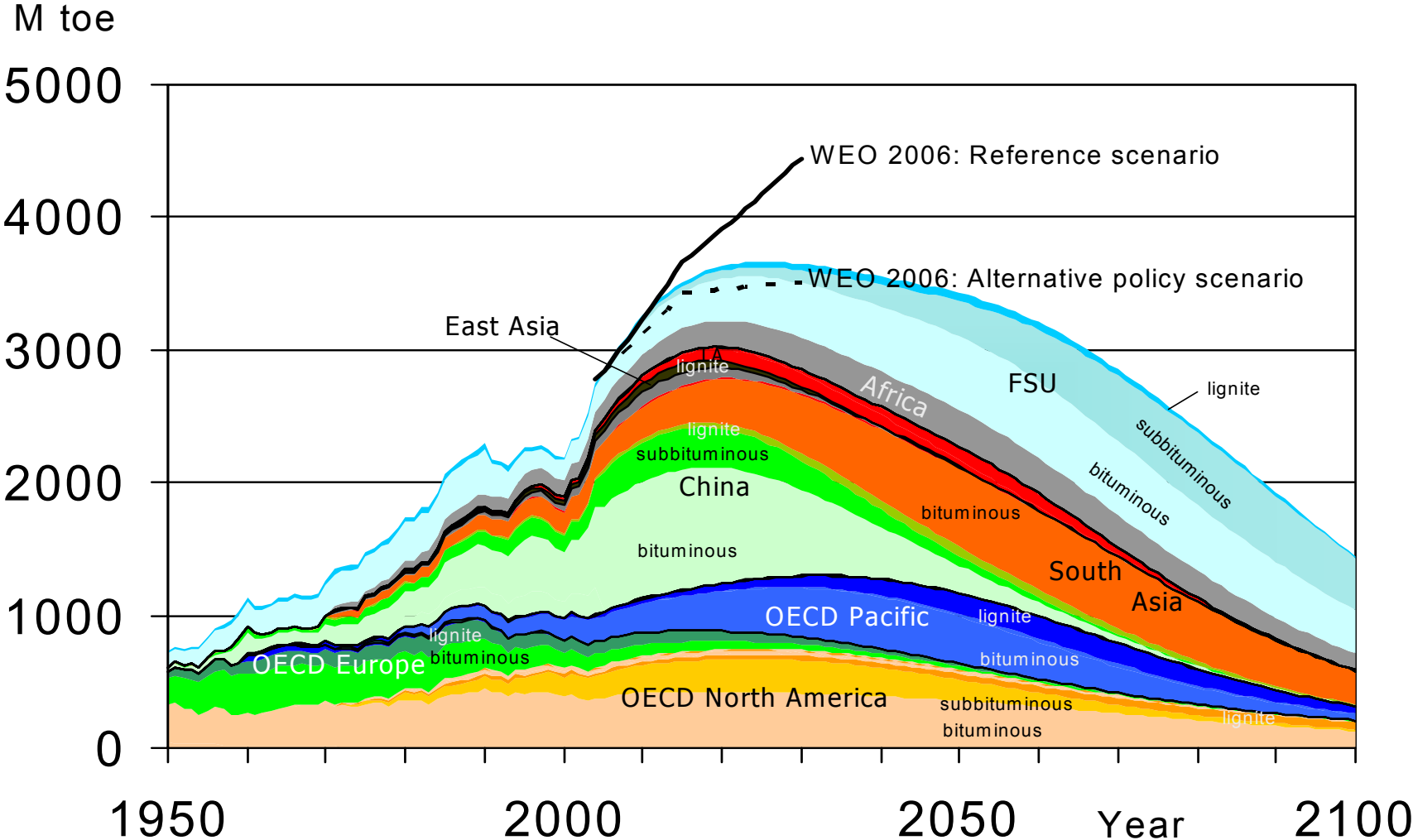
Hans-Josef Fell
Member of German Parliament

IEA Oil Price Prognosis



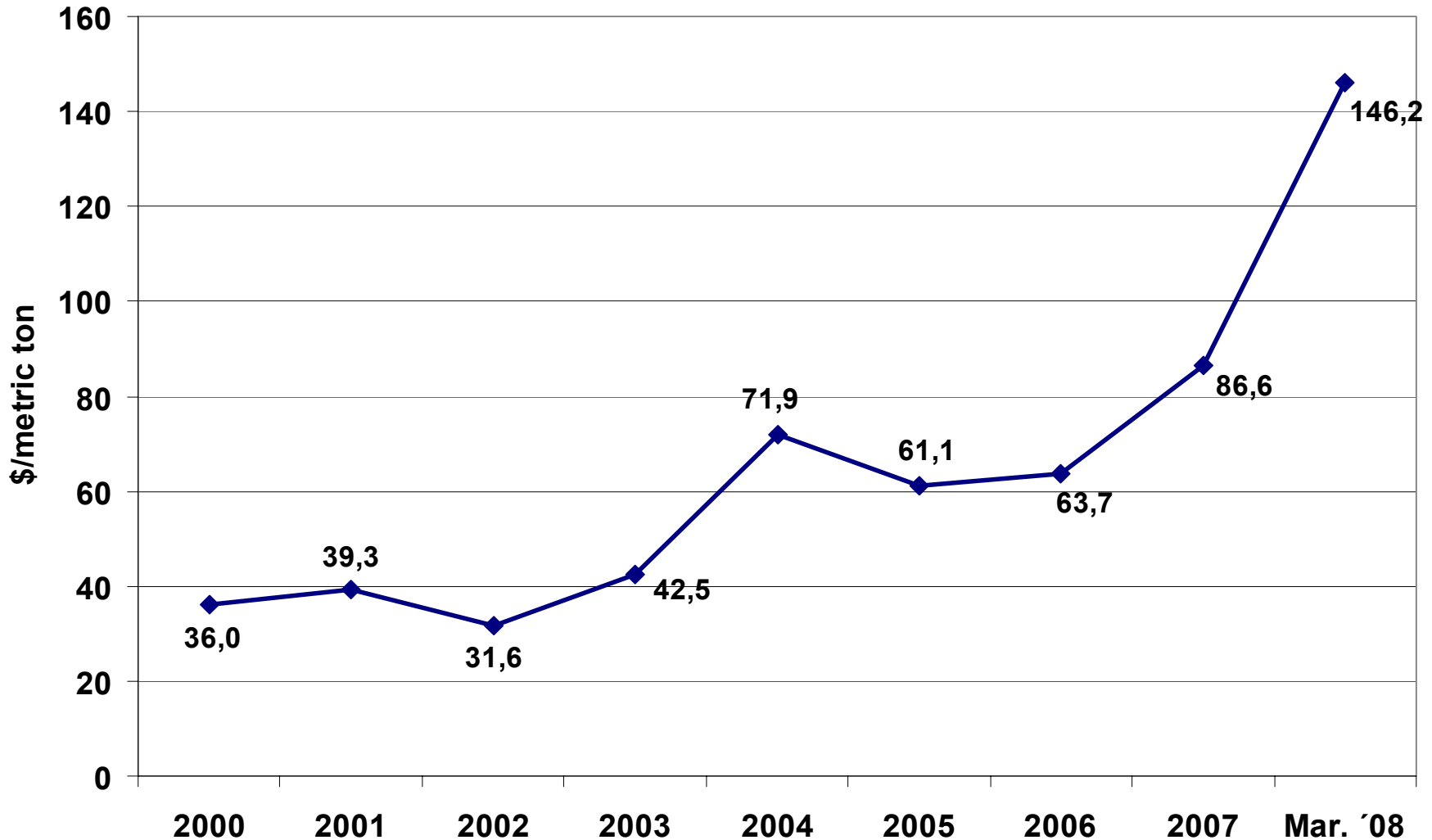
Global coal production: Peak 2030

Worldwide possible coal production



Price for Hard Coal

(MCIS Steam Coal Marker Price, first price calculated each month)

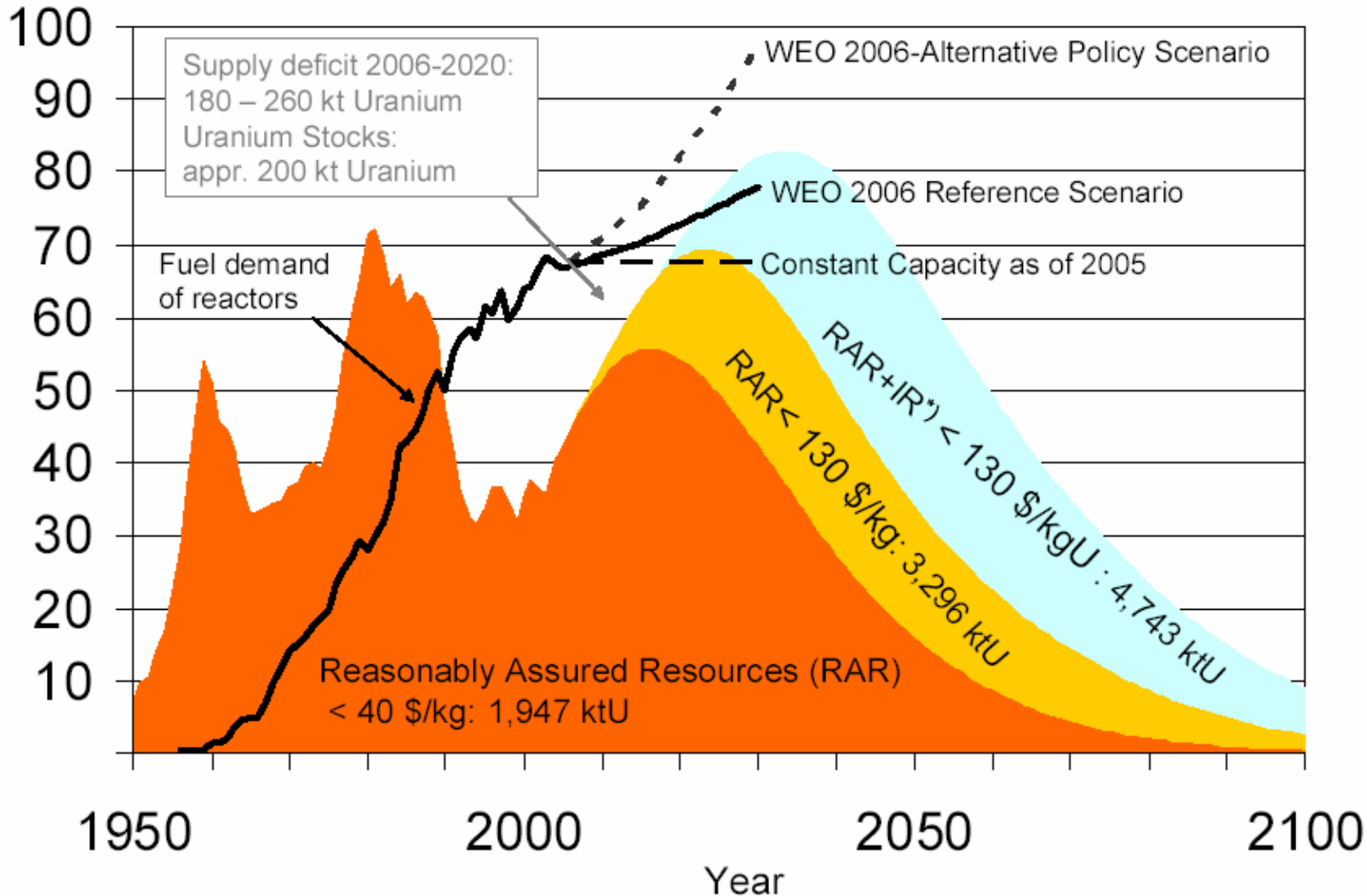


Source : Verein Deutsche Kohleimporteure e.V.

www.hans-josef-fell.de

Uranium demand according to IEA scenarios and possible supply from known resources

kt Uranium



*) IR = Inferred Resources

Oil, gas, coal are the main causes of damage to the climate

- Burning of oil, gas, coal emits worldwide ~80% of all greenhouse gases
- Real climate protection is only possible by ending the use of oil, gas, coal; this means using completely renewable energy and renewable chemistry.
- Energy saving is very helpful; but saving alone will not solve the climate problems

Climate problems can be solved
only by two strategies:

1. Stop greenhouse gas emission

(not only to reduce the emission)

- promote zero emission technologies
- completely canceling the use of fossil and nuclear energies

2. Taking out carbon from atmosphere

- convert plants to humus soil
- reforesting big areas

Climate-protection policies

Promoting renewable energy and chemistry:

- Laws for feed-in tariffs
- tax exemption for renewables
- canceling subsidies for fossil and nuclear
- research offensive for renewables
- reduce the approval obstacles

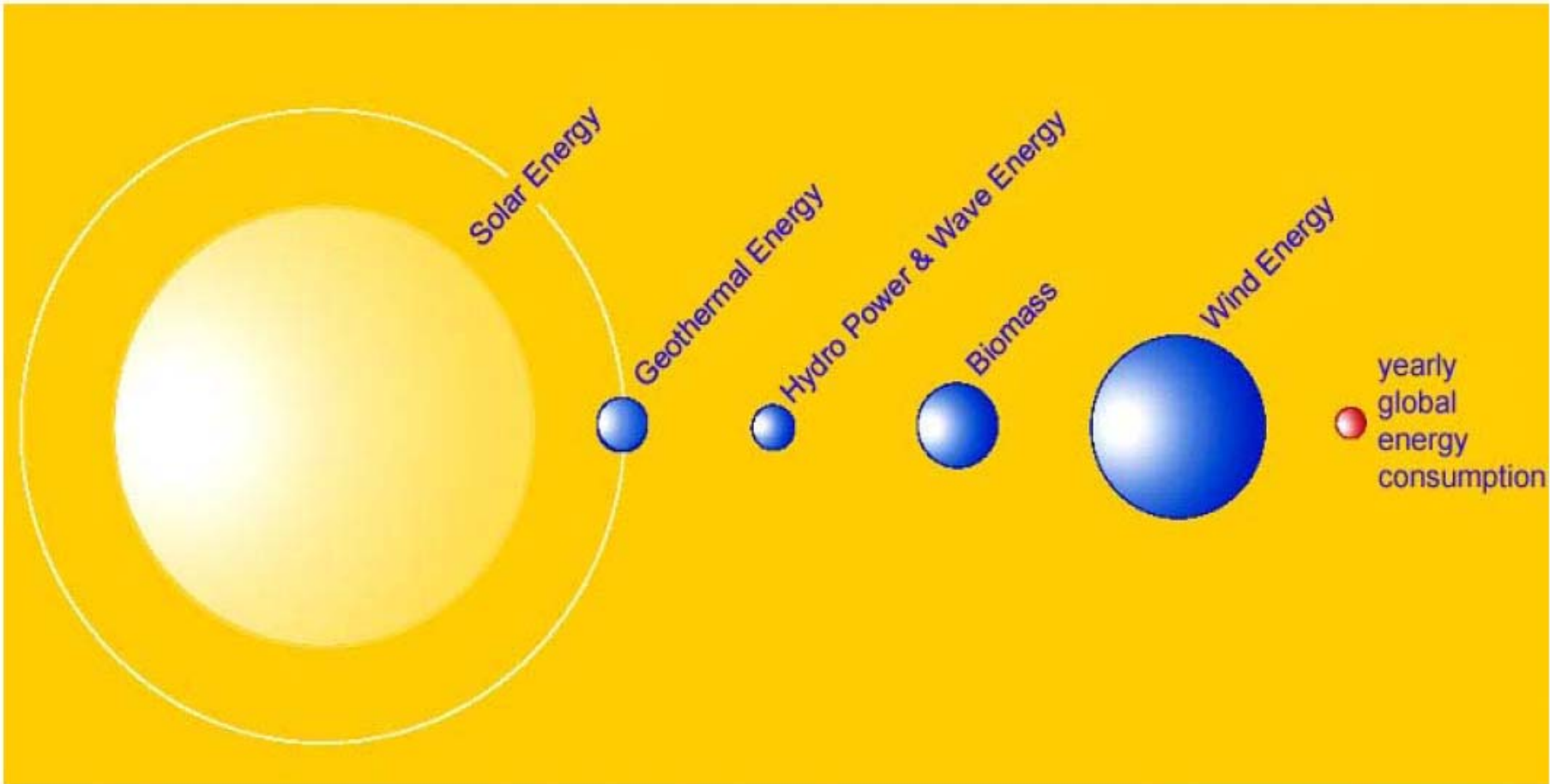
No: quota or certificate systems

both are unable to promote the renewables fast

Renewables (REN) have only benefits and nearly no burden

- REN bring New Jobs
- REN decrease the energy costs
- REN bring independence from rising oil, gas, coal and uranium prices
- REN bring energy security; mostly by domestic energies
- REN solve the problem of the pollution of air, water, soil and climate change
- REN solve the problem of oil wars

Worldwide Potential Renewable Energy



© Research Association Solar Energy

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CSP potential vs. electricity demand



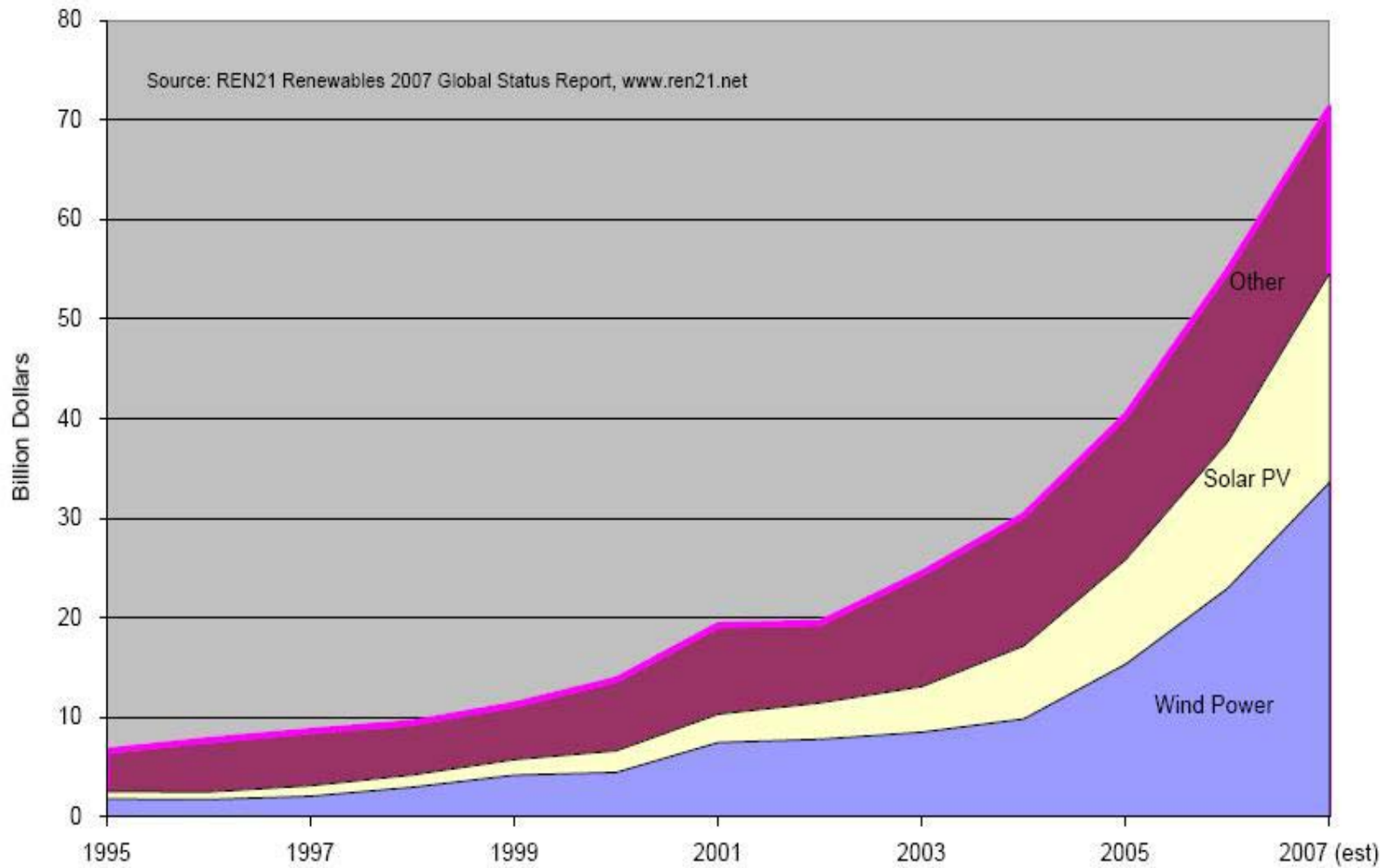
One percent (●) of the Sahara's surface is enough to meet the world's entire electricity demand using CSP technologies.

Prof. Dr. Volker Quaschnig [5]

Solarthermal Powersystems

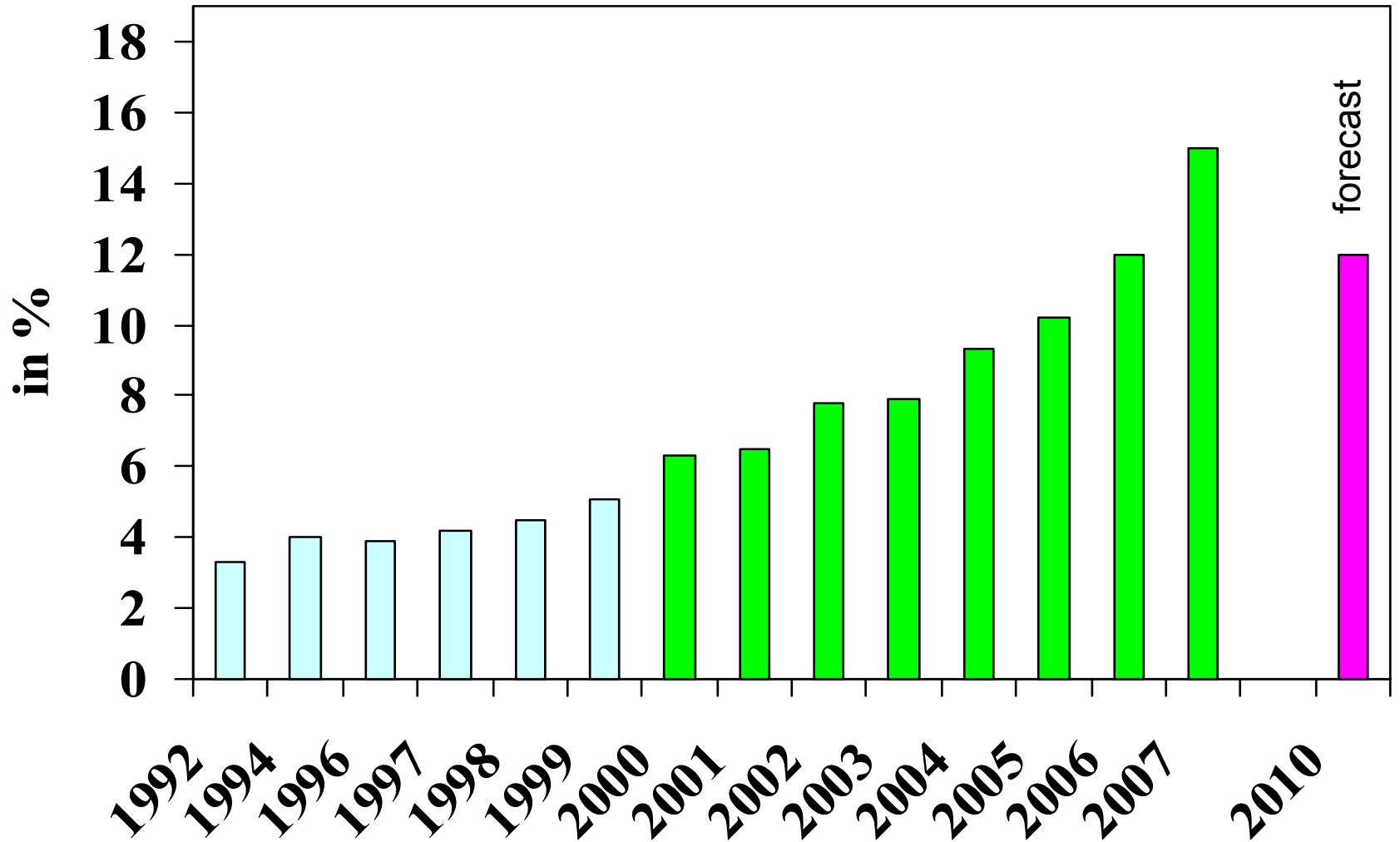


Figure 11. Annual Investment in New Renewable Energy Capacity, 1995–2007



Note: Excludes large hydropower.

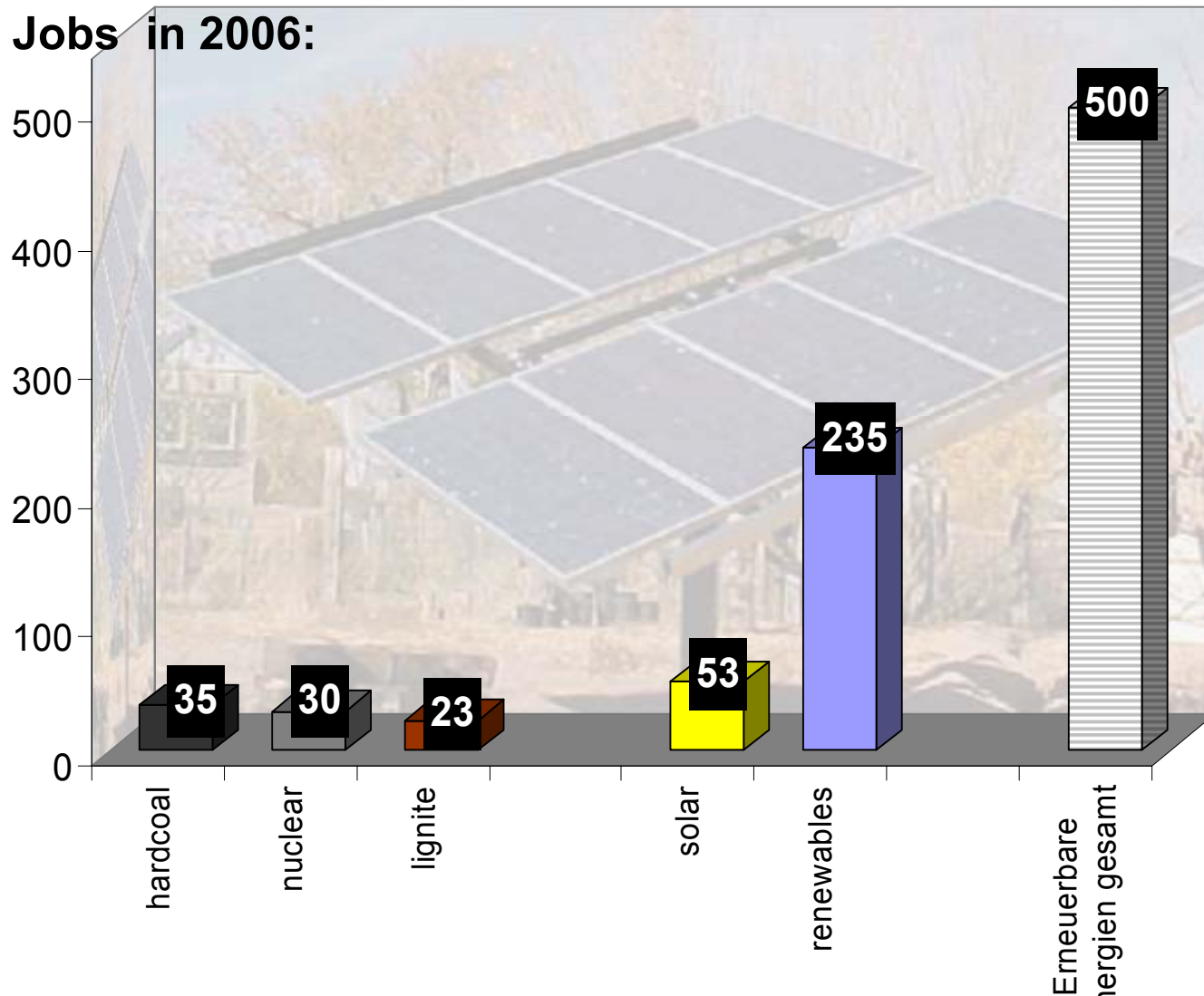
Share of Renewables in the German Gross Electricity Consumption



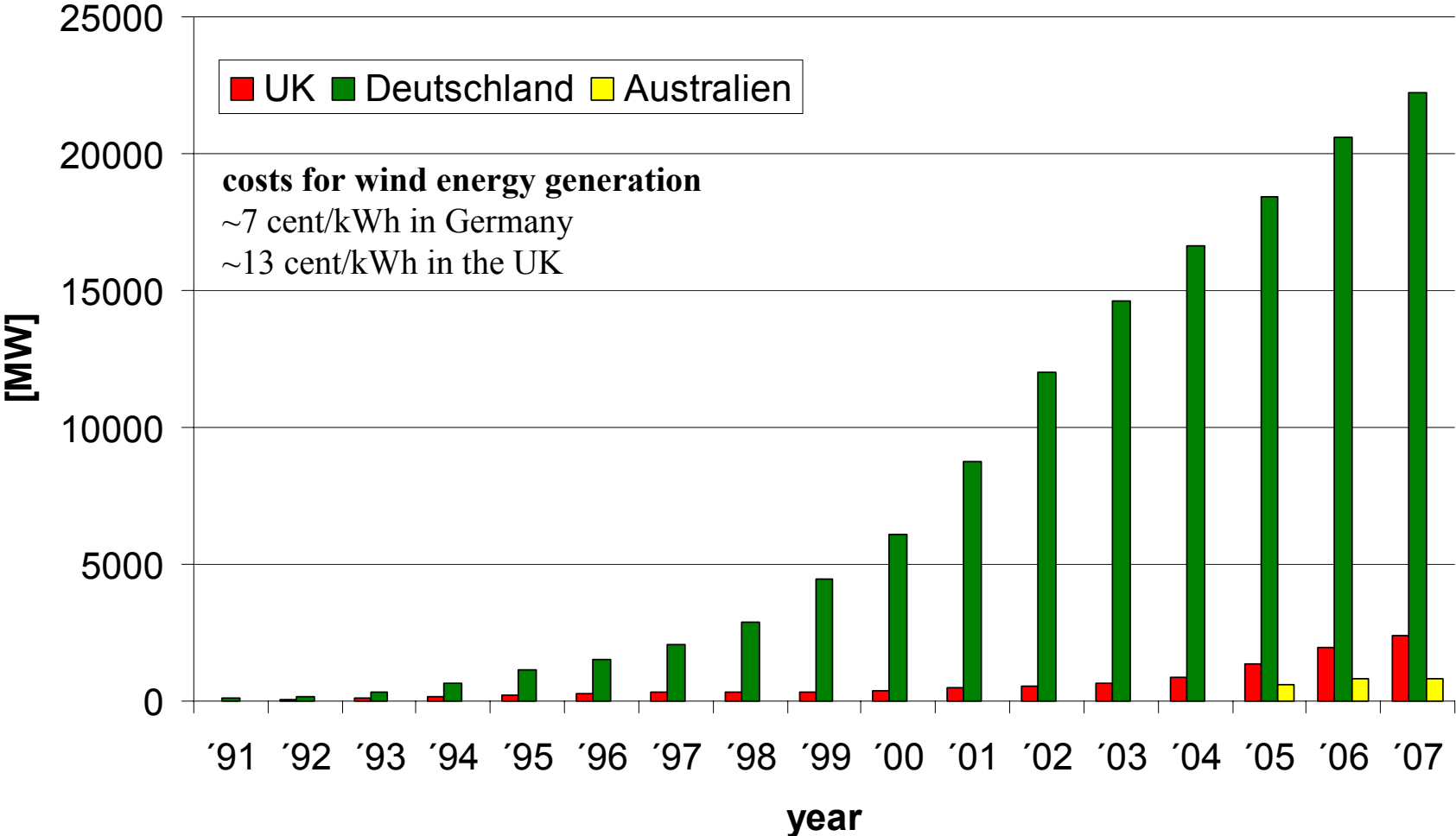
Job engine renewable energies

Prognosis 2020

1000 Jobs in 2006:

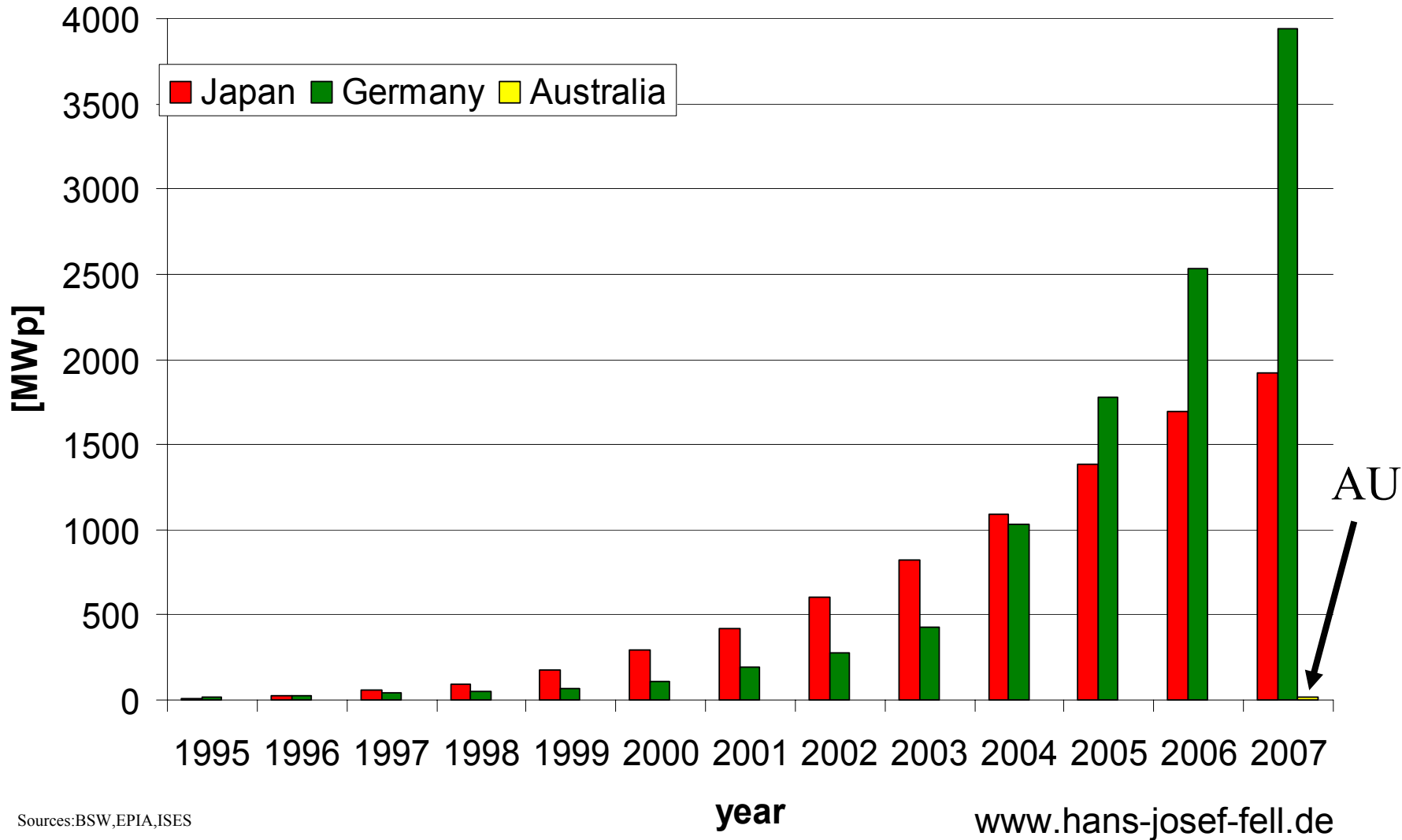


Wind power – Germany, UK and Australia



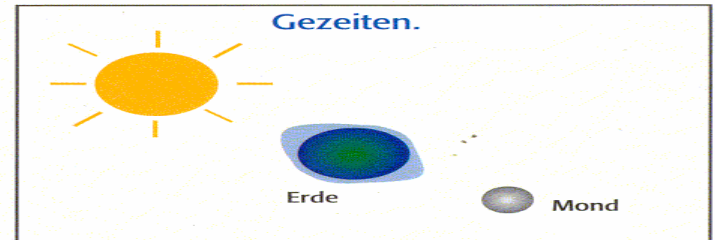
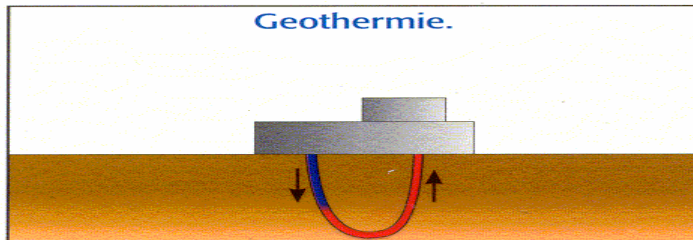
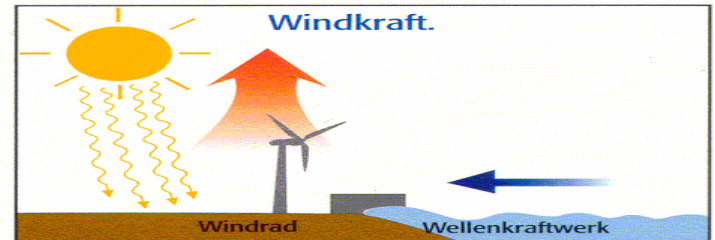
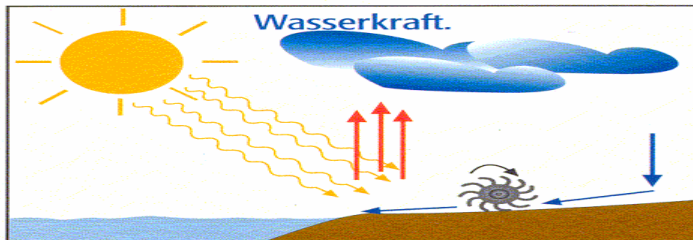
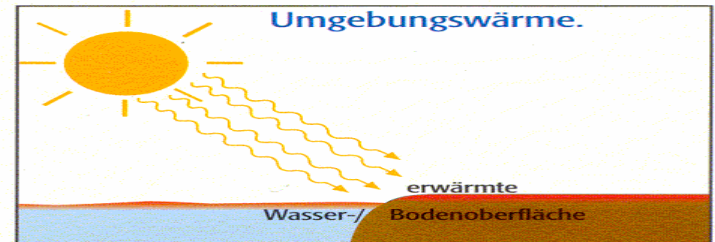
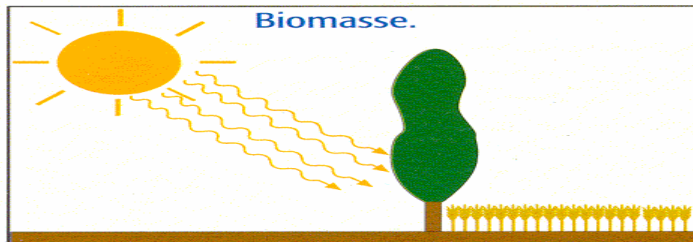
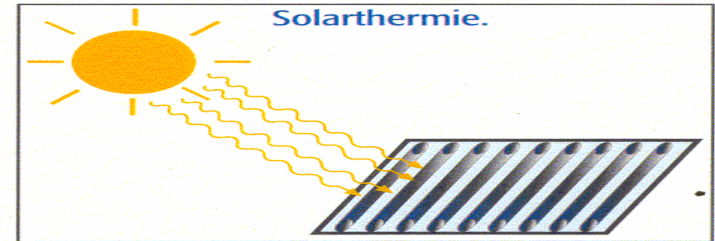
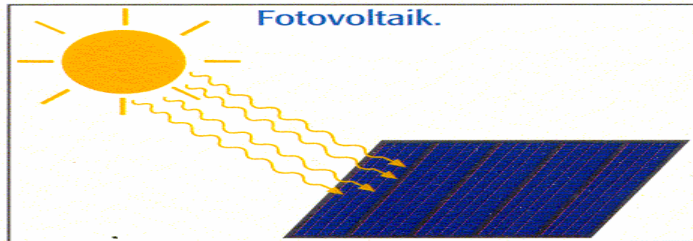
Source :BSW,EPIA,ISES

Photovoltaics – Germany, Japan and Australia

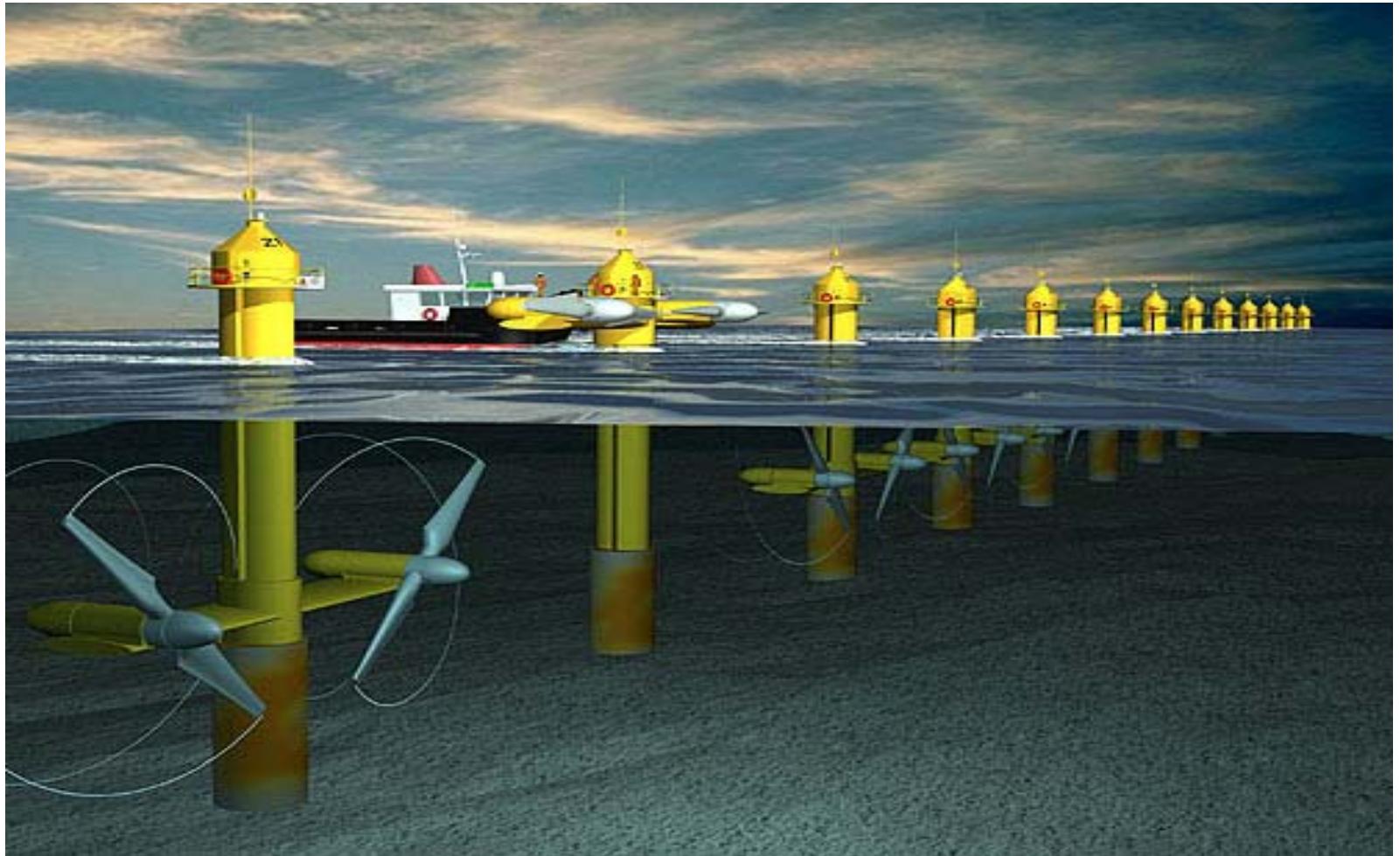


Tomorrow's energy production

Energien von morgen?



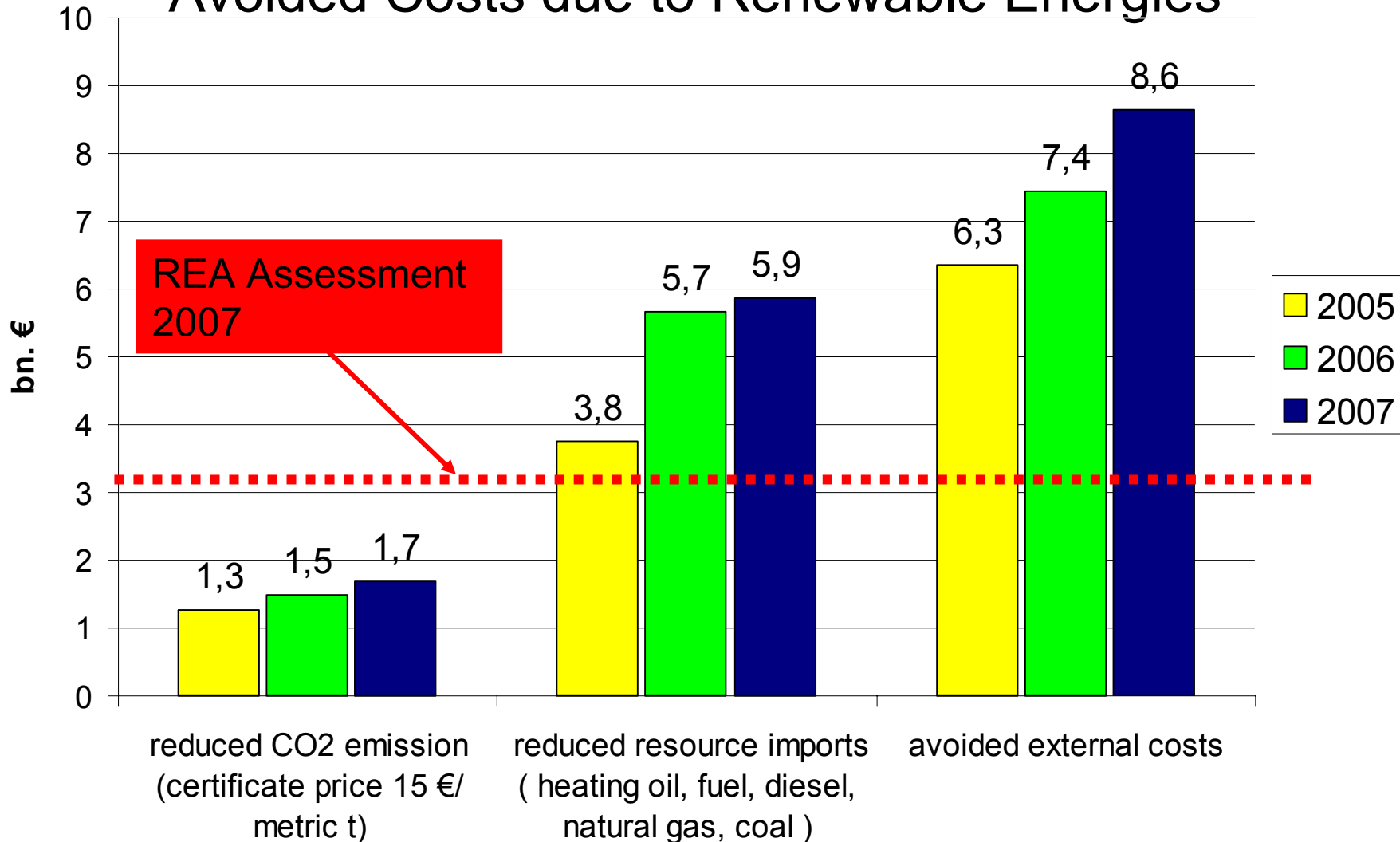
Sea current - Seaflow



Key components of a successful feed-in law

- Privileged grid access
 - Attractive feed-in tariff for each RE technology
(must be high enough for cost-effective RE power production)
 - Feed-in cost distributed via electricity price
 - No cap on total amount of generated RE power
 - Guaranteed feed-in period
- Also important: No obstacles through approval procedures in practice

Avoided Costs due to Renewable Energies



Green Group: key components of a successful RE Heating Law

- Obligatory RE percentage for new developments and existing buildings
 - Obligatory RE percentage continuously increasing
 - Inclusion of every RE type
 - Promotion of innovations through fund of compensation fees
-
- Not met by German Government Proposal
 - Almost met by EU Commission Directive Proposal

Solar Cooling

with Parabol Channel Collectors



Mixed Cropping

- Oil plants can be plant together with other field crops
- Particularly suitable oil plant: Gold of pleasure
- The gained vegetable oil is more than suffice for the sowing
- Mixed cropping leads into ecological cropping with significant higher total returns

Field with Barley, Gold of Pleasure, Pea



Sustainable Biomass



Good practice: Agroforestry in Southern Ruanda – food, fibre and fuel from integrated systems

Bioplastics



Nestlé s Schokoladentray aus Stärke



Produkte bei WalMart, USA



Aldi testet

Edeka startet



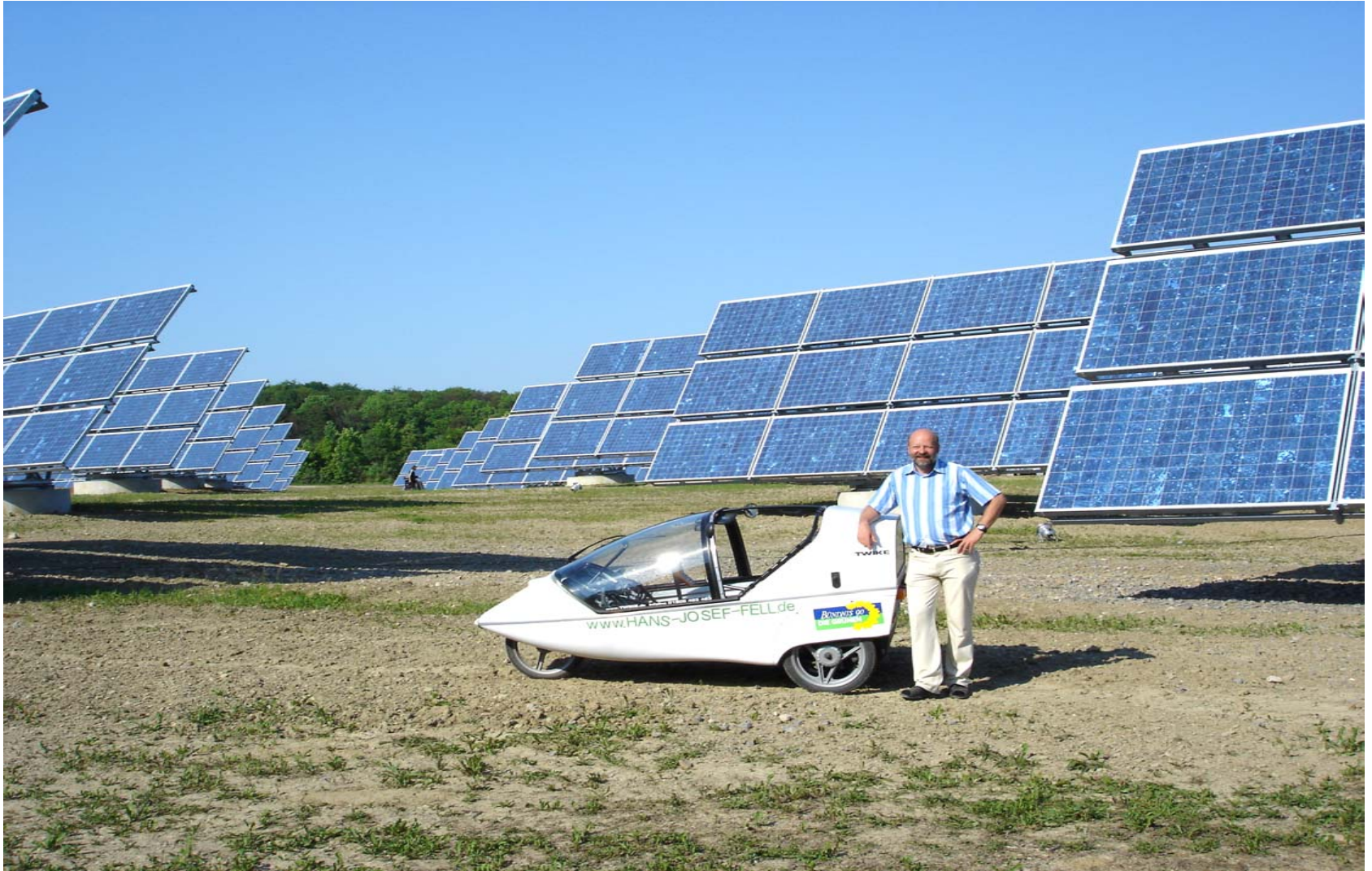
Die neue deutsche VerpackV wirkt bereits positiv! (Befreiung von §6)

Quelle: european bioplastics



In Frankreich müssen ab 2010 alle Tragetaschen biologisch abbaubar sein (Gesetz zur Förderung der französ. Landwirtschaft)

Solar Car (Twike) in front of Solar Park



SkySails

intelligent use of wind power



**Many thanks for your
Attention!**

<http://www.hans-josef-fell.de>