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TACKLING GLOBAL WARMING AN OPPORTUNITY FOR EUROPE

Carlo Carraro
President, University of Venice

Brussels Economic Forum 2010
“Strategies for a Post-Crisis World: Enhancing European Growth”
May 25, 2010

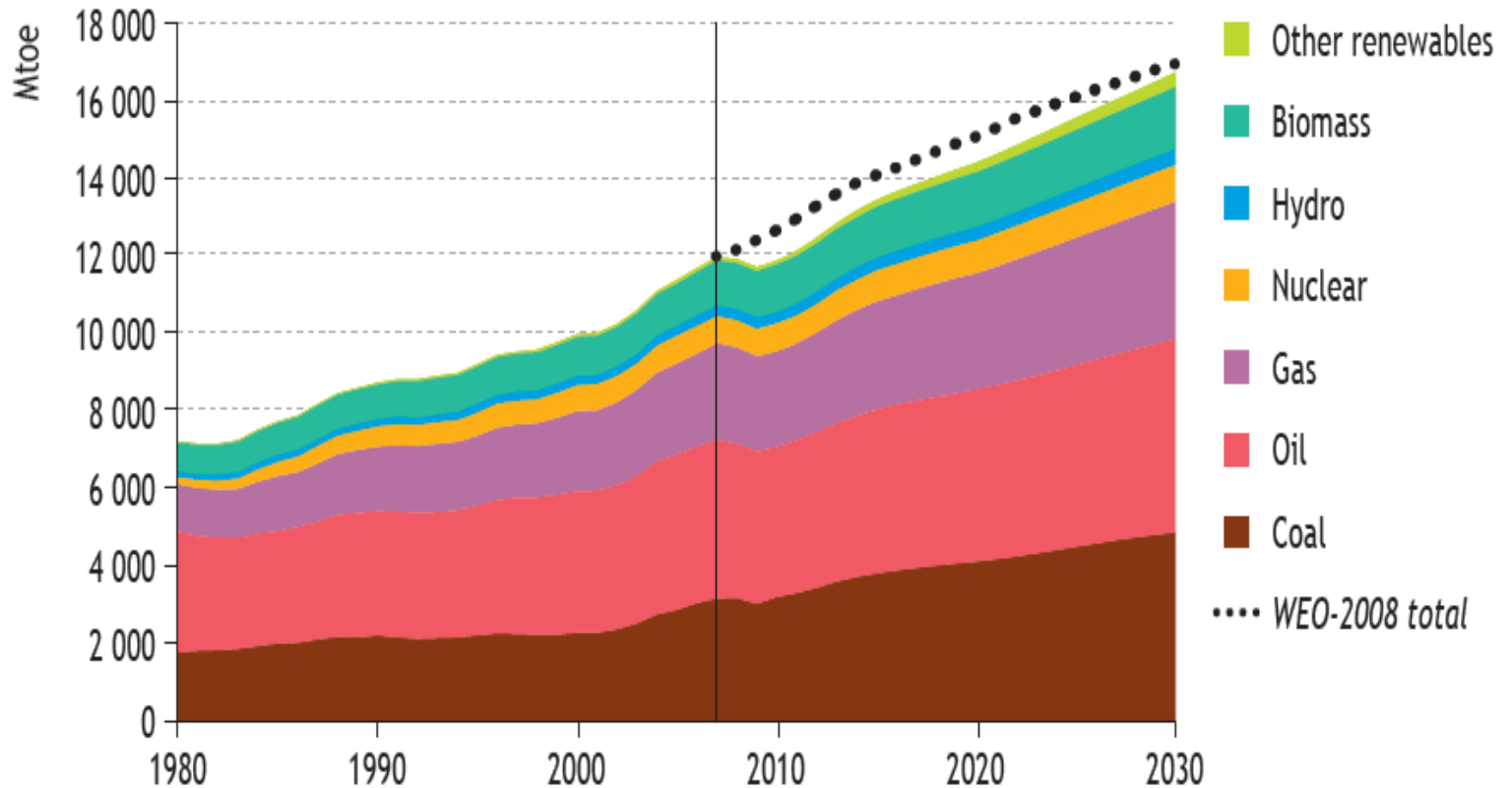


Future scenarios....

Three challenges for the world and Europe:

- More energy
 - A different energy
 - With a different geographical distribution
-
- ➔ Increase investments
 - ➔ Divert investments

Energy demand will increase worldwide ...

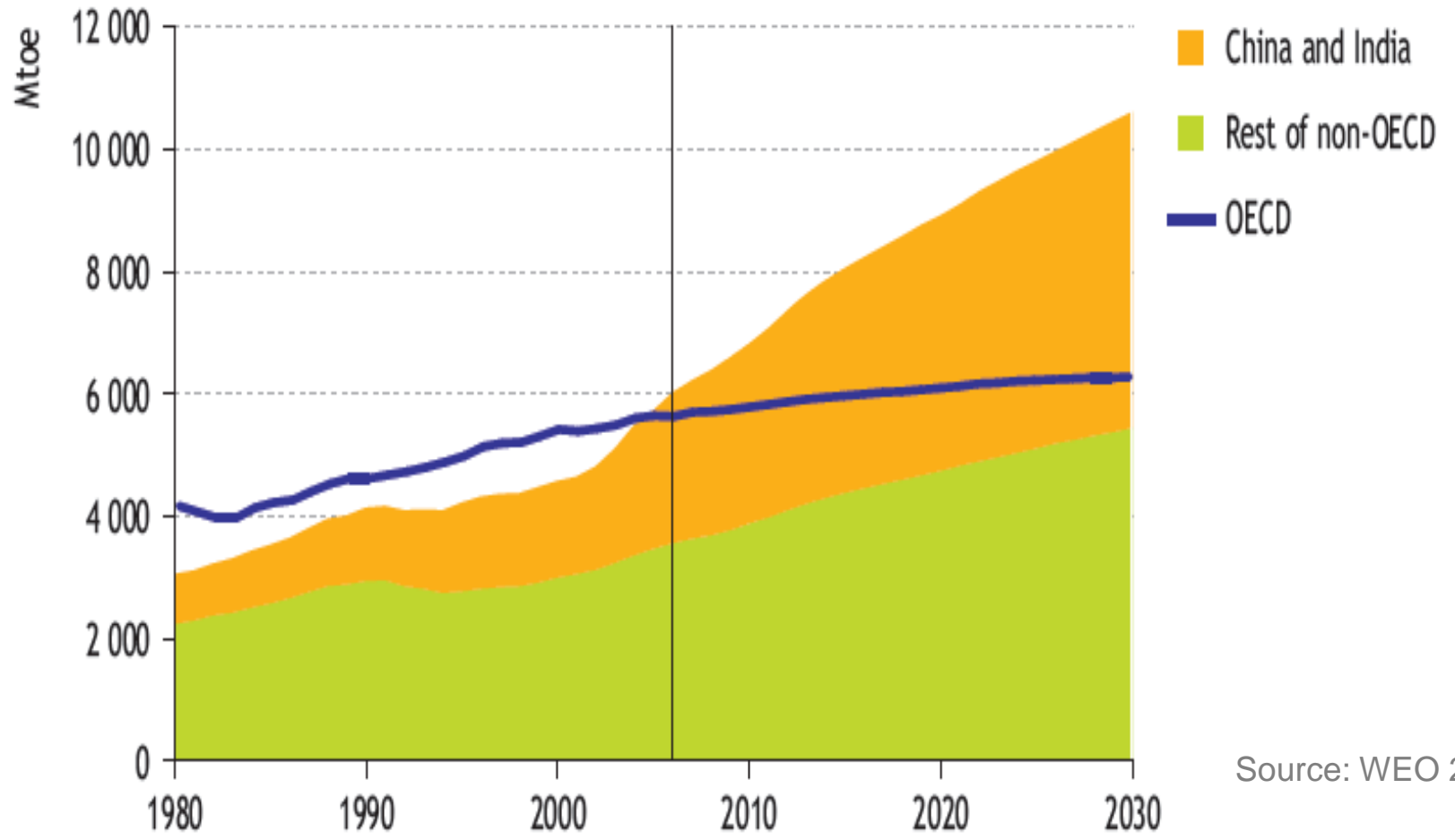


...strong pressure on energy supply

Increasing role of renewables ... but the energy mix will be dominated by fossil fuels if their environmental effects are not internalized by means of appropriate climate policies



Increase will be large, particularly in developing countries

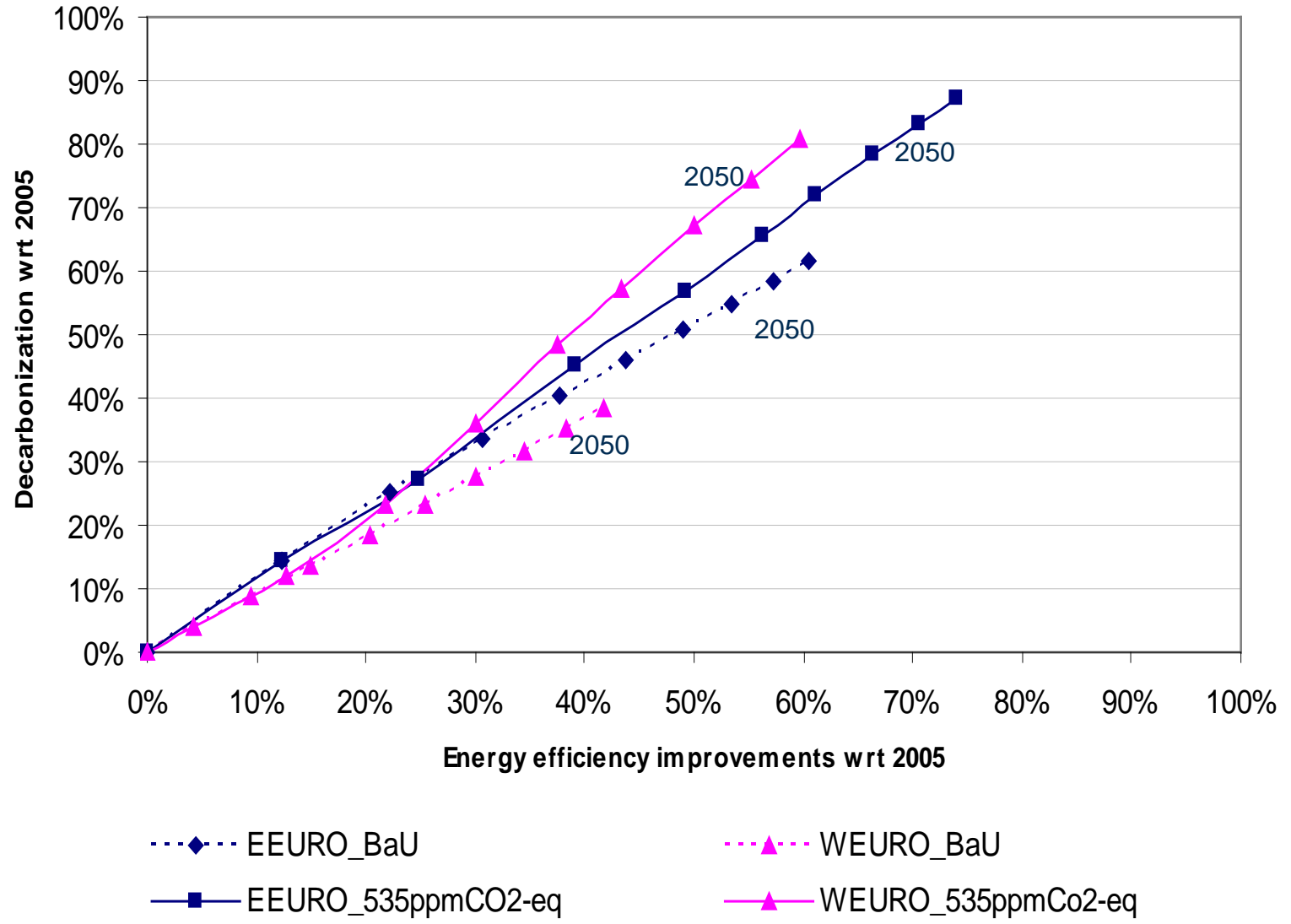


Source: WEO 2009I

Population growth, economic growth, but also equity

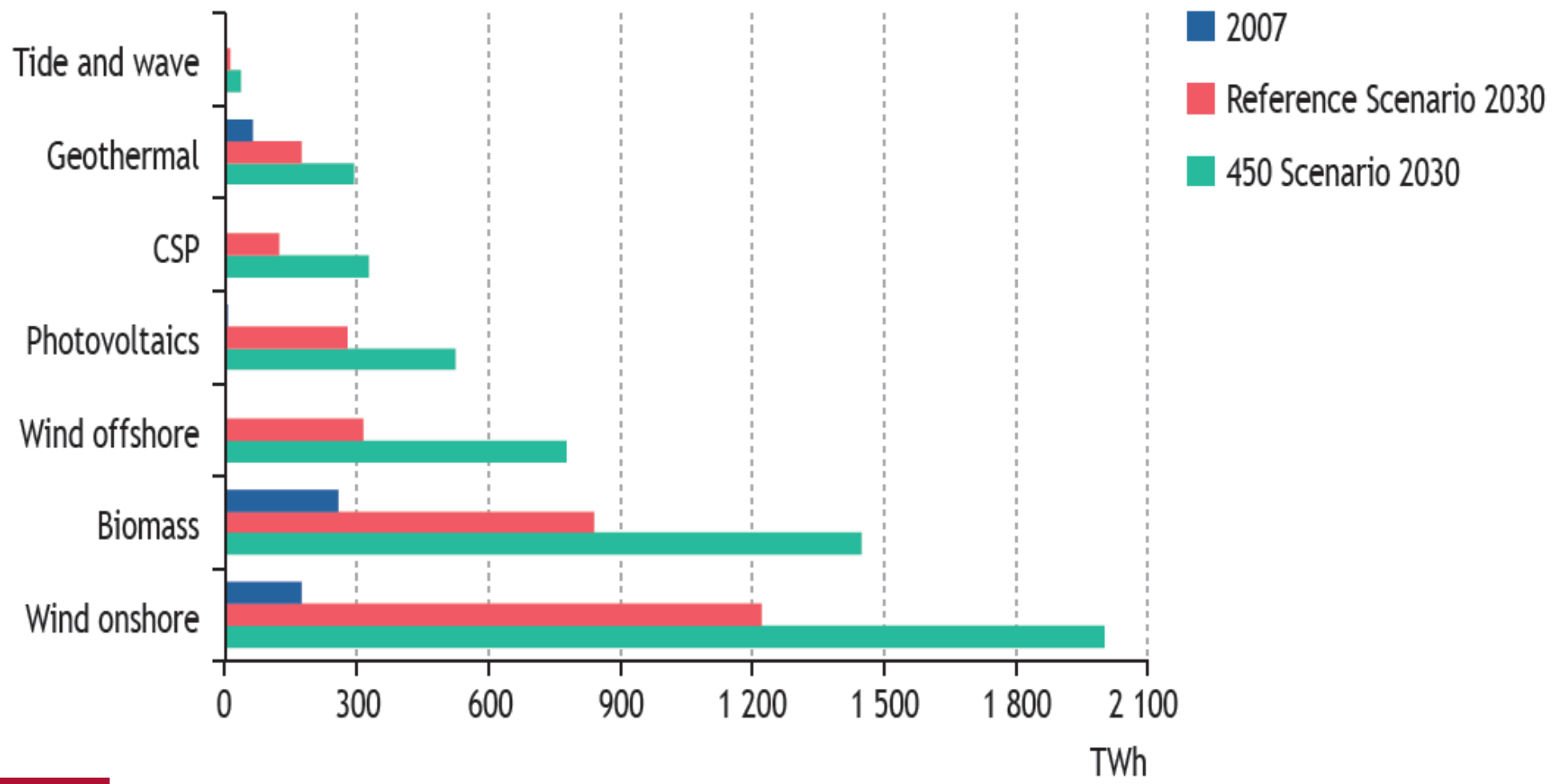


The Climate Challenge: Energy Efficiency and Decarbonisation





Electric power generation from renewables (non hydro)



Source WEO 2009



Investments in the energy sector to stabilize GHG concentrations at 450 CO₂ eq.

Level	additional annual investment needs in low-carbon technologies and energy efficiency relative to Reference Scenario to meet 450 Scenario in 2020	total investment in the 450 scenario in low-carbon power generation over 2010-2030	incremental investment cost in GDP terms
World	\$430 bln	almost \$ 6600 bln (72% renewable, 19% nuclear, 9% CCS)	2020: 0.5% of GDP 2030: 1.1% of GDP
OECD+	\$220 bln	almost \$ 3100 bln (65% renewable, 20% nuclear, 15% CCS)	2020: 0.4% of GDP 2030: 0.8% of GDP
US	\$ 90 bln	almost \$ 1100 bln (53% renewable, 27% CCS, 19% nuclear)	2020: 0.5% of GDP 2030: 1% of GDP
EU	\$ 70 bln	almost \$ 1300 bln (77% renewable, 7% CCS, 16% nuclear)	2020: 0.3% of GDP 2030: 0.6% of GDP
Japan	\$ 17 bln	almost \$ 200 bln (50% renewable, 4% CCS, 46% nuclear)	2020: 0.3% of GDP 2030: 0.6% of GDP
China	\$ 80 bln	almost \$ 1500 bln (73% renewable, 5% CCS, 22% nuclear)	2020: 0.8% of GDP 2030: 1.5% of GDP
India	\$ 25 bln	almost \$ 550 bln (83% renewable, 2% CCS, 16% nuclear)	2020: 0.9% of GDP 2030: 1.4% of GDP
Russia	\$ 8 bln	almost \$ 220 bln (58% renewable, 12% CCS, 30% nuclear)	2020: 0.3% of GDP 2030: 1% of GDP



Investments to adapt to climate change

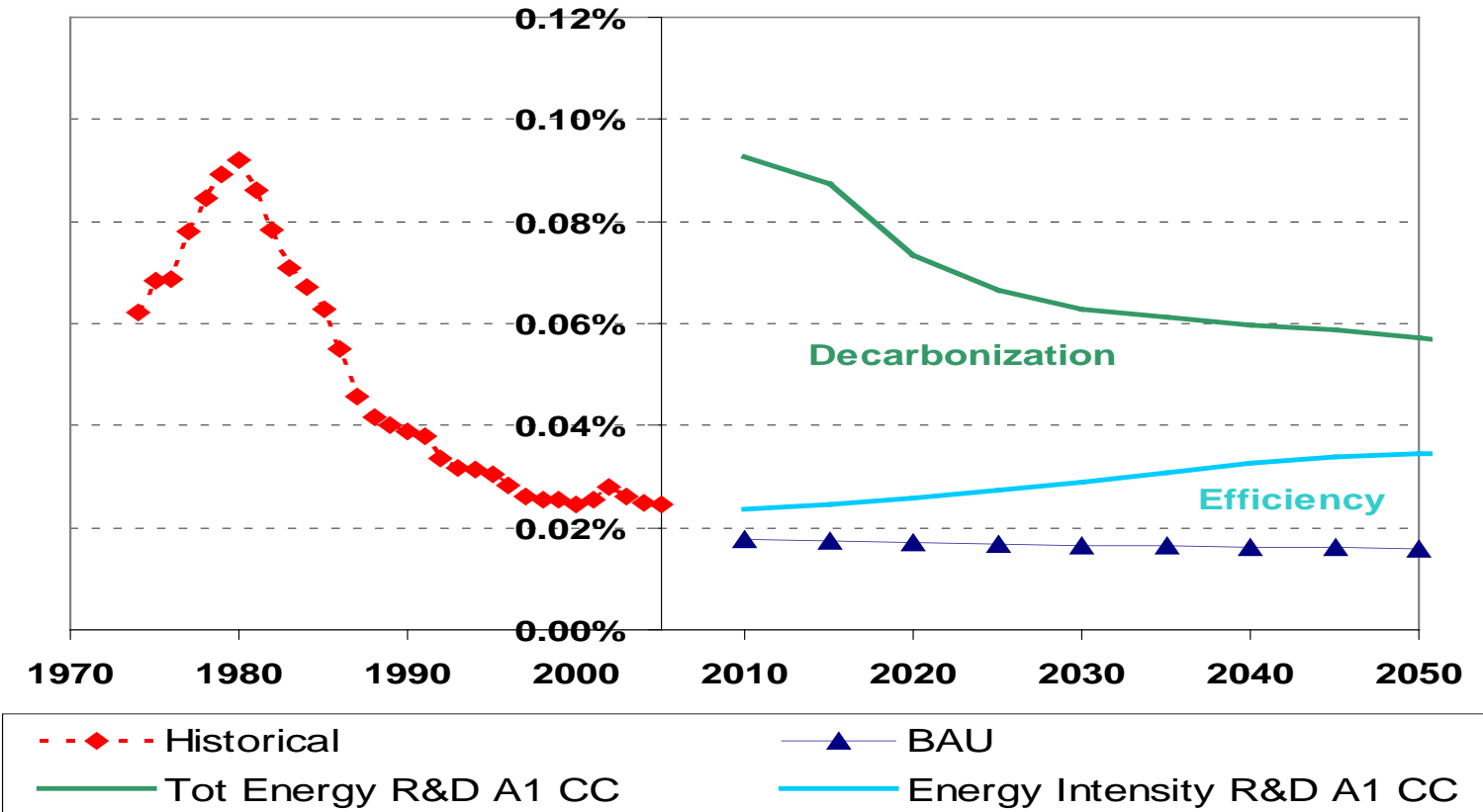
Source IIED (2009)

SECTORS	UNFCCC ESTIMATES	SOURCES OF UNDERESTIMATIONS	NEW IIED COST ESTIMATES
Agriculture	\$11.3-12.6 billions/year	Adaptation deficit → recovering it could cost up to \$40-60 billions	\$11.3-12.6 + \$40-60 billions
Water	\$11 billions/year	Transfer of water across countries, no adaptation to altered flood risk	Significant underestimation, more studies needed
Human health	\$4-12 billions/year	Population grows but share of illness-related deaths remains constant	30-50% increase in costs
Coasts	\$11 billions/year	Sea level rise (SLR) faster than foreseen, residual damage estimation (\$1 billion/year) too optimistic	Overall costs could double depending on speed of SLR, residual damage costs t \$2-3 billions/year
Infrastructures	\$8-130 billions/year	Infrastructural deficit → removing could cost up \$315 billions/year	Besides deficit, \$16-63 billions/year
Ecosystems	\$65-80 billions/year for protected areas	Exclusion of adaptation costs for non-protected areas (\$290 billions/year)	\$65-80 + \$290 billions/year

About 175 billions per year



R&D investments in the energy sector



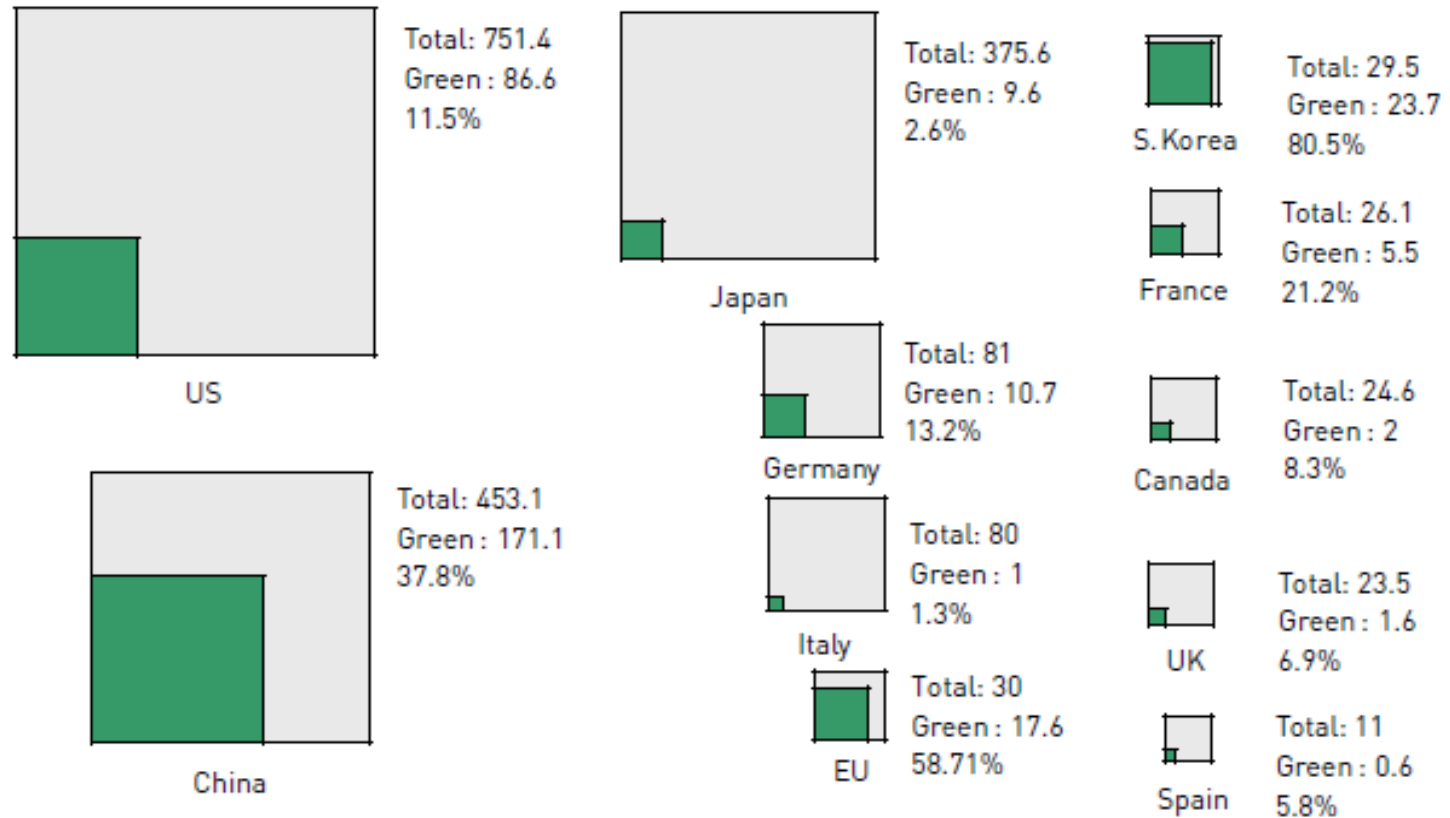
Source: WITCH model

Roughly 50 Blns a year of energy innovation investments in the next two decades

➔ for a total of about 650 billions/year...

Green stimulus of national recovery packages

Ratio of green stimulus of national recovery packages, absolute volumes in bn€



About 330 bn€..... The green share of the European recovery plan (58.7%) is high wrt other countries' package

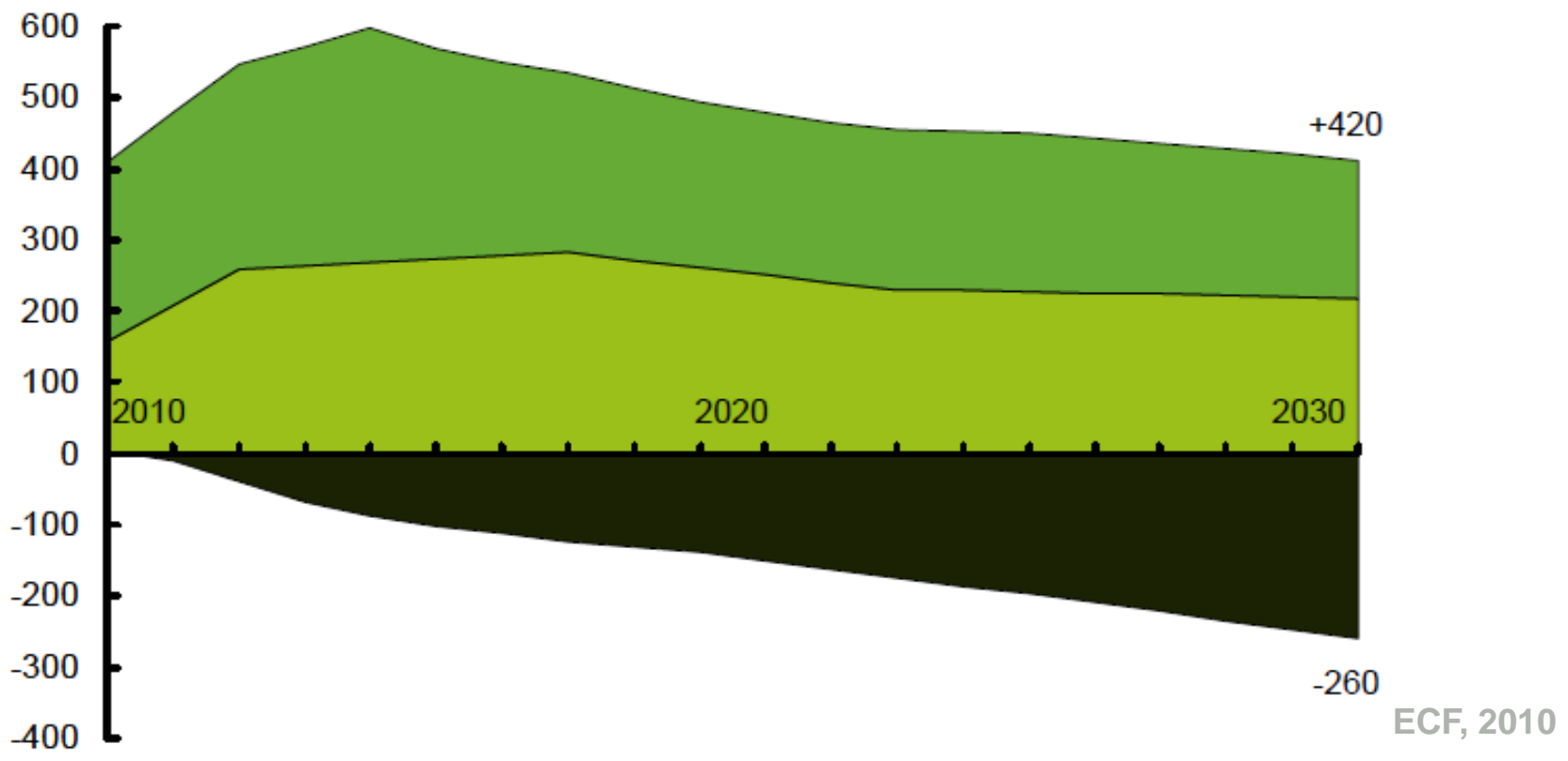


Potential for future green jobs in Europe

The reduction of employment in the fossil fuel supply chain is more than compensated by employment in RES and efficiency

- Jobs for additional power capacity (RES+grid)
- Jobs linked to efficiency and fuel shift investment
- Jobs in coal, petroleum, gas and oil supply chain

Job variations in the decarbonized pathways
Difference from the baseline, in '000s



Note: Efficiency and fuel shift investment includes all efficiency levers from McKinsey cost curves (excluding what already in the baseline), further penetration of heat pumps in residential and industry and the slow penetration of EVs



Conclusions

- Both the increased energy demand and the climate challenge require additional investments in the energy sector
- At the same time, policy signals are necessary to divert investments that would be undertaken anyway
- The development and application of green technologies can be an opportunity for Europe: it does not require additional investments but a reshuffle of their mix
- Net positive effect on employment
- Investments in energy innovation and in climate adaptation are also necessary
- Carbon markets can be an important source of revenue to finance part of these investments

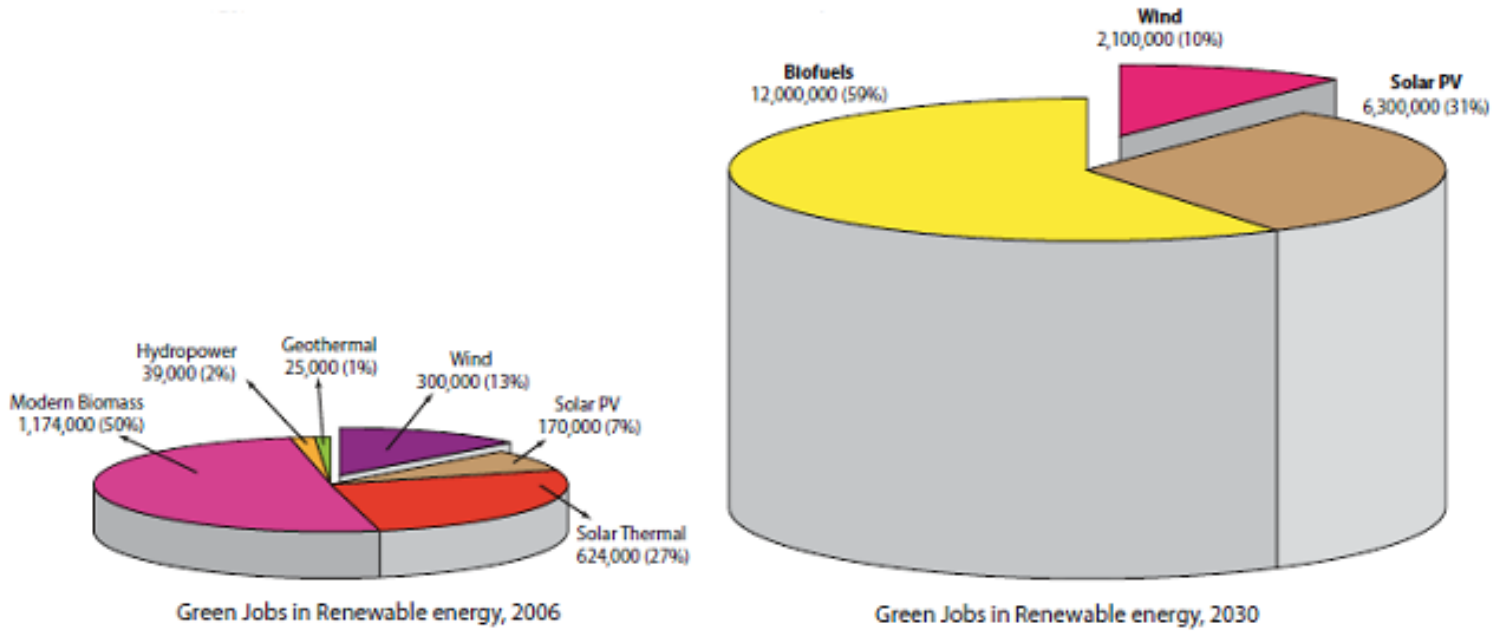


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Thank you!

Potential for future green jobs – Global level

Green jobs in renewable energy 2006 and 2030



Source: Green Jobs - Towards Decent Work in a Sustainable, Low-Carbon World, UNEP/ILO/IOE/ITUC, September 2008

Biofuels have a particularly high potential to create employment, with an estimate of 12 million jobs by 2030

Wind and solar power are expected to create more than 8 million jobs within the next 20 years