

# Copenhague et l'innovation technologique: quelques repères



**EDWIN ZACCAI**  
**IVM – CLEANTECH**  
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# Contexte

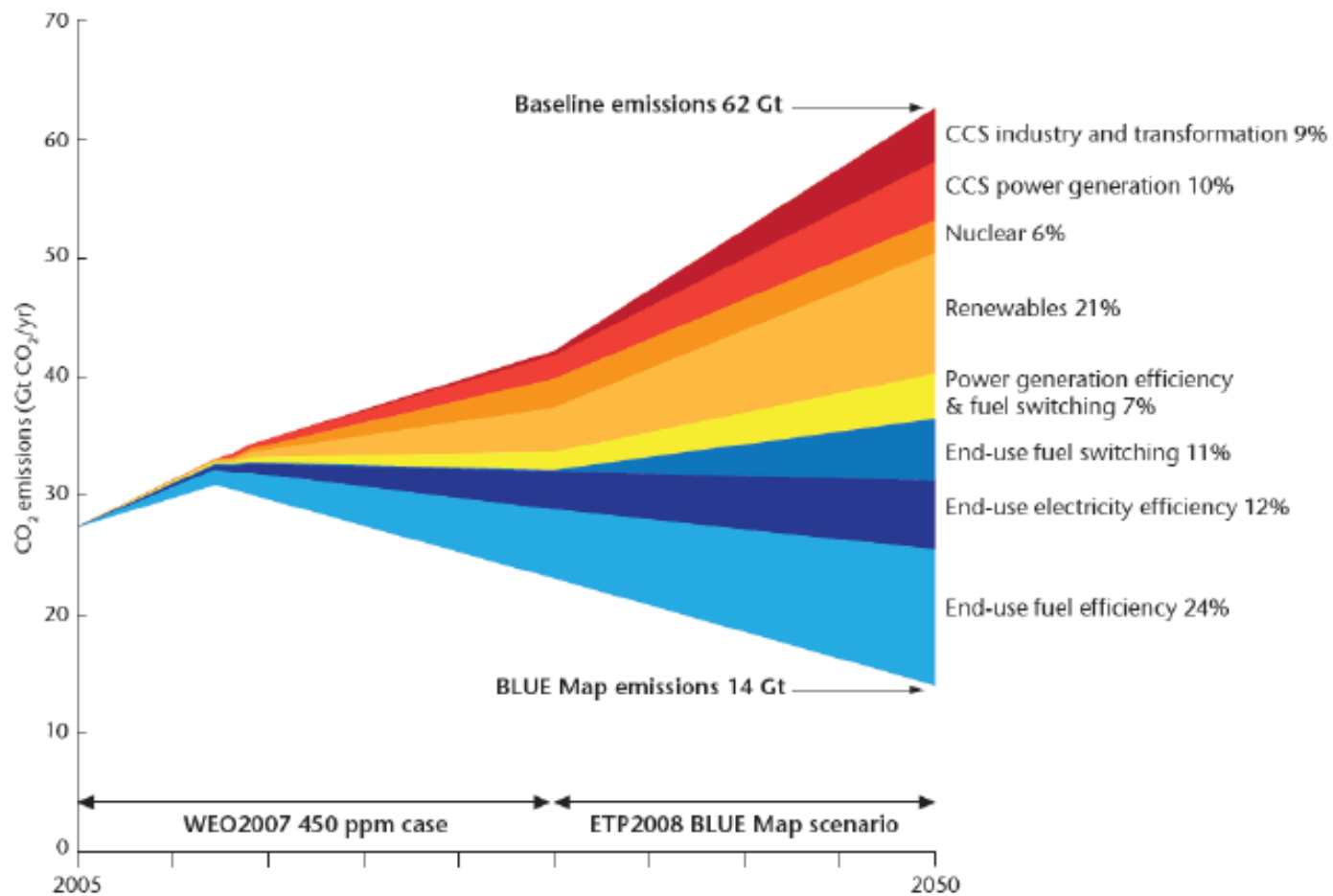


- Depuis le Protocole de Kyoto, les émissions de GES annuelles mondiales ont augmenté de 20%
- Sur base des émissions actuelles, on devrait atteindre rapidement 450 ppm qui est l'objectif maximal conseillé (mais pas acté à Copenhague, même si « 2 degrés » sont mentionnés sans échéance)
- Dans l'accord de Copenhague les transferts de technologies sont mentionnés plusieurs fois pour la prévention et l'adaptation aux CC, et un « Technology Mechanism » est créé

§ 11. In order to enhance action on development and transfer of technology we decide to establish a Technology Mechanism to accelerate technology development and transfer in support of action on adaptation and mitigation that will be guided by a country-driven approach and be based on national circumstances and priorities.

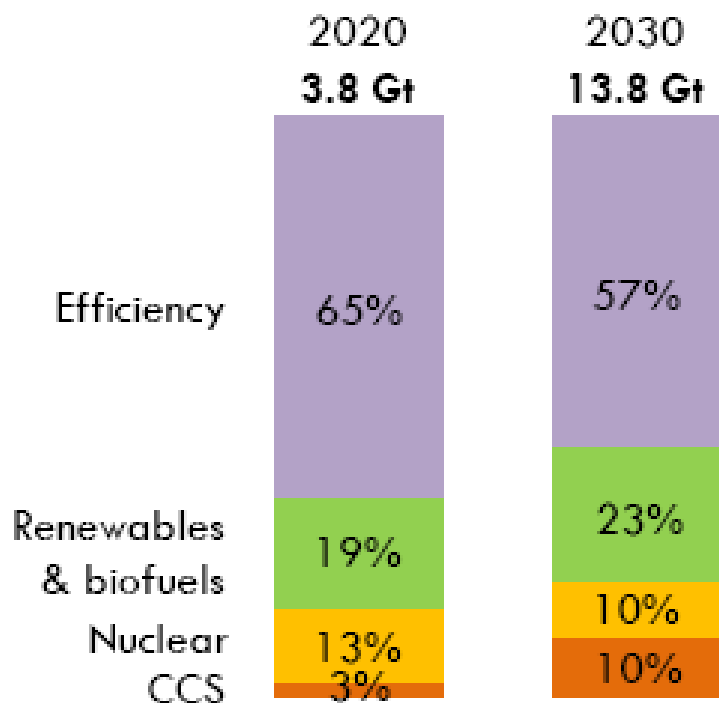
# An energy technology revolution is needed

Technology contributions to 50% CO<sub>2</sub> reduction scenario, 2005-2050



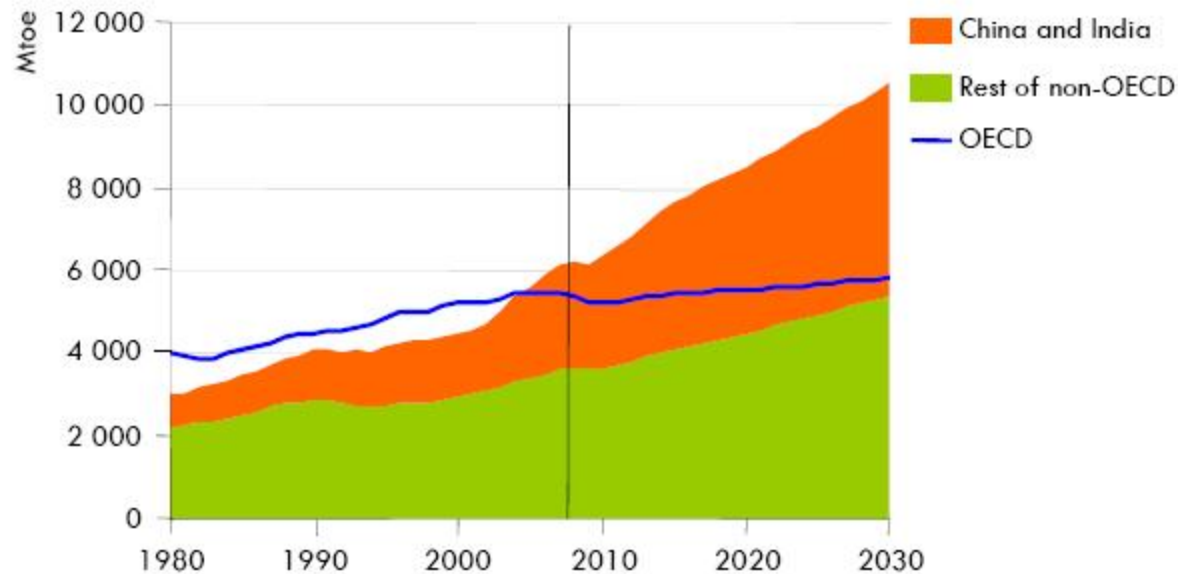


## World abatement by technology



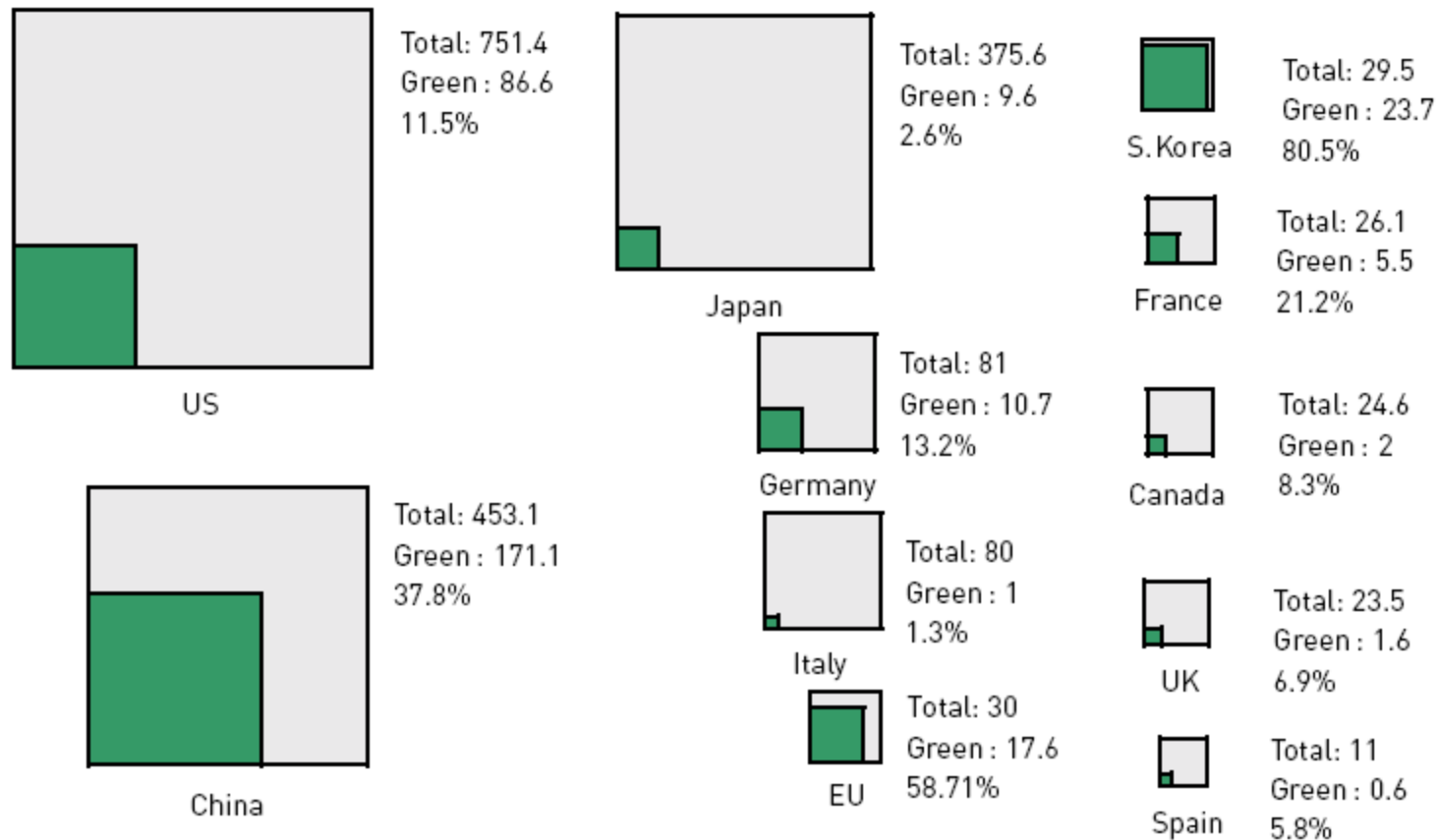
***An additional \$10.5 trillion of investment is needed in total in the 450 Scenario, with measures to boost energy efficiency accounting for most of the abatement through to 2030***

# World primary energy demand in the Reference Scenario



*Non-OECD countries account for 93% of the increase in global demand  
between 2007 & 2030, driven largely by China & India*

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



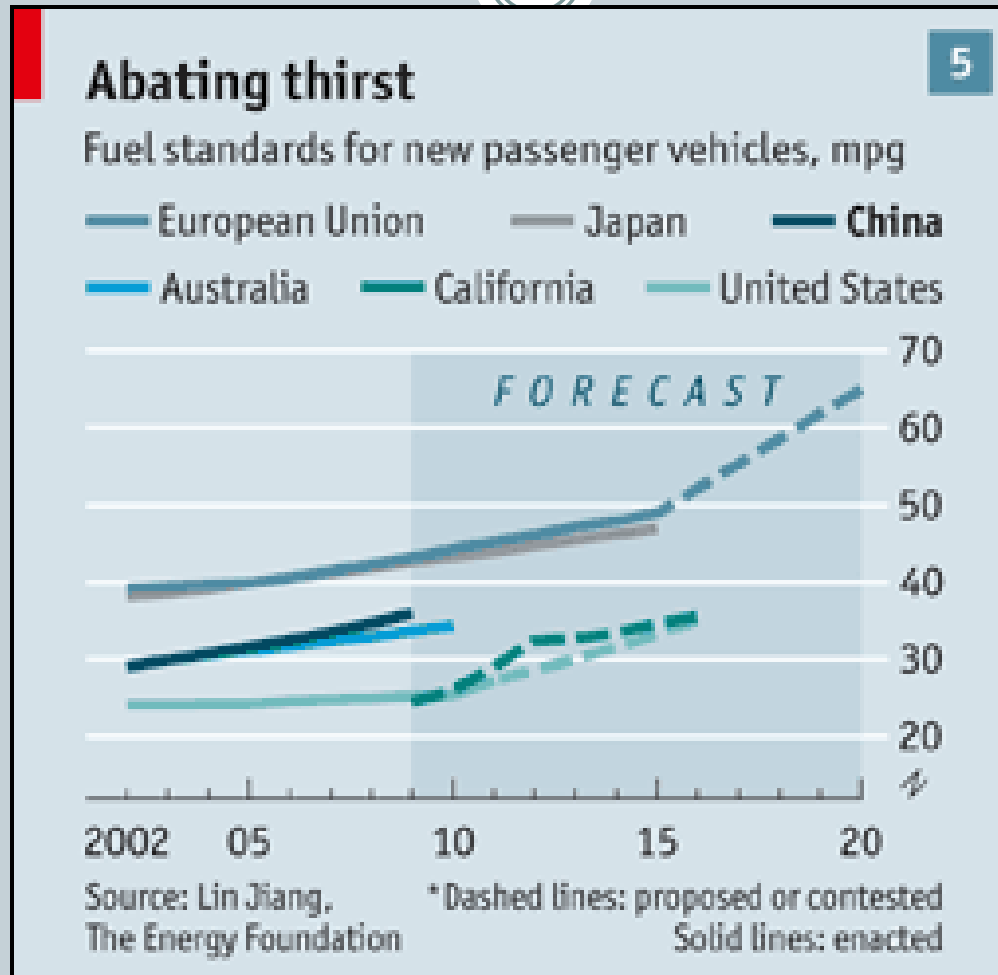
**Figure 3** Ratio of green stimulus of national recovery packages, absolute volumes in bn€ (based on Bernard et al. 2009; data from HSBC 2009)

Country	FUND €	Green €	%	Low Carbon Power		Energy Efficiency			Water/ Waste	Total	
				Renewable	CSS/ Other	Building	Low Carbon Vehicles	Rail			Grid
EU	30.0	17.61	58.71%	0.50	9.66	2.20	1.50			3.75	13.86
Germany	81.0	10.69	13.20%			8.03	0.53	2.13			10.69
France	26.1	5.52	21.19%	0.67		0.64		1.01	3.19		8.71
Italy	80.0	1.02	1.28%					1.02			1.02
Spain	11.0	0.64	5.85%							0.64	0.00
UK	23.5	1.63	6.94%			0.22	1.07	0.32		0.02	1.61
US	143.0	14.07	9.84%	7.92	2.01	2.58	0.59	0.26	0.71		14.78
	608.4	72.70	11.95%	17.42	3.05	21.18	3.09	7.41	8.50	12.04	69.16
Canada	24.6	2.03	8.27%		0.83	0.19		0.30	0.61	0.10	2.54
China	453.1	171.07	37.76%				1.16	76.26	54.11	39.54	185.65
Japan	375.6	9.61	2.56%			9.61					9.61
South-Korea	29.5	23.72	80.55%	1.39		4.79	1.39	5.42		10.74	12.99
<b>Total</b>	<b>1885.7</b>	<b>330.33</b>	<b>17.52%</b>	<b>27.91</b>	<b>15.55</b>	<b>49.44</b>	<b>9.33</b>	<b>94.13</b>	<b>67.13</b>	<b>66.84</b>	<b>330.62</b>
				43.46			220.03			66.84	

All currencies converted to €. €1=\$1.29

**Table 2** Country specific allocation of the green stimulus in bn € (based on HSBC 2009)

# Evolution des standards de consommation pour nouveaux véhicules



Dec 3rd 2009

From *The Economist* print edition



## EUROPE/US

- Europe's target : generating 20% of its energy from renewable sources
- Some 50% of new power capacity added in the EU in 2000-06 was renewable energy, compared with 29% in 1990-2000.
- According to New Energy Finance, onshore wind energy needs a carbon price of \$38, offshore of \$136 and solar cells of \$196.
- Some 20,000 jobs have been lost in the solar industry in Spain over the past year, and plenty more elsewhere



## CHINE

- Wind currently generates only 0.4% of Chinese electricity. Coal generates 80%.
- For wind energy, the target was set at 20GW of capacity by 2020. China now expects to hit that target by 2010 and is aiming for 150GW by 2020.
- The target for solar energy, similarly, has been raised from 1.8GW to 20GW by 2020.
- Electric vehicles are being generously subsidised (\$8,800 for a car and \$73,500 for a bus) and the government plans to build the capacity to produce half a million a year by 2012.
- China has received \$2 billion through the CDM for cleaning up its industrial processes and building clean-energy capacity—half the money that has flowed through the CDM. That is expected to rise to \$8 billion by 2012.

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# Facteurs influençant la poursuite de l'innovation technologique ./ Climat



- Cadre et incitants: prix de la tonne CO<sub>2</sub>, mécanismes complexes de régulation internationale
- Discussions sur inclusion CCS, Forêts, ...
- Caractère spéculatif
- Vérifications comme point d'achoppement
- Discussions sur propriété intellectuelle
- Retards dus à la crise économique
- ...