

***PERSPECTIVES FOR ENHANCING INTERNATIONAL
COOPERATION ON TECHNOLOGY DEVELOPMENT AND
TECHNOLOGY TRANSFER***

Beijing, november 8, 2008

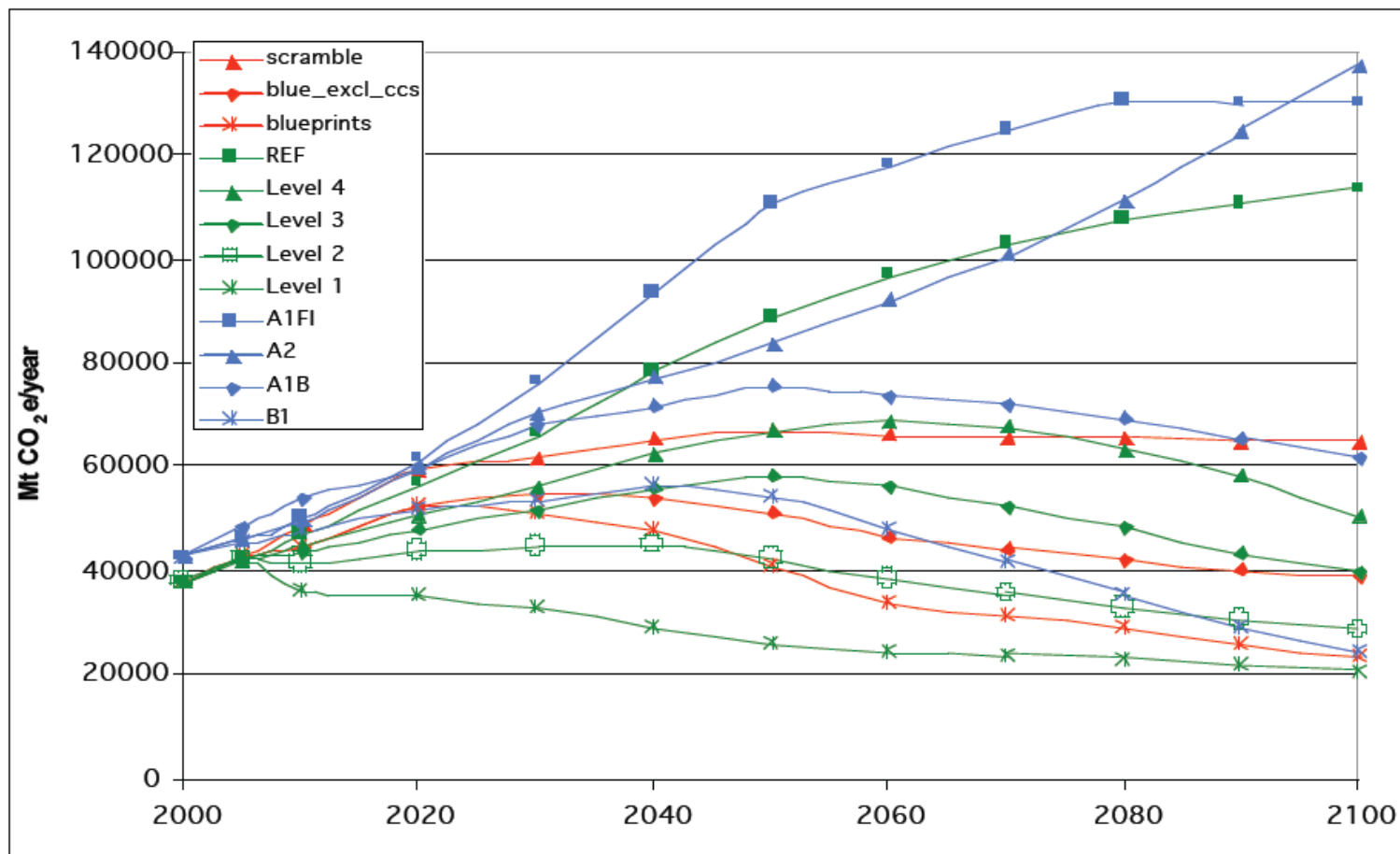
BACKGROUND

Corrado Clini

EMISSIONS 2000-2100

IPCC (bleu), US Climate Change Climate Program-CCSP (green) , Shell (red)

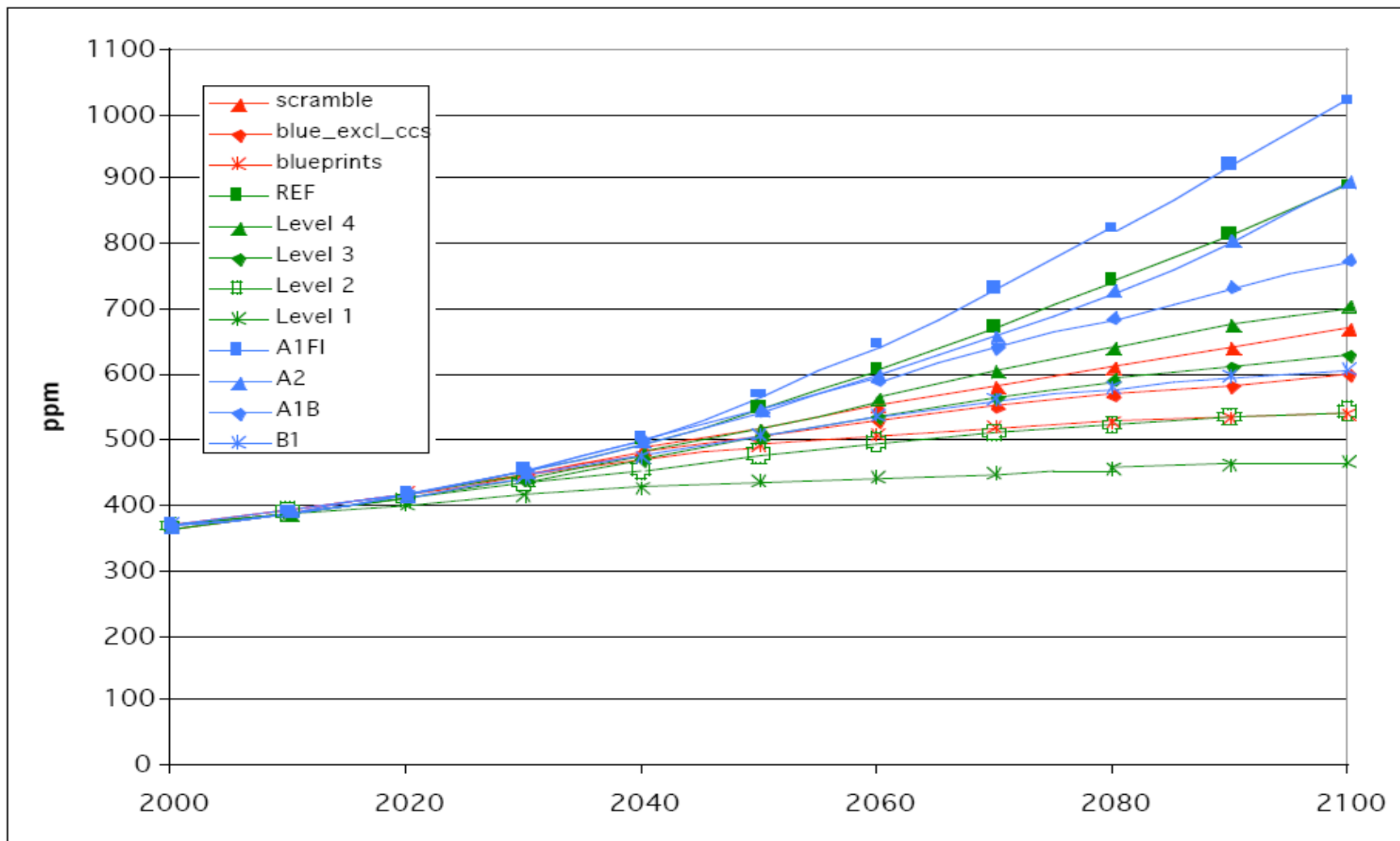
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CO2 CONCENTRATION 2000-2100

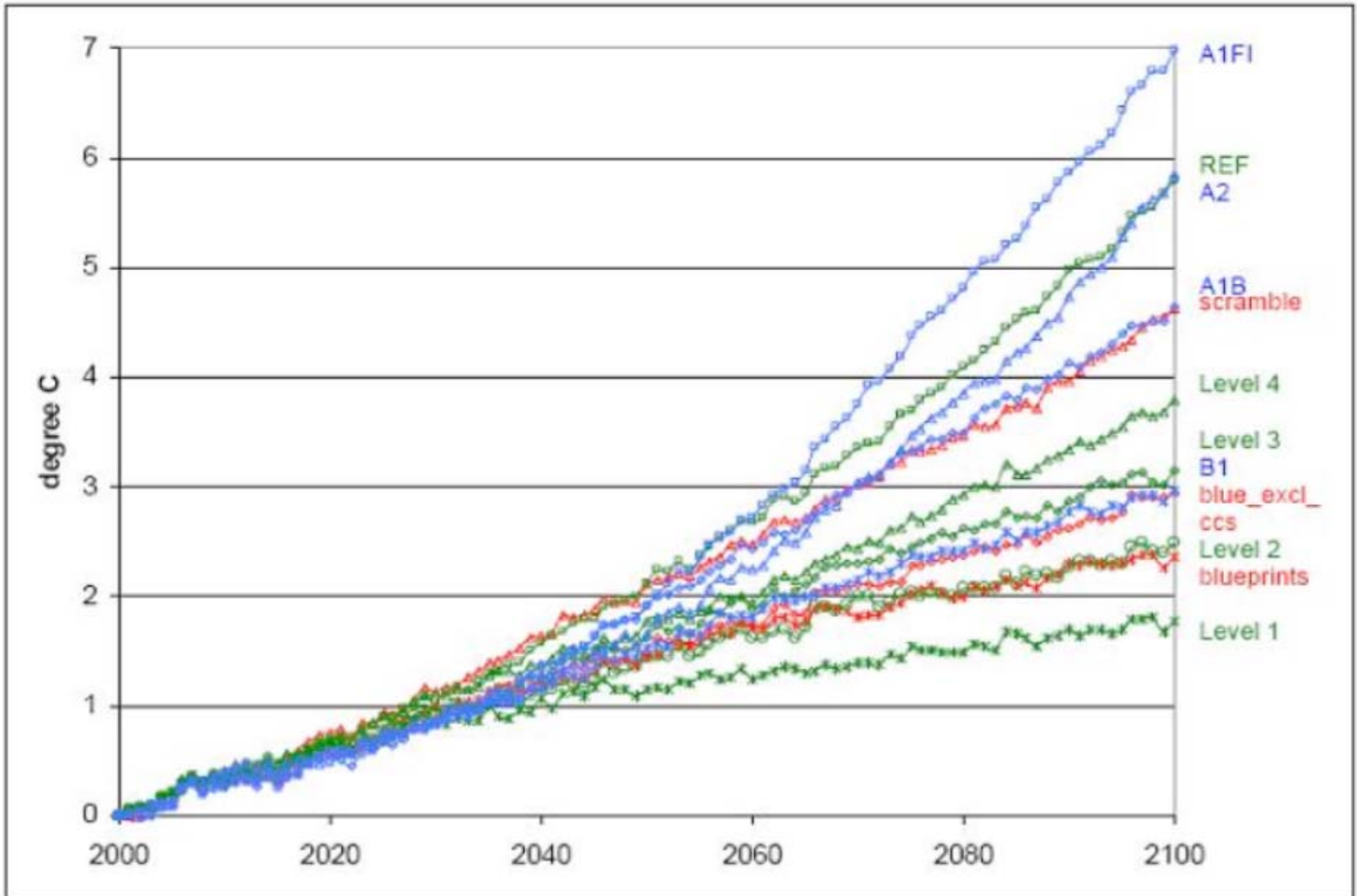
IPCC (bleu), US Climate Change Climate Program-CCSP (green) , Shell (red)

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AVERAGE GLOBAL TEMPERATURE 2000- 2100

IPCC (bleu), US Climate Change Climate Program-CCSP (green) , Shell (red)
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ACT MAP scenarios
ENERGY TECHNOLOGY PERSPECTIVES 2008- IEA
IN SUPPORT TO G8 ACTION PLAN

Technologies that already exist, or are in an advanced state of development, can bring global CO₂ emission back to current levels by 2050.

The ACT Map scenario implies adoption of a wide range of technologies with marginal costs up to \$ 50/ton.CO₂ saved when fully commercialised.

The task is difficult and costly.

Additional investment needs in the energy sector are estimated at USD 17 trillion between now and 2050.

This is on average around USD 400 billion per year, roughly equivalent to 0.4% of global GDP each year between now and 2050.

BLUE MAP scenarios
ENERGY TECHNOLOGY PERSPECTIVES 2008- IEA
IN SUPPORT TO G8 ACTION PLAN

Leaders agreed at G8+5 Heiligendamm Summit in 2007, to seriously consider a global 50% CO₂ reduction target.

BLUE scenarios identify the technologies to be developed and used for a global 50% CO₂ emissions reduction by 2050, with marginal costs in the range of \$200-500/ton.CO₂

At the margin, therefore, the BLUE Map scenario requires technologies at least four times as costly as the most expensive technology options needed for ACT Map.

However, the *average* cost of the technologies needed for BLUE Map is much lower than the marginal, in the range of \$38 to \$117/ton. CO₂ saved.

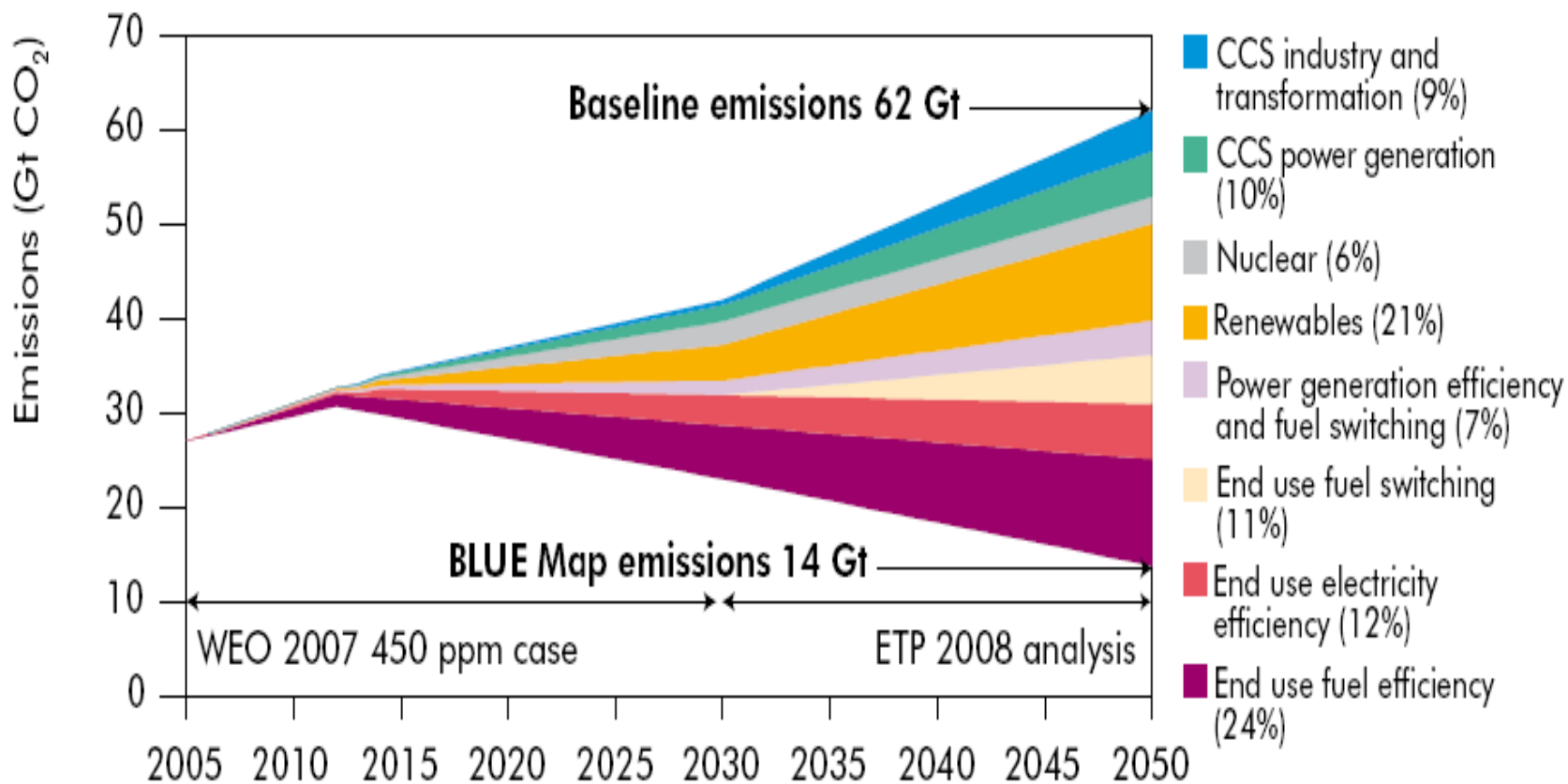
This scenario require urgent implementation of unprecedented and far-reaching new policies in the energy sector.

ENERGY TECHNOLOGIES AND 2050 EMISSIONS

BLUE MAP scenario/BASELINE scenario

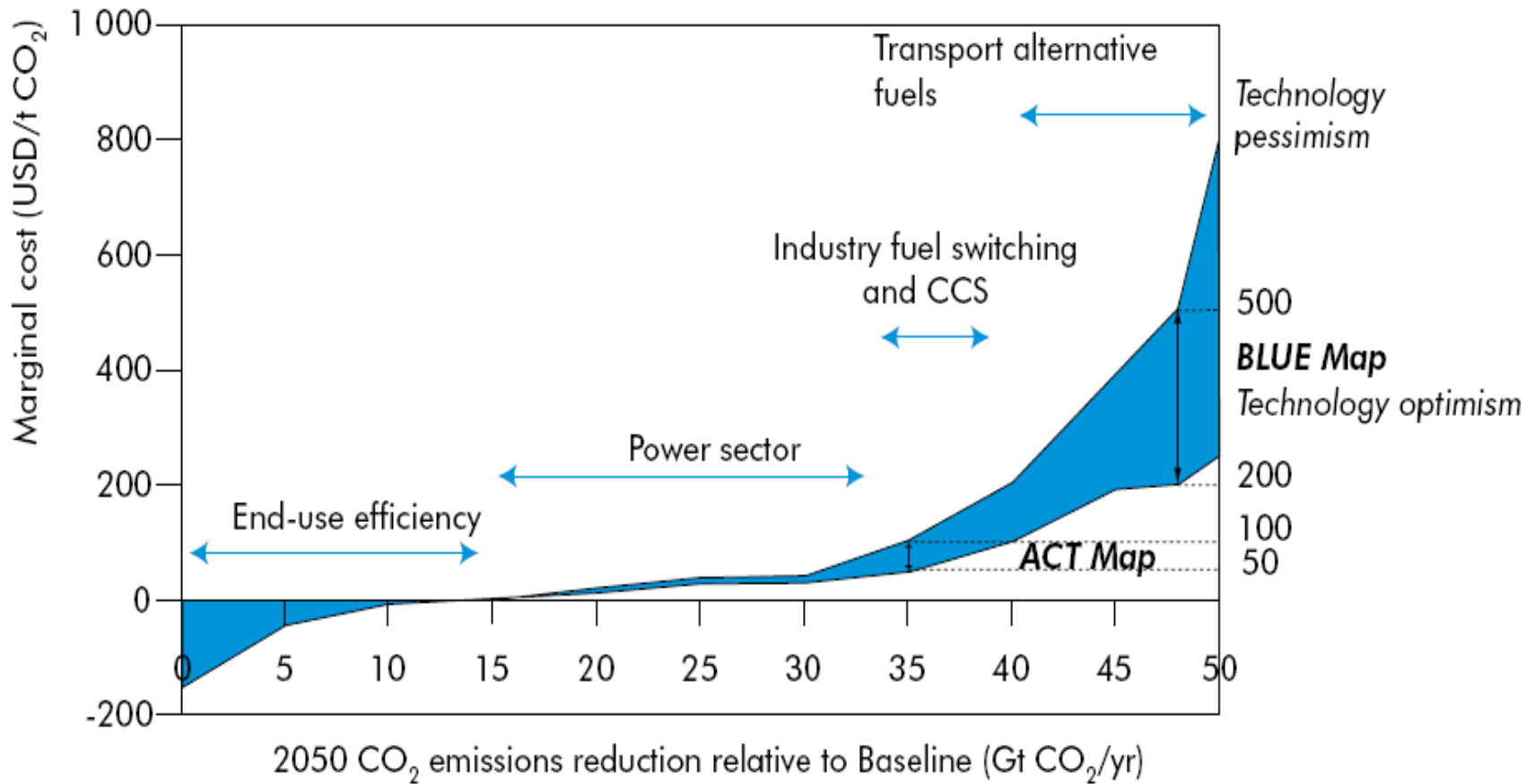
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IN SUPPORT TO G8 ACTION PLAN



MARGINAL EMISSION REDUCTION COSTS FOR THE GLOBAL ENERGY SYSTEM 2050

*ENERGY TECHNOLOGY PERSPECTIVES 2008- IEA
IN SUPPORT TO G8 ACTION PLAN*



Carbon Dioxide Intensity by Region

and Country, 1980 – 2030
(Metric Tons per Million 2000 U.S. Dollars of Gross Domestic Product)

Region	History			Projections					Average Annual Percent Change	
	1980	1990	2005	2010	2015	2020	2025	2030	1990-2005	2005-2030
OECD	732	565	461	411	379	347	319	296	-1.3%	-1.8%
United States	916	701	544	483	439	399	366	339	-1.7%	-1.9%
Canada	867	679	607	563	521	486	453	422	-0.7%	-1.4%
Mexico	394	441	381	337	312	288	266	247	-1.0%	-1.7%
Europe	674	508	383	343	318	290	264	241	-1.9%	-1.8%
Japan	482	353	358	316	297	284	273	262	0.1%	-1.2%
South Korea	942	729	670	580	521	464	424	396	-0.6%	-2.1%
Australia/New Zealand	694	679	633	558	500	449	404	365	-0.5%	-2.2%
Non-OECD	694	711	529	440	388	344	306	274	-2.0%	-2.6%
Europe/Eurasia	1,019	1,166	804	615	531	469	410	368	-2.4%	-3.1%
Russia	900	1,060	836	649	554	494	432	392	-1.6%	-3.0%
Other	1,215	1,339	762	573	504	440	385	342	-3.7%	-3.2%
Asia	755	624	498	411	363	322	289	261	-1.5%	-2.5%
China	1,959	1,242	693	552	478	421	373	334	-3.8%	-2.9%
India	295	333	287	221	189	165	148	135	-1.0%	-3.0%
Other	400	352	360	313	299	270	246	224	0.1%	-1.9%
Middle East	450	854	903	827	747	679	605	539	0.4%	-2.0%
Africa	398	448	421	362	327	292	255	220	-0.4%	-2.6%
Central and South America	317	310	305	290	262	234	209	187	-0.1%	-1.9%
Brazil	212	211	219	224	208	192	175	162	0.2%	-1.2%
Other	403	398	379	342	303	267	234	205	-0.3%	-2.4%
Total World	716	624	494	427	384	345	311	282	-1.6%	-2.2%

Note: GDP is expressed in terms of purchasing power parity.

Sources: 1980-2005: Energy Information Administration (EIA), *International Energy Annual 2005* (June-October 2007), web site www.eia.doe.gov/iea. 2010-2030: EIA, *World Energy Projections Plus* (2008).

PER CAPITA CO2 EMISSIONS 1980-2030

Region	History			Projections					Average Annual Percent Change	
	1980	1990	2005	2010	2015	2020	2025	2030	1990-2005	2005-2030
OECD	11.3	10.9	11.6	11.5	11.7	11.7	11.8	12.0	0.4	0.1
United States	20.6	19.6	20.1	19.9	19.2	18.9	18.7	18.7	0.2	-0.3
Canada	18.3	16.8	19.5	19.8	19.8	19.9	19.9	20.1	1.0	0.1
Mexico	3.2	3.6	3.8	3.9	4.2	4.5	4.8	5.2	0.4	1.2
Europe	9.1	8.9	8.2	8.3	8.4	8.5	8.5	8.5	-0.1	0.2
Japan	8.0	8.2	9.6	9.4	9.5	9.6	9.7	9.9	1.1	0.1
South Korea	3.5	5.6	10.4	11.5	12.5	12.8	13.4	14.3	4.2	1.3
Australia/New Zealand	12.3	14.4	18.2	17.7	17.6	17.6	17.7	17.9	1.6	-0.1
Non-OECD	2.0	2.3	2.7	3.0	3.3	3.5	3.6	3.8	1.1	1.4
Europe/Eurasia	10.6	12.1	8.4	9.0	9.9	10.5	11.0	11.8	-2.4	1.4
Russia	13.5	16.0	11.8	12.7	13.9	15.0	15.8	17.1	-2.0	1.5
Other	8.4	9.1	5.9	6.4	7.1	7.6	8.0	8.5	-2.9	1.5
Asia	1.0	1.3	2.4	2.8	3.2	3.5	3.8	4.1	4.1	2.2
China	1.5	2.0	4.1	5.1	5.9	6.7	7.4	8.2	5.0	2.9
India	0.4	0.7	1.0	1.1	1.2	1.3	1.4	1.5	3.0	1.5
Other	0.8	1.1	1.7	1.8	2.1	2.2	2.3	2.4	3.2	1.4
Middle East	3.9	5.1	7.3	7.6	7.7	7.8	7.7	7.7	2.4	0.2
Africa	1.0	1.0	1.0	1.1	1.1	1.1	1.0	1.0	0.2	-0.2
Central and South America	2.1	1.9	2.4	2.7	2.8	2.8	2.9	3.0	1.7	0.9
Brazil	1.5	1.4	1.9	2.3	2.4	2.5	2.5	2.7	1.9	1.4
Other	2.5	2.2	2.7	3.0	3.1	3.1	3.1	3.1	1.5	0.6
Total World	4.1	4.0	4.3	4.5	4.7	4.8	4.9	5.1	0.5	0.7

Sources: 1980-2005: Derived from Energy Information Administration (EIA), *International Energy Annual 2005* (June-October 2007), web site www.eia.doe.gov/iea. 2010-2030: EIA, *World Energy Projections Plus* (2008).

TECHNOLOGY DEVELOPMENT AND INTERNATIONAL TECHNOLOGY COOPERATION FOR A LOW CARBON INTENSITY OF THE GLOBAL ECONOMY

2050 EMISSION REDUCTION TARGET REQUEST A GLOBAL LONG TERM STRATEGY

- ✓ research & innovation, and energy policies, to reduce the “carbon intensity” of the economy through the development and dissemination of the new renewable and energy efficiency technologies, biofuels, hydrogen and carbon sequestration, such as nuclear power;***
- ✓ making the new clean and safe energy sources and technologies available and cost effective in the emerging economies and in developing world, to address both energy security and emissions reduction.***

To be effective in approaching 2050 target , the policies and measures should be designed and should start immediately, considering

- ✓ the establishment of a global fund for the low carbon technologies development;***
- ✓ the introduction of rules in the global energy market for the application of progressive “carbon intensity standard” for the energy technologies;***
- ✓ a progressive “carbon price” to be applied to fuels and technologies;***
- ✓ new rules in the WTO for overcoming the barriers to the low carbon technology dissemination;***
- ✓ incentives for the developing economies based on per capita emissions.***