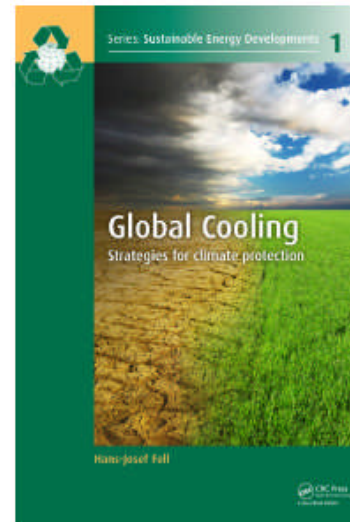


Book Presentation GLOBAL COOLING



**SUSTAINABLE ENERGY
BOOK SERIES**

Series editor: Jochen
Bundschuh

VOLUME 1

**Global Cooling:
Strategies for
Climate Protection**

Hans-Josef Fell

*Member of the German
Parliament, Berlin, Germany*

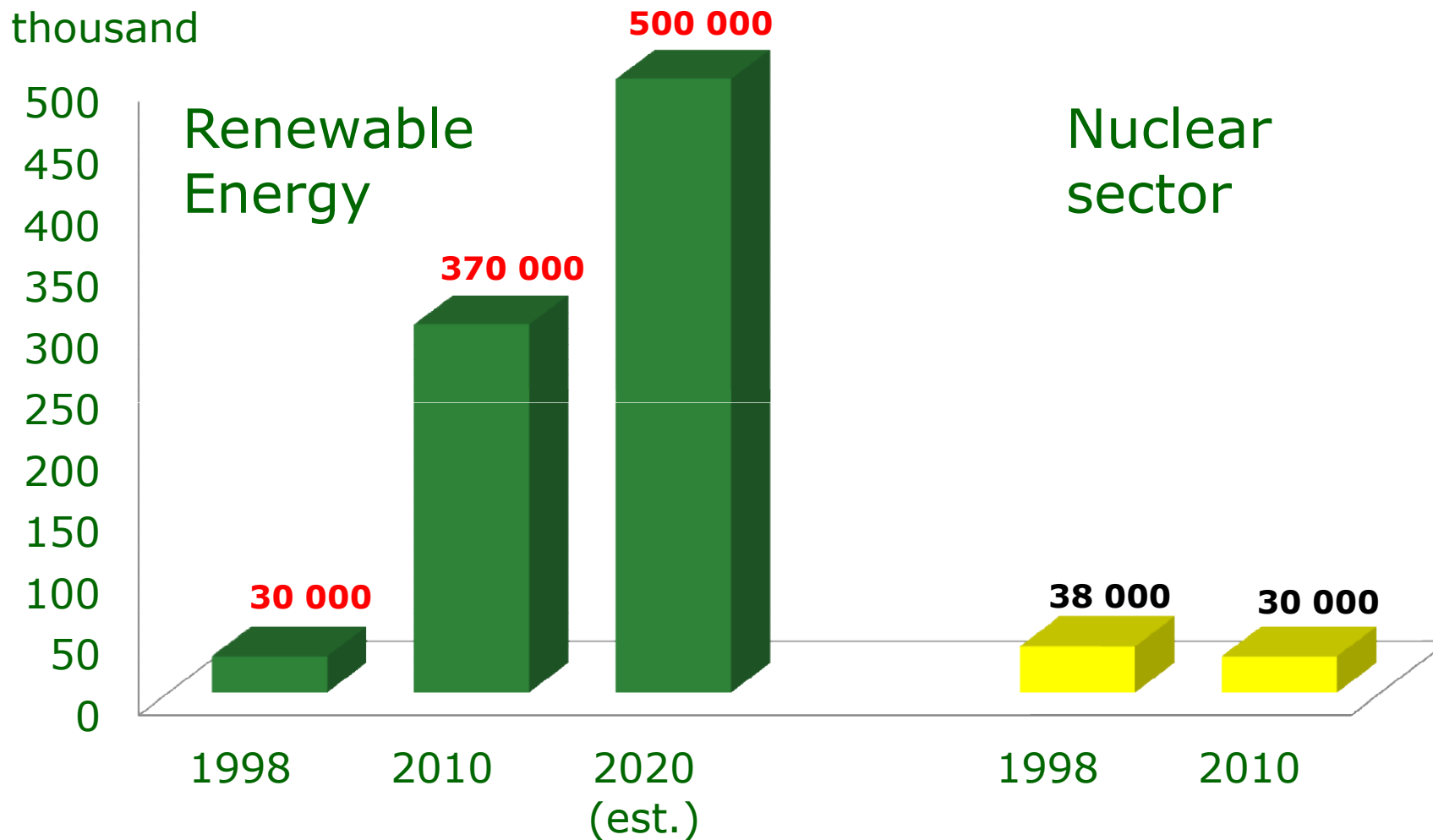
San Francisco 7/10/2012
Hans-Josef Fell
Member of the
German Bundestag

Chapter 1: Introduction

Climate protection success stories

- Renewables:
 - stimulus package without public borrowing
 - no burden for economy; job miracle
 - fast growing; replacing fossil & nuclear
- Green Chemistry
- Organic farming
- Poverty reduction

Renewable Energy as a Job Engine in Germany



Source: BEE /BMU 2011

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

Chapter 2:

The crisis of the fossil-atomic age

- Climate warming, biodiversity losses
- peak oil, energy security
- nuclear and environmental disasters
- oil wars, poverty, economic crises

All these challenges are caused by fossil and nuclear energies, by oil based chemistry, transport systems and intensive agriculture

climate protection strategies will solve these problems

Global Warming

Oftener and more powerful:
Aridity and Forest Fires; Floods and Storms



The Euro Crisis is an Oil Crisis

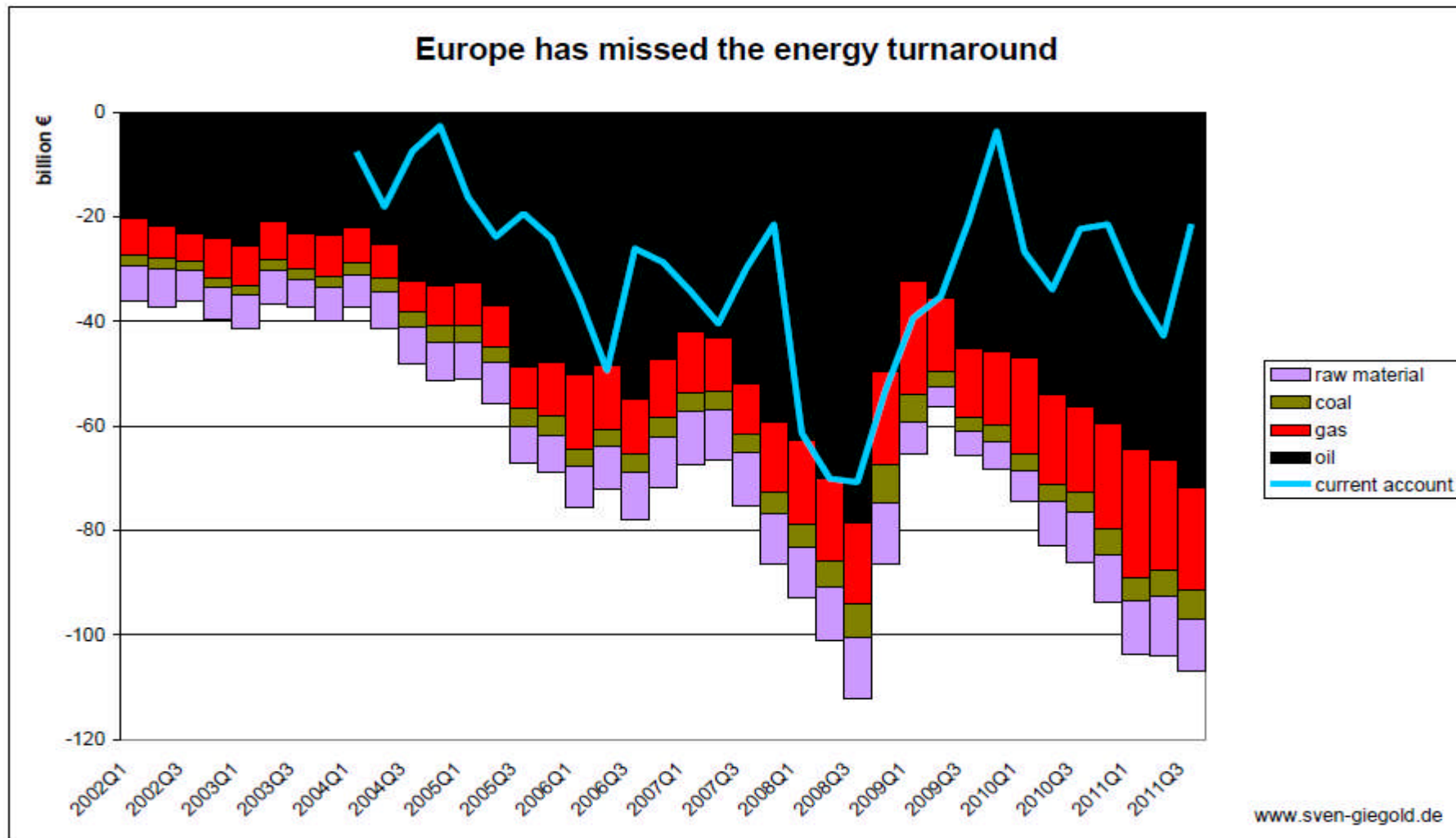


Fig. 1: EU-27: current account² and net imports on a quarterly basis in bn. Euros

Chapter 3:

Low carbon pseudo-solutions for climate protection

- Carbon capture and storage (CCS)
- Nuclear fission and nuclear fusion
- Industrial, intensive agriculture
- Transport systems with more efficient use of fossil fuels
- Geoengineering

Chapter 4: Cooling of the earth is possible in some decades

- first pillar:

zero emission

- 100% Renewables energies
- Green chemistry
- Energy conservation
- steel concrete replacing

- second pillar:

carbon removal from the atmosphere

- grassland, reforestation & organic farming
- Biochar, vegetable oil fuel

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.

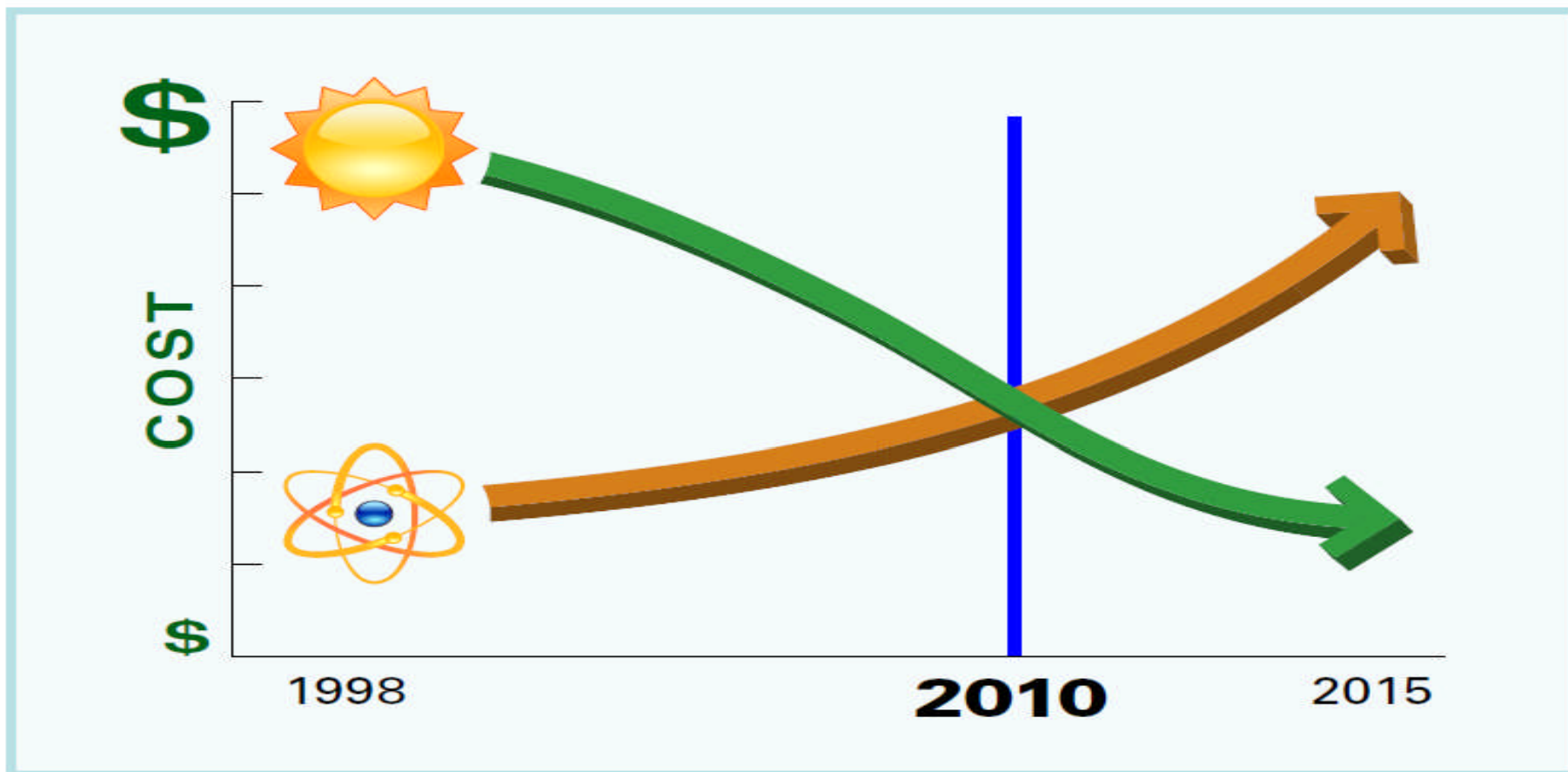
Sources:

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
www.hans-josef-fell.de

Solar vs. Nuclear

(A Study by Duke University)



Solar Energy is the better buy!

Hydrothermal carbonization (HTC)

Process:

- Input: plants (+ side products)
- Outcome: biochar (+ energy)

Usage of biochar:

- fuel
- chemical base
(oil substitute)
- CO₂-binding in soil



Carbon removal from the atmosphere with HTC

- 20 t biochar can be put into soil per hectare
- With an additional 100 t carbon due to the growing generativity of the soil (e.g. afforestation)
- Around 200 Gt CO₂ could be taken out of the atmosphere in the next 30 years

-> 330 ppm

- Needed: about 8 Mio. HTC-machines worldwide
- Overall costs: US \$ 1000 Bil.

Greening the Deserts



Source: Jatrosolutions

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Chapter 5: Climate Protection Policies

- Laws for feed-in-tariffs
- tax relief for renewables, carbon tax
- canceling subsidies for intensive agriculture, for fossil and nuclear energy and chemistry
- research and education offensive for renewables and organic farming
- reducing obstacles for approval
- dispose big areas for reforesting

not successful: Emission trading;

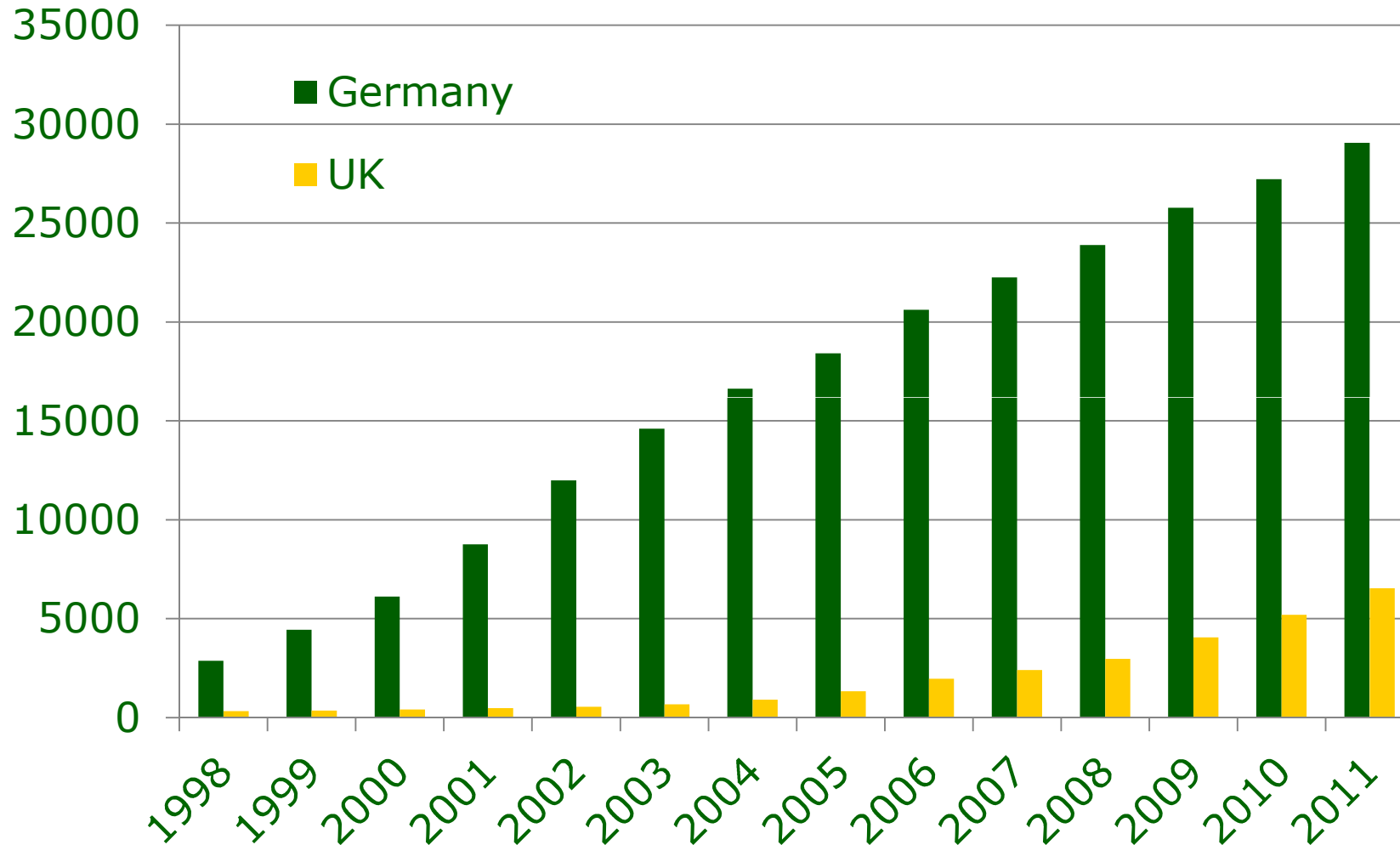
Quota and Certification Systems

(unable to promote fast climate protection)

Windpower – Increase & Costs

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

Capacity(MW)



Source: <http://www.ewea.org> & Hans-Josef Fell

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

Chapter 5: The key role of the financial sector

(political actor and financier)

- Make money with climate protection and not climate pollution
- Switch energy investment from fossil/nuclear to renewables
- Promote political strategies for climate protection
- Creation of FICC

(Finance Initiativ Climate Cooling)

*Thank You Very Much
for Your Attention!*

www.globalcooling-climateprotection.net

www.hans-josef-fell.de