

*100% Renewables
Replace Fossil and Nuclear
Energys*

Prague, 24 June 2011

Hans-Josef Fell
Member of the German
Parliament

Fukushima March 2011



Source: Flickr/Oldmaison

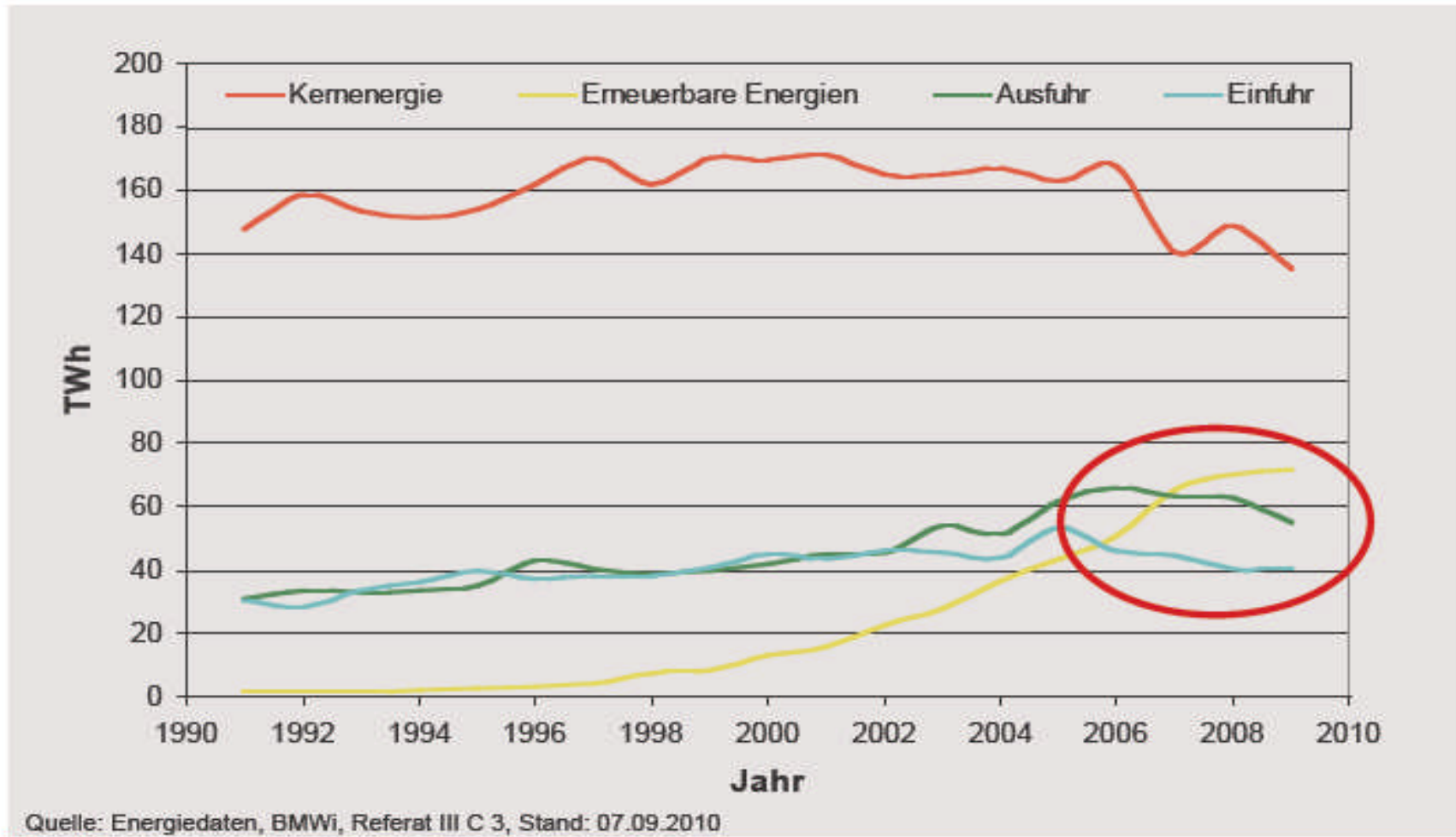
Hans-Josef Fell
www.hans-josef-fell.de

Pripjat Towncenter

April 2006: 20 years after Tchernobyl nuclear accident

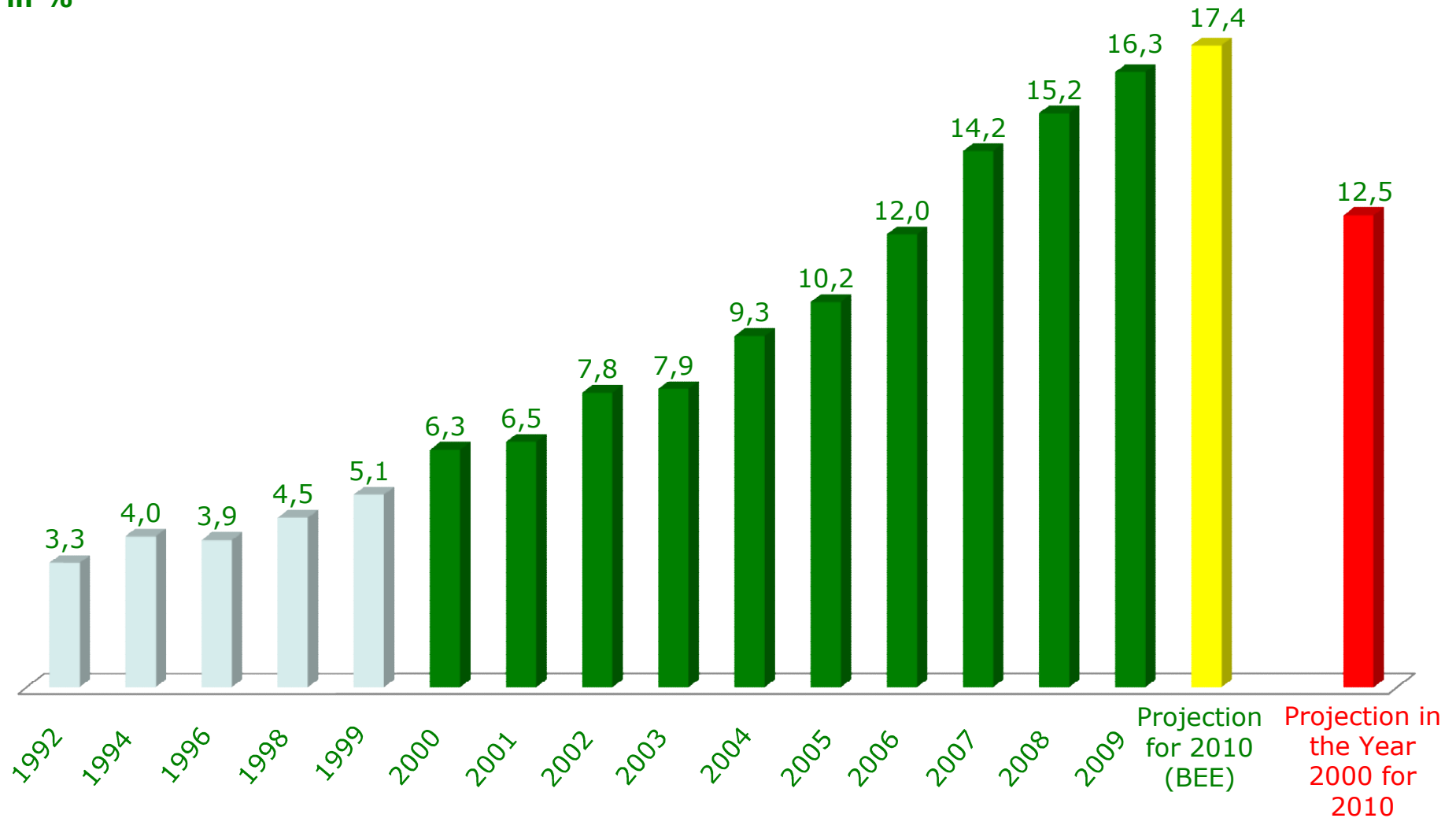


Gross Power Generation in Germany



Share of the Renewables in the gross electricity consumption in Germany

in %

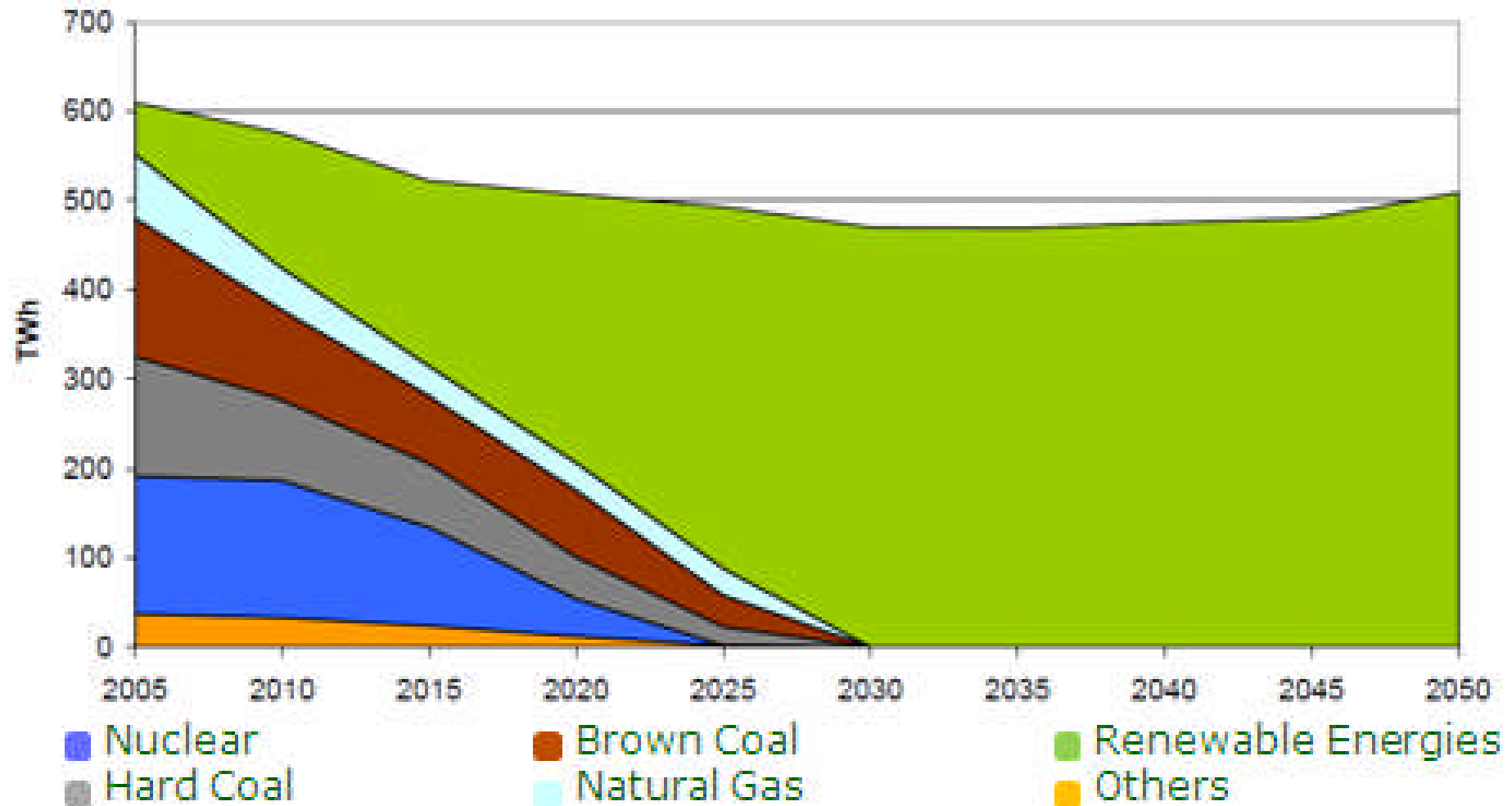


Source: BMU, BEE, bdew

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100% Electricity from Renewable Energies

- Resolution by the Green Parliamentarian Group in the Bundestag -

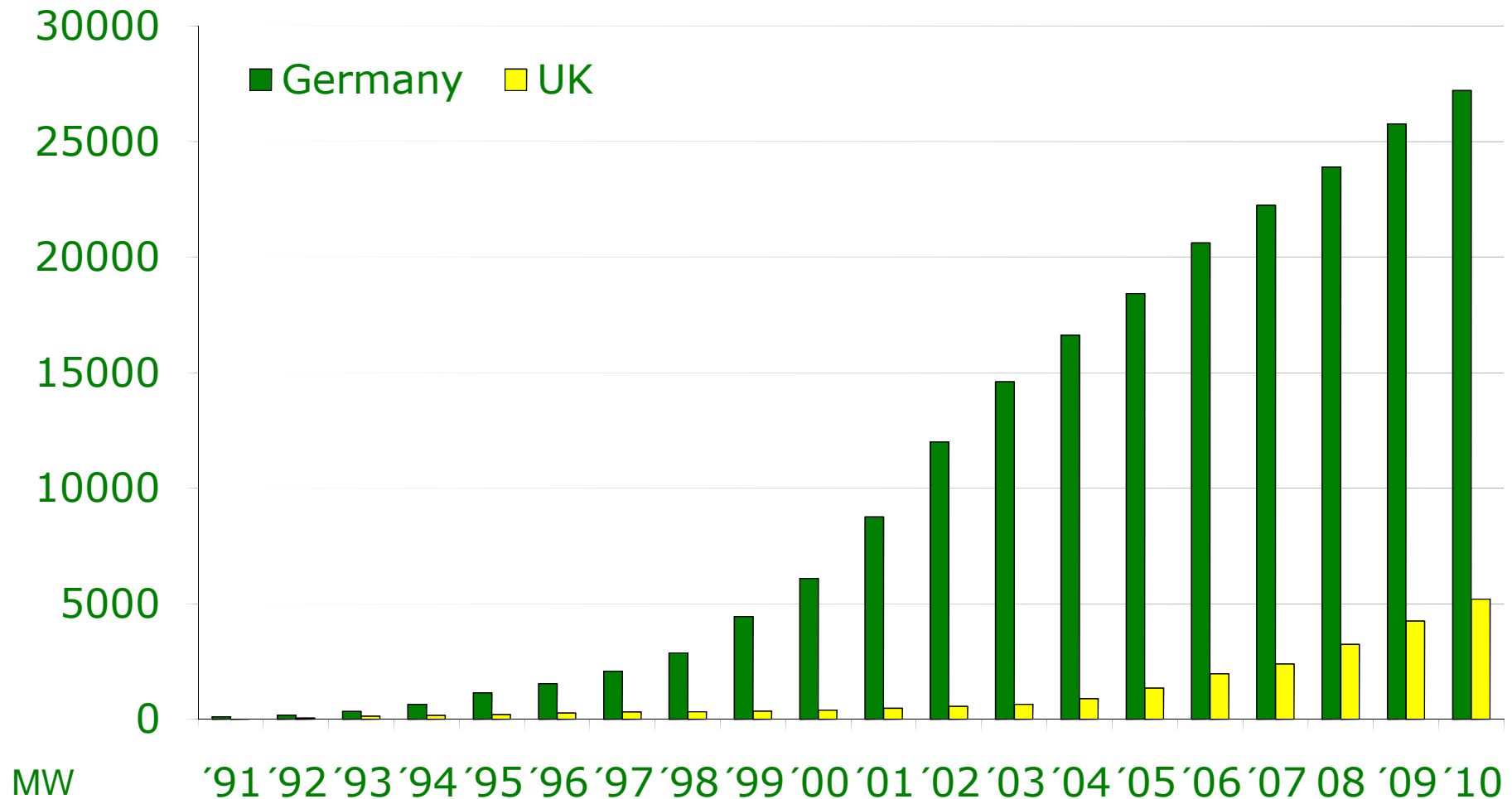


Source: Green Energy Concept 2010

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Windpower – Increase & Costs

Costs for wind energy:
~7 Cent/kWh in Germany
~13 Cent/kWh in UK



Key Points of an effective Renewable Energy Sources Act

- Privileged grid access
- Feed-in tariff have to be sufficient for an economic operation
- Funding of the feed-in tariff via electricity rate
- No cap for feed-in of Renewable Energies
- Garanteed peroid of remuneration

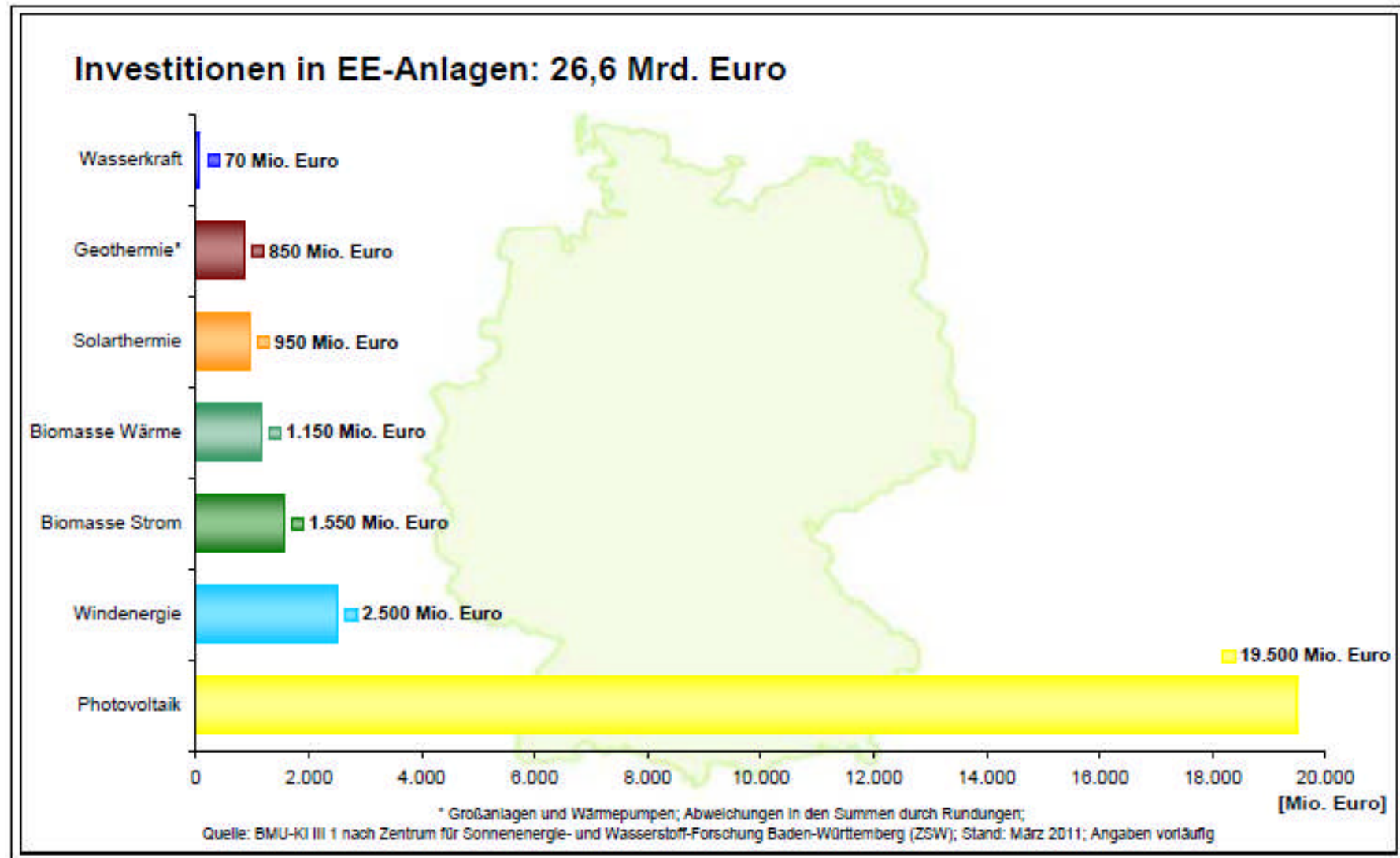
- Furthermore: no obstructions by a restrictive permission policy

Wrong Arguments often used against Renewables (REN)

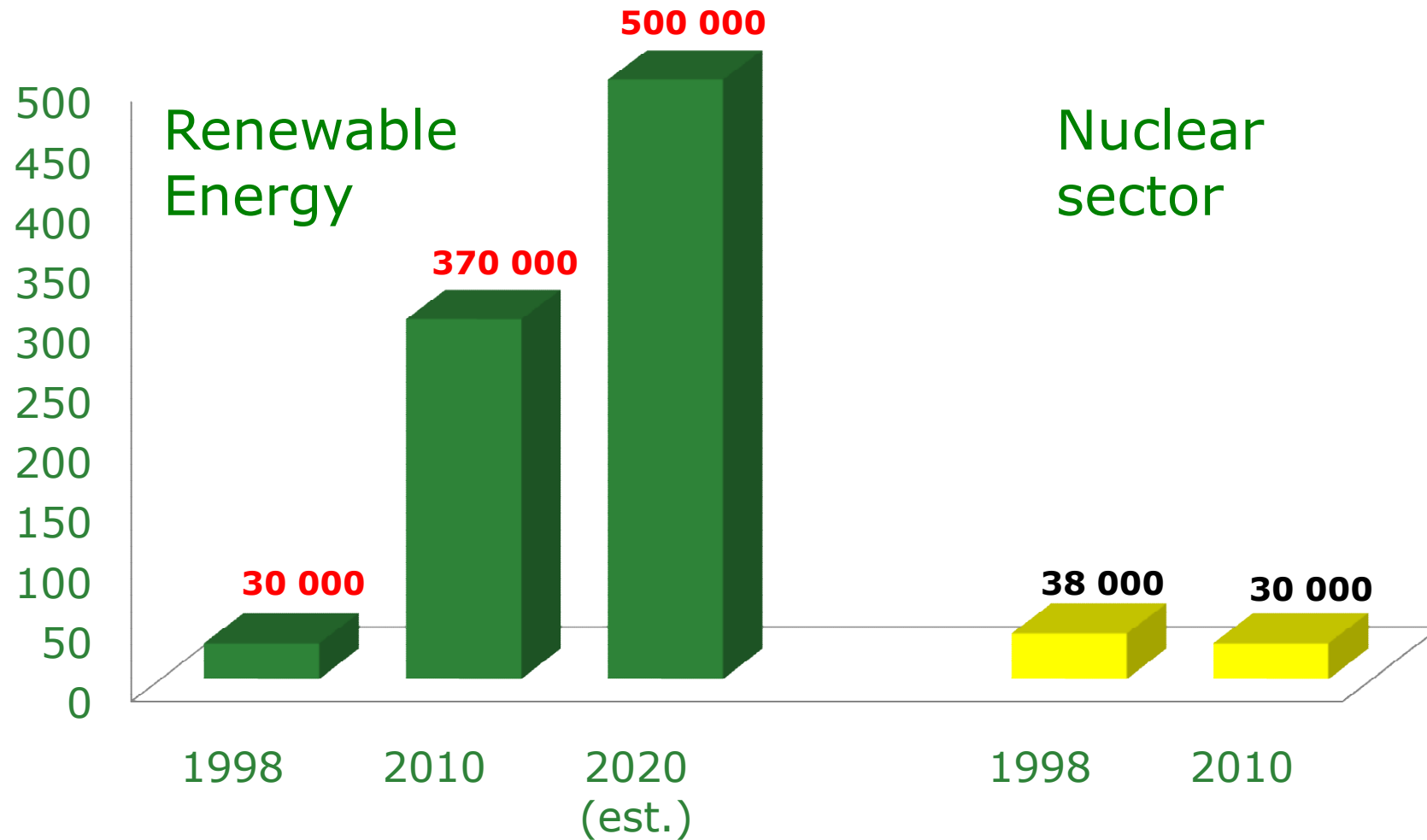
- REN are too expensive
- REN are a burden for the electricity price
- REN are a burden for economy
- REN cannot grow fast enough to replace nuclear and coal
- REN need base load compensation to equalise fluctuation of wind and sun

All arguments can be easily proven wrong!

Investment in Renewables in Germany in 2010



Renewable Energy as a Job Engine in Germany

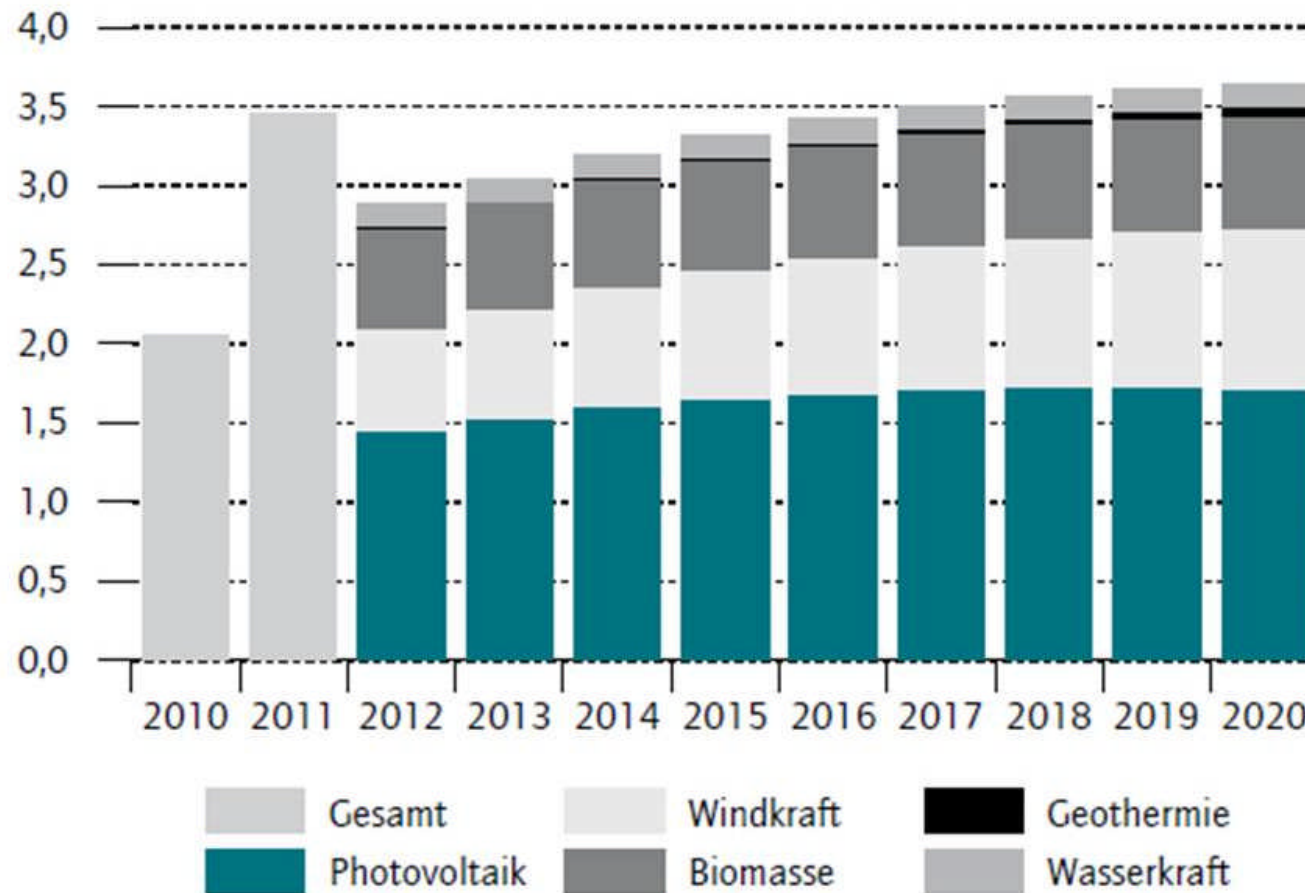


Source: BEE /BMU 2011

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EEG-additional costs 2010 and 2011 Estimation 2012 until 2020

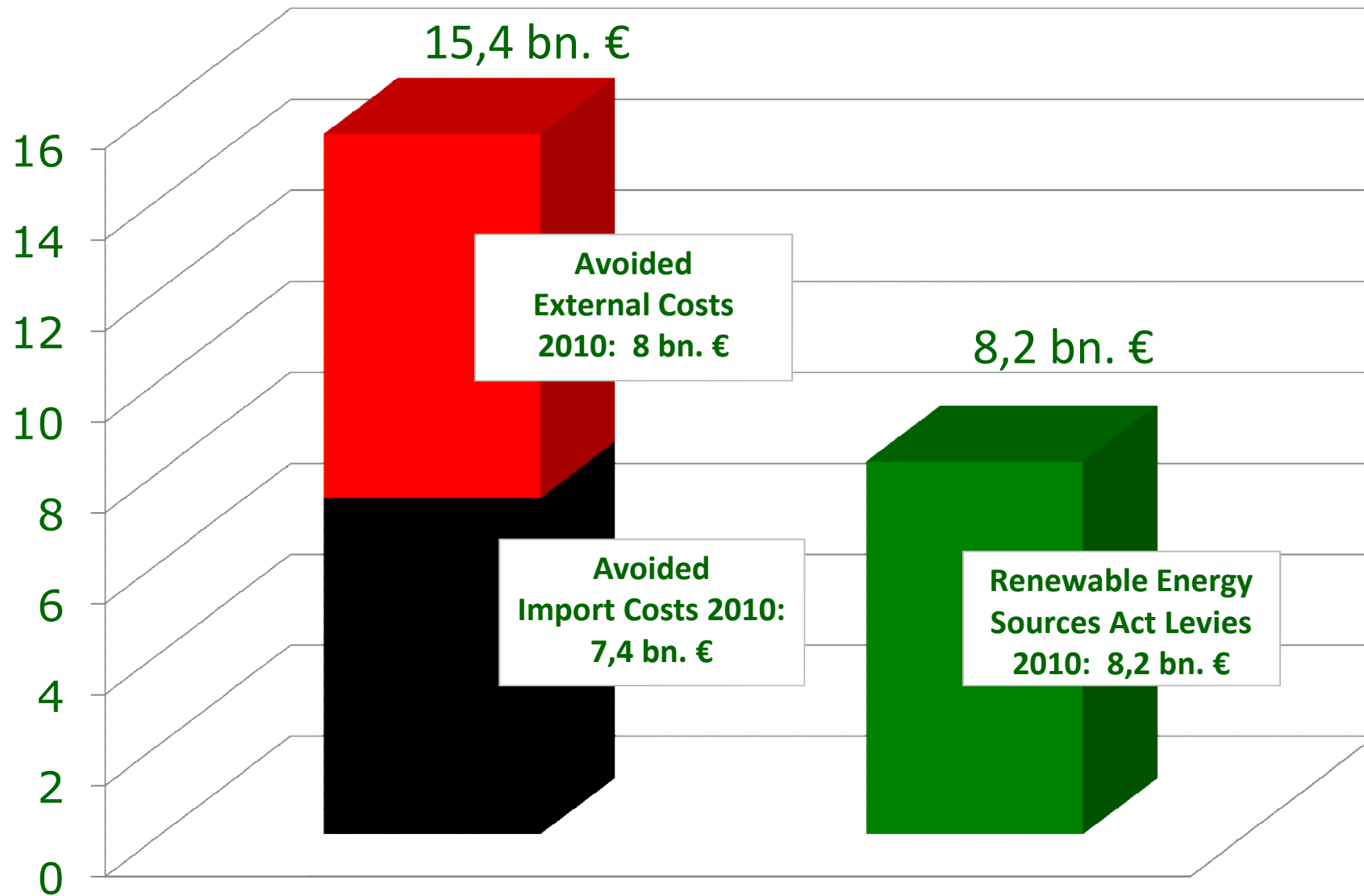
In Cent pro kWh (inflationsbereinigt, Basis 2010)



Source: DIW Berlin, Übertragungsnetzbetreiber

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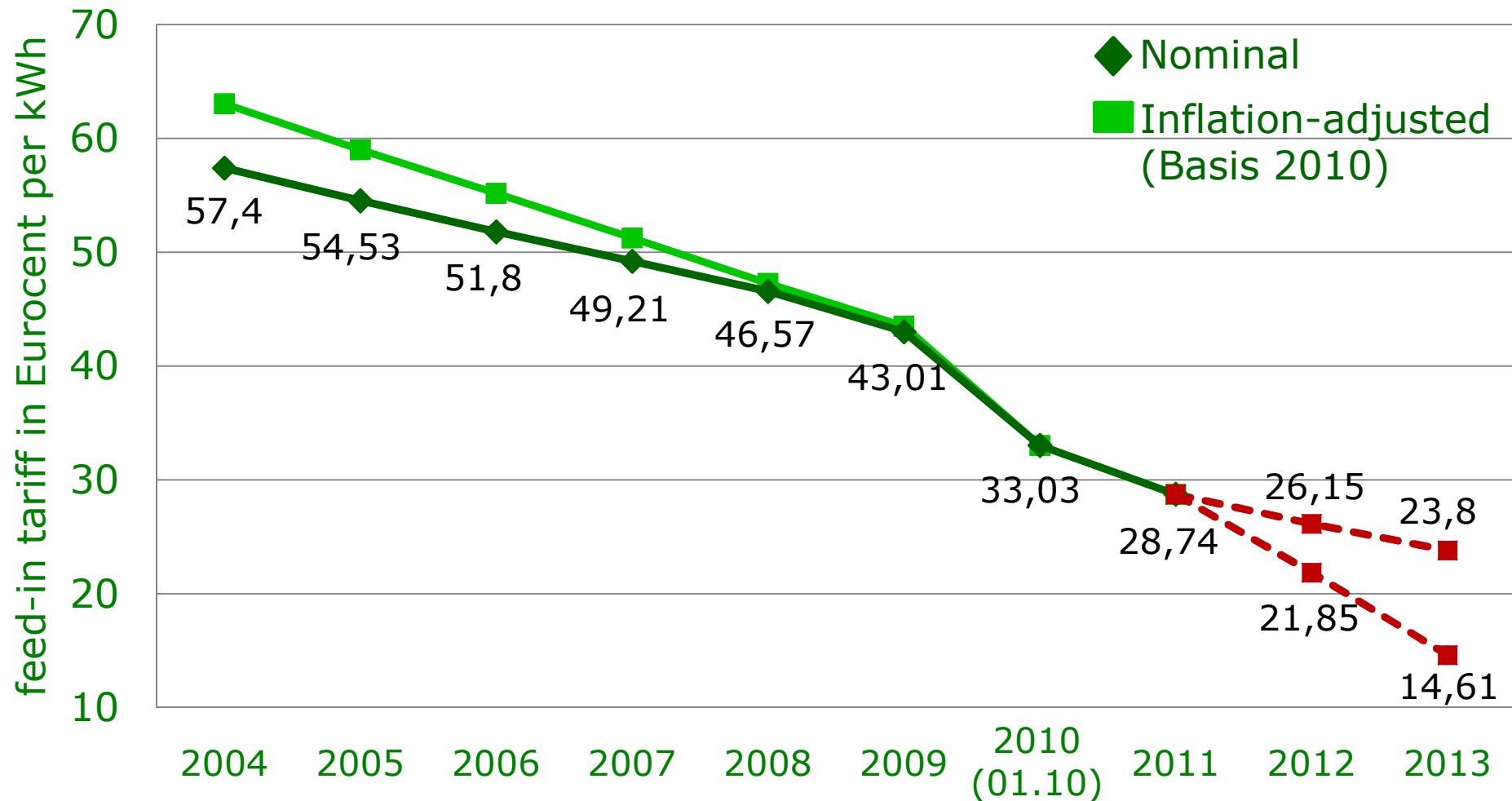
Avoided Costs by Renewable Energies



Source: BEE

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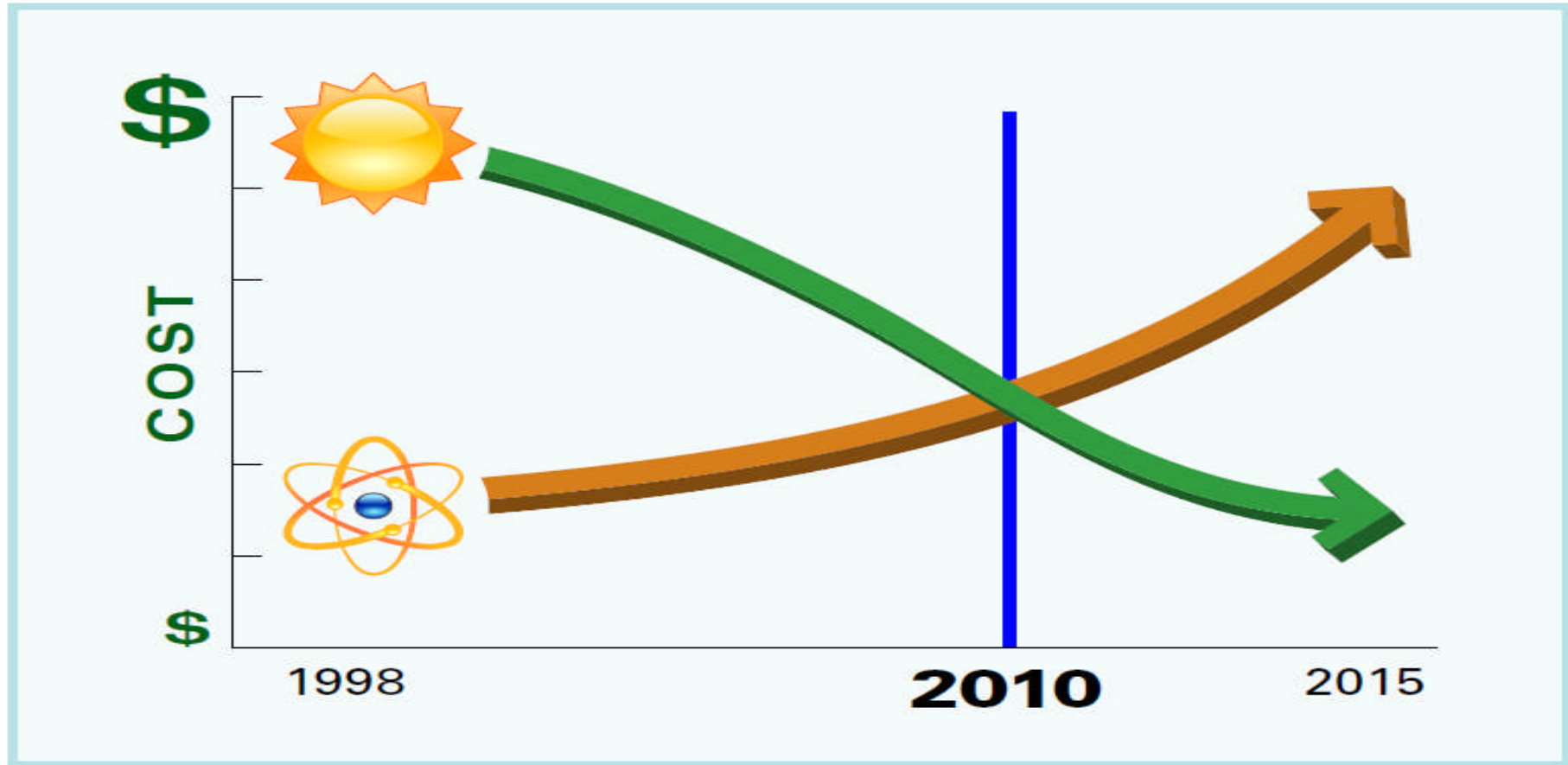
Development of feed-in tariff for photovoltaic systems (up to 30 kW)



Sources: BSW, DESTATIS

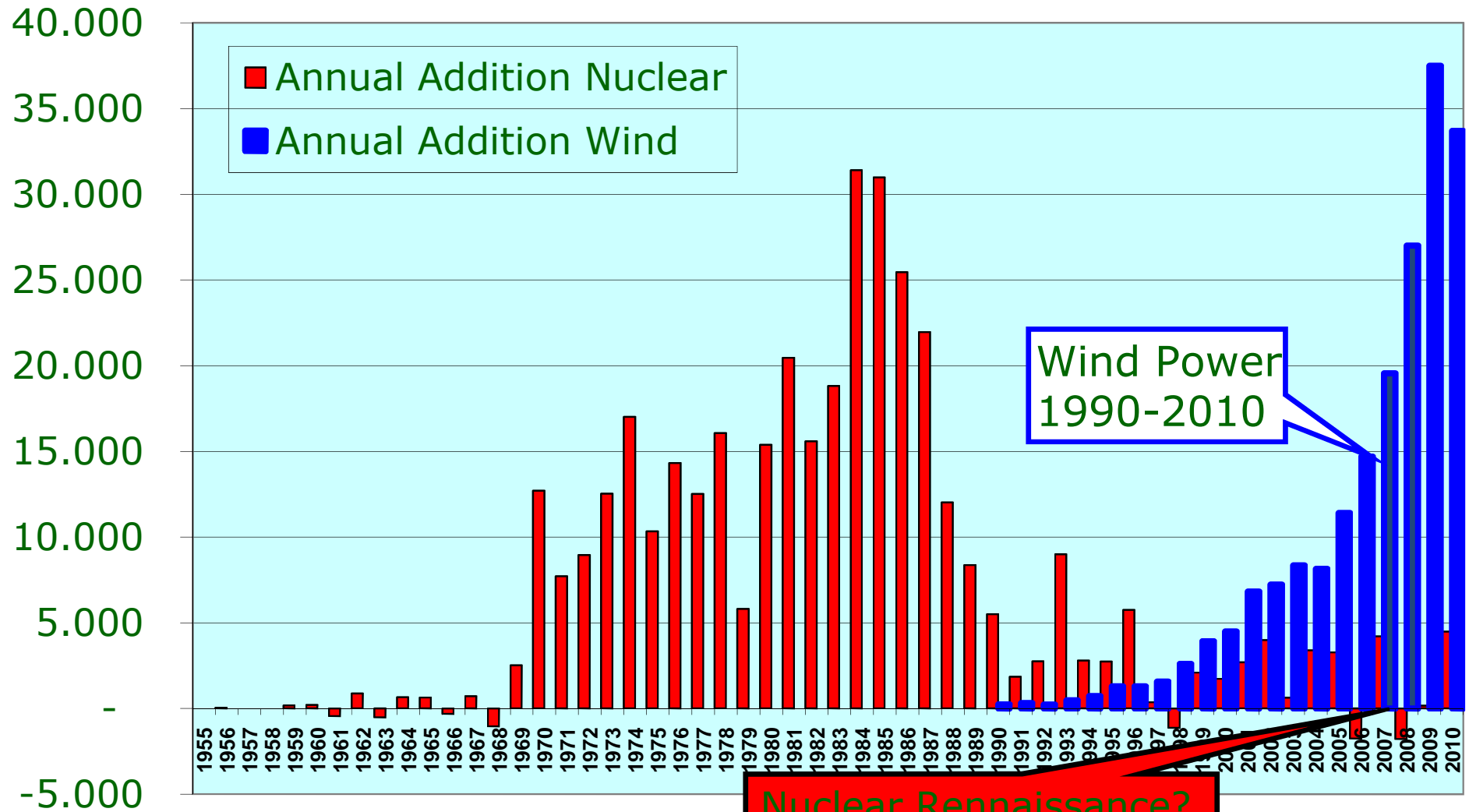
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Solar and Nuclear Costs - The Historic Crossover



Solar Energy is Now the Better Buy

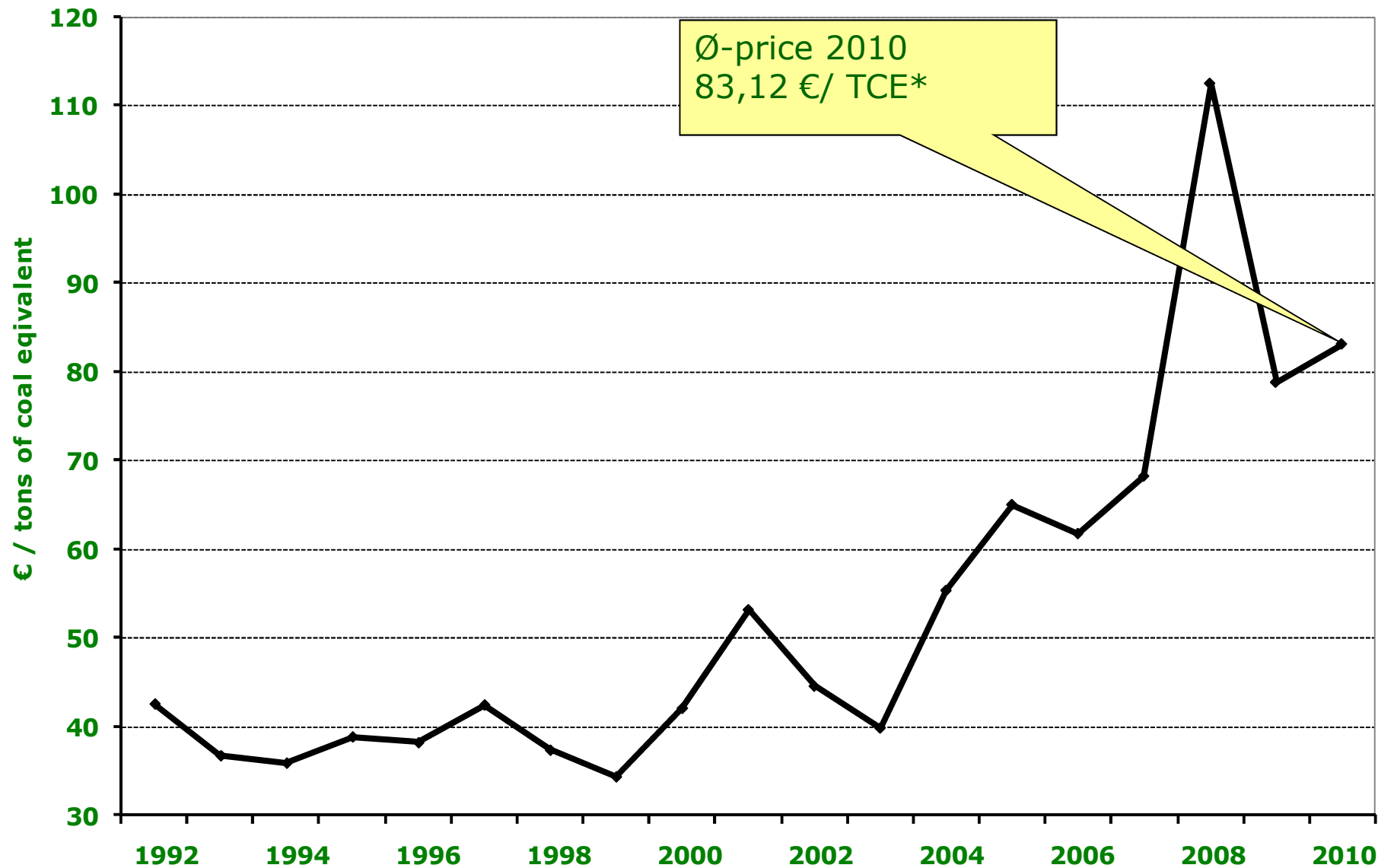
Annual Additions of Nuclear and Wind Capacities in Megawatts



Source: Rechsteiner, IAEA

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Price Development for imported Hard Coal

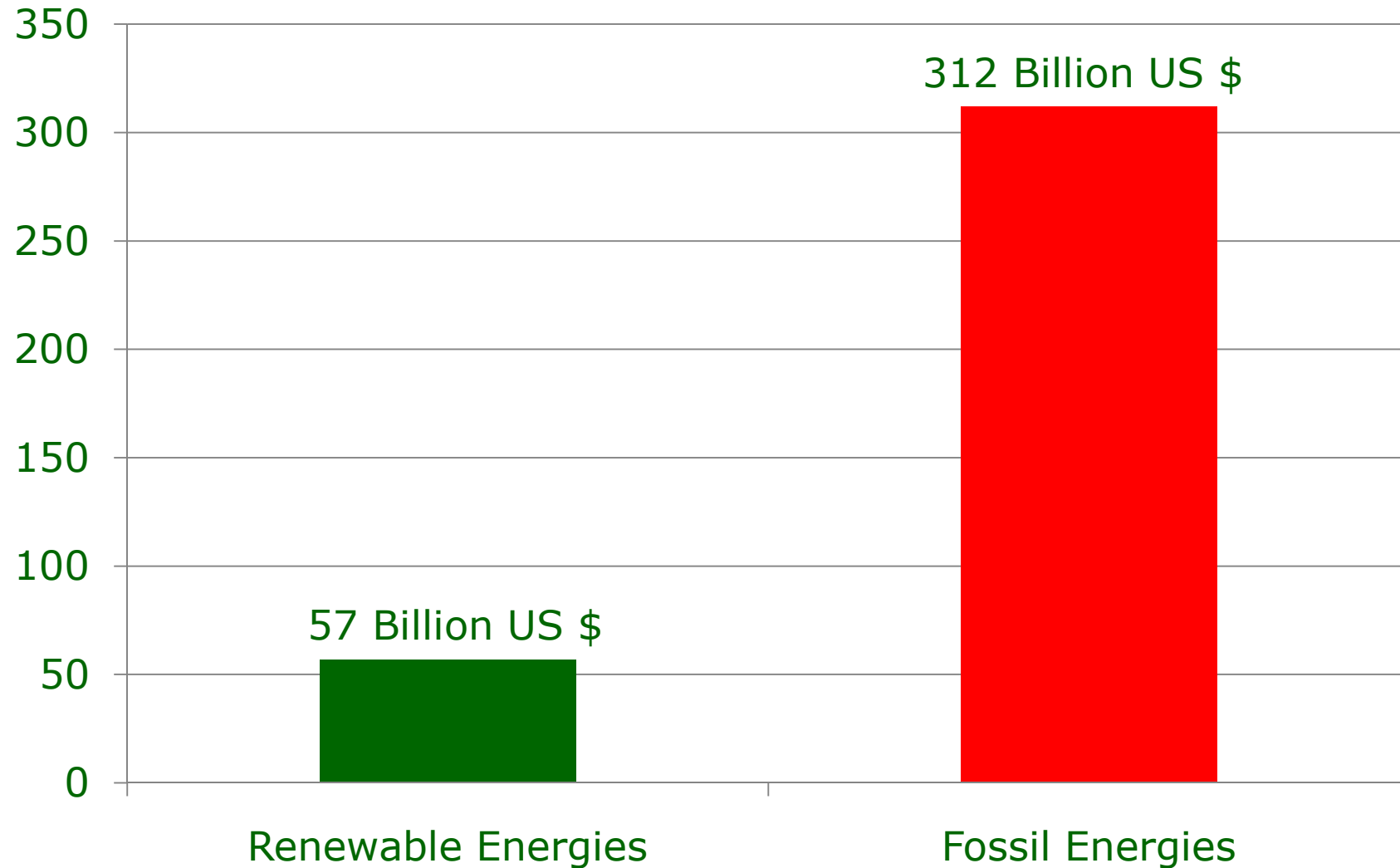


Source: <http://www.bafa.de/bafa/de/energie/steinkohle/statistiken/index.html>

* 1st-3rd Quarter 2010

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Global Fossil and Renewable Subsidies 2009



Source: OECD/IEA/bearb. VDI nachrichten 45/10

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Study on Peak Oil by the German Military




Streitkräfte, Fähigkeiten und Technologien im 21. Jahrhundert
- Umweltdimensionen von Sicherheit -

Teilstudie 1:

PEAK OIL

**Sicherheitspolitische Implikationen
knapper Ressourcen**



Zentrum für Transformation der Bundeswehr
Dezernat Zukunftsanalyse
Prötzeler Chaussee 25
15344 Strausberg
Juli 2010

www.zentrum-transformation.bundeswehr.de
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“The occurrence of Peak Oil is (...) inevitable.”

“This sub study illustrates the serious risk that a global phase of transformation, caused by a persistent scarcity of resources, will not be resolved without tensions in security policy.”

A Path to Sustainable Energy by 2030



'Wind, water and solar technologies can provide 100 percent of the world's energy, eliminating all fossil fuels.'

(Mark Z. Jacobson & Mark A. Delucchi)

Costs of Renewable Energy vs. Cost of Continued Use of Fossil Fuels

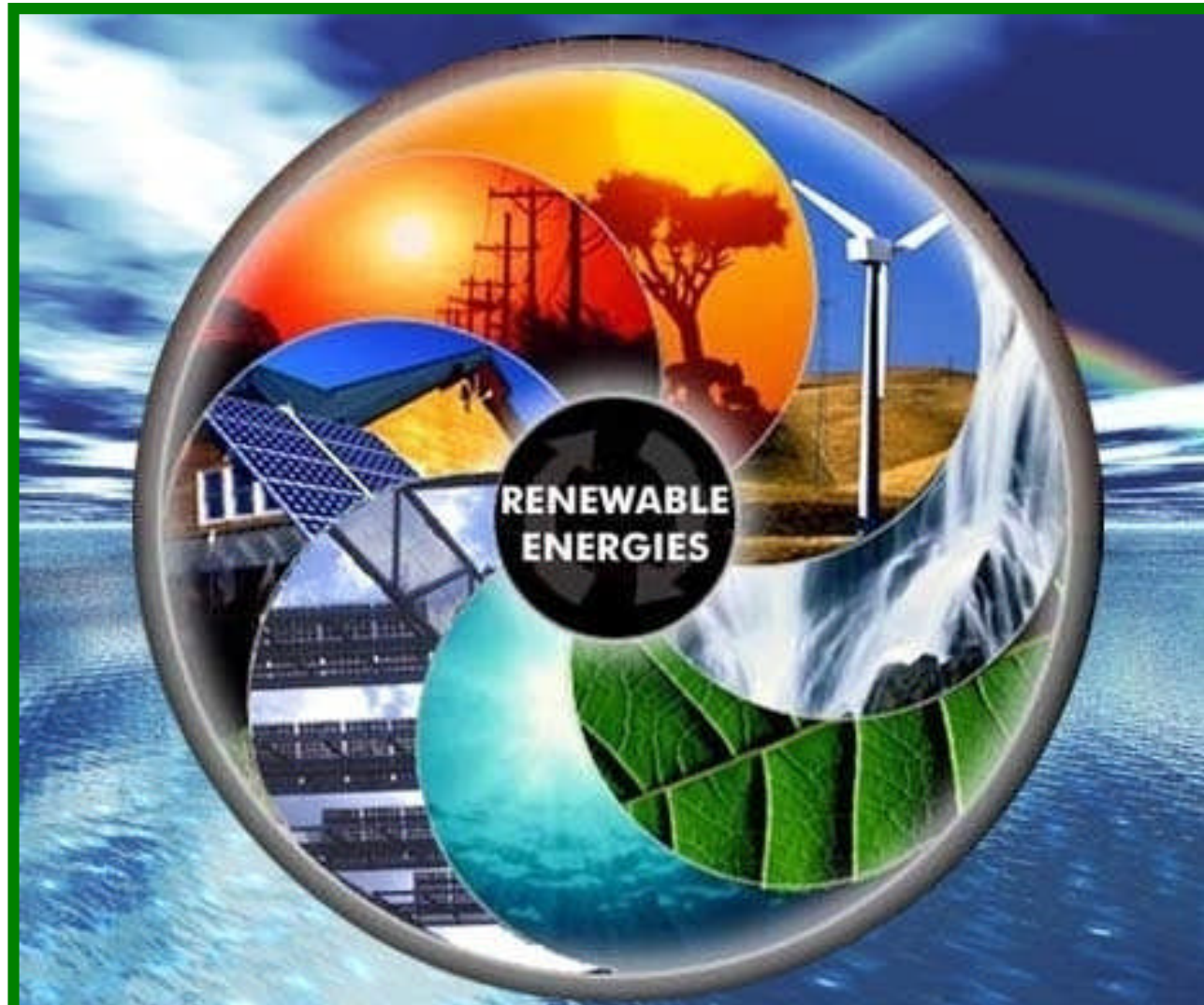
Estimated costs fossil, nuclear energies (US \$)	
Petroleum	3350-4475 Bil.
Natural Gas	550-830 Bil.
Coal	150-300 Bil.
Electricity	1490-2150 Bil.
Sum per year (without external costs!)	5000-7750 Bil.
Sum 2010-2030 (+ 20% rise)	200 000 Bil.
Sum to replace world's energy with 100 % renewable energies by 2030	100 000 Bil.

Sources:

Mark Z. Jacobson/ Mark DeLucchi 2009, A plan for a sustainable future, in: Scientific American Nov. 2009
 Dr. Werner Zittel 2010, Worldwide Estimated Yearly Energy Costs (EWG 2010)

Hans-Josef Fell
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Tomorrow's Energy Production



Thank you very much
for your Attention!

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