



4th PMR Workshop

***EU ETS Modelling
Sydney 21 October 2012***

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***EUROPEAN COMMISSION
DG CLIMATE ACTION***

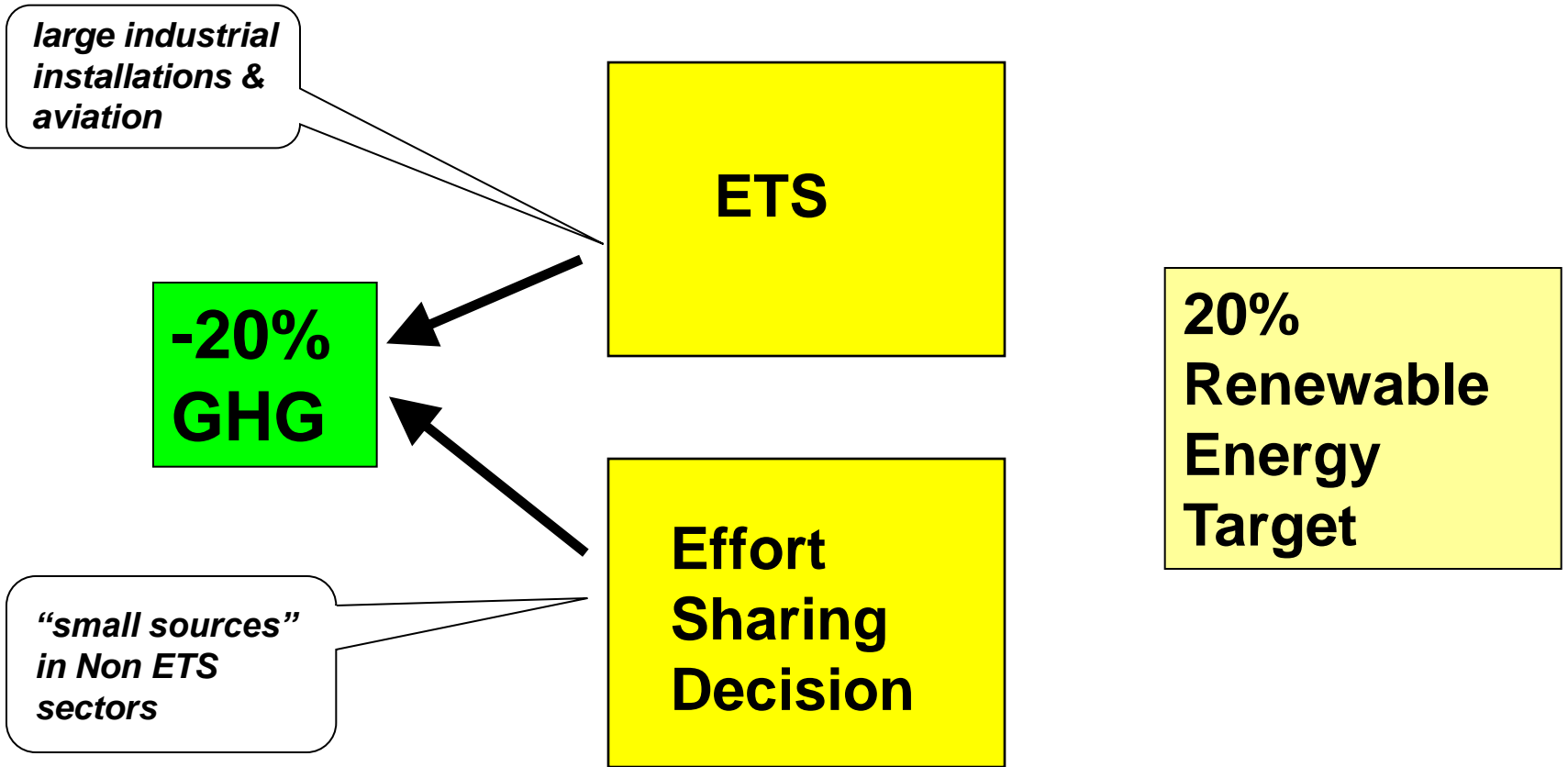
Outline

- *Modelling tools to support climate policy*
- *2020 Package: legislation and impact assessment*
- *Package revisited including conditional 30% target*
- *2050 Roadmap: milestones*

Use of Modelling tools

- *EU Climate policy is strongly informed by the use of modelling tools (prices, costs, benefits, distributional impacts, etc.)*
- *But modelling tools do not determine policy outcome, targets for 27 Member States are not defined using a model optimisation*
- *European Commission uses a suite of models in impact assessments for policy proposals depending on the type of analysis necessary, e.g. PRIMES-GAINS, POLES, GEM-E3, PACE*

EU Climate and Energy Package



GHG Target by 2020

-20% compared to 1990

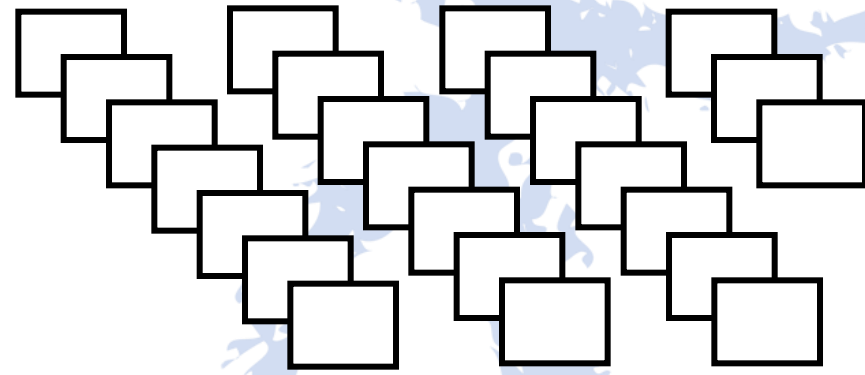


-14% compared to 2005

EU ETS
-21% compared to 2005

Non ETS sectors
-10% compared to 2005

27 Member State targets, stretching from -20% to +20%



EU strategy: cost-effectiveness and fairness

Cost-effectiveness: market based-instruments (EU ETS) and trade in Non ETS

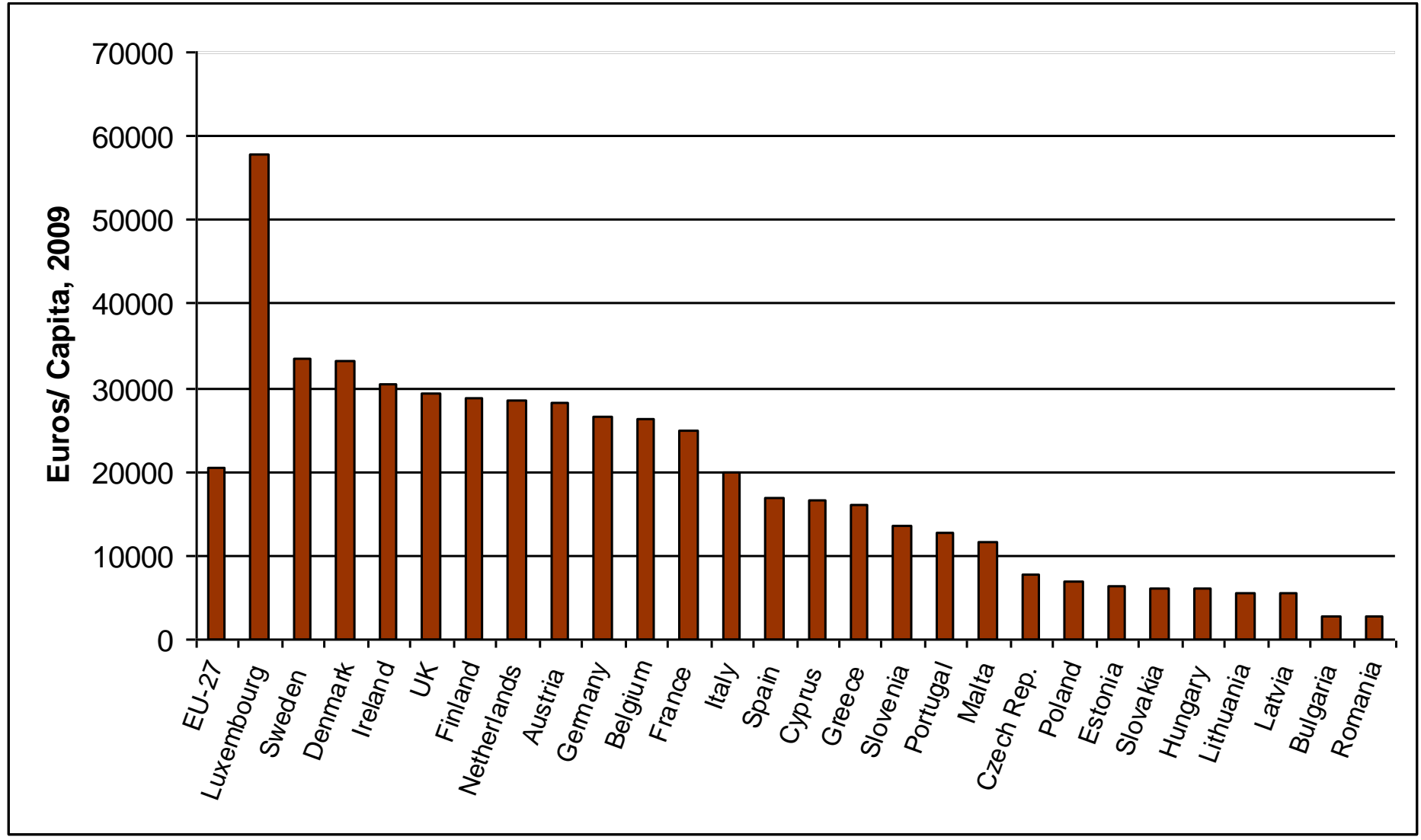
Fairness: differentiate efforts among Member States according to GDP/capita

- national targets in sectors outside EU ETS
- national renewables targets
- redistribution of auctioning rights

Big disparities between EU states



GDP per person



Solidarity in EU ETS

- *Auctioning default allocation method power sector*
- *Free allocation (partial or full) on basis of ex-ante benchmark (10% best) for industry*
- *Auctioning right distribution*
 - 88% distributed according to Member States' share in historic ETS emissions (2005 or average 2005-2007)
 - 10% distributed to those with low GDP/capita and high growth
 - 2% distributed to reward early action (Member States whose emissions are at least 20% below base-year of the Kyoto Protocol)

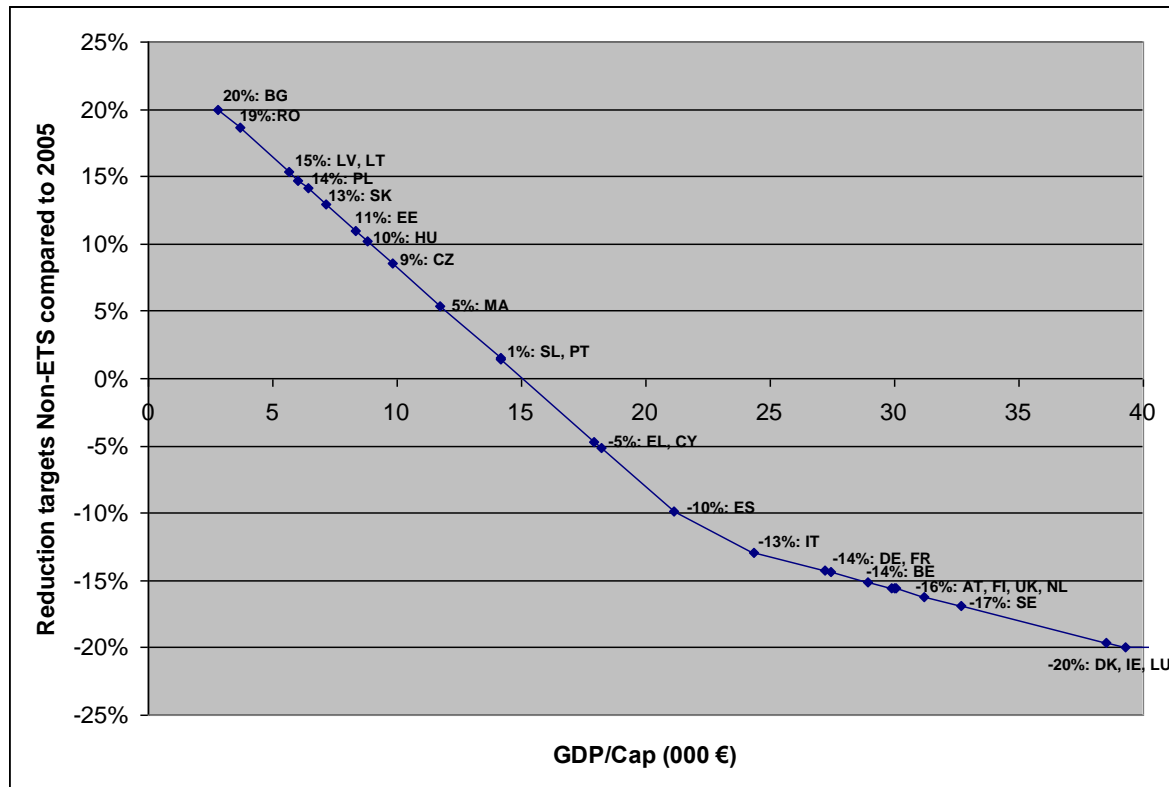
Principles determining national targets in the Non ETS

Not based on marginal abatement costs/ reduction potentials, but principle of fairness and growth

National targets function of GDP/capita for Member States (MS)

MS with high GDP/capita reduce emissions

MS with low GDP/capita may increase emissions



Renewables target

- *2020: 20% renewables target*
- *Share an 11.5% increase between Member States:*
 - flat rate increase for all of 5.5%
 - The remainder distributed principally on the basis of GDP/capita
- *Possibility to trade if one overshoots*

Model used to look at distribution



European
Commission

Direct costs as % of GDP

	Cost efficient achievement RES and GHG	+ targets Non-ETS redistributed	+ right to auction redistributed	+ access to JI/CDM (≤ 30 €)	+ targets RES distributed and trading
EU27	0,58	0,61	0,61	0,45	0,45
AT	0,66	0,86	0,82	0,58	0,34
BE	0,76	0,83	0,93	0,69	0,70
BG	2,16	1,09	-0,35	0,14	-1,25
CY	0,09	0,08	-0,04	-0,03	0,07
CZ	1,12	0,49	0,03	0,20	-0,51
DK	0,29	0,57	0,50	0,22	0,11
EE	1,59	1,09	0,41	0,58	-0,53
FI	0,47	0,53	0,56	0,52	0,22
FR	0,39	0,39	0,37	0,32	0,47
DE	0,57	0,47	0,60	0,49	0,57
EL	0,97	0,74	0,53	0,60	0,59
HU	1,22	0,46	0,29	0,36	-0,40
IE	0,47	0,61	0,63	0,47	0,45

Model used to look at distribution



European
Commission

Direct costs as % of GDP

	Cost efficient achievement RES and GHG	+ targets Non-ETS redistributed	+ right to auction redistributed	+ access to JI/CDM (≤ 30 €)	+ targets RES distributed and trading
IT	0,49	0,99	1,05	0,51	0,66
LV	1,10	1,60	1,50	0,88	-0,18
LT	1,02	0,52	0,36	0,43	-0,72
LU	0,54	0,89	0,91	0,59	0,70
MT	0,31	0,17	-0,36	-0,21	0,00
NL	0,28	0,34	0,43	0,28	0,32
PL	1,24	0,48	0,32	0,38	0,02
PT	0,87	0,48	0,54	0,57	0,51
RO	0,95	0,37	0,29	0,29	0,04
SK	1,17	0,79	0,74	0,60	0,26
SI	0,86	1,11	0,86	0,47	0,53
ES	0,70	1,20	1,08	0,62	0,42
SE	0,66	0,69	0,70	0,74	0,78
UK	0,49	0,36	0,36	0,34	0,41

In 2010 Commission revisited the analysis of the Package as well as the 30% conditional GHG target

Costs of -20% GHG lower due to:

- economic recession*
- higher energy prices*
- higher energy efficiency*

2020 Carbon price projections decreased from € 30 to € 16.5 - € 25 depending on renewables implementation

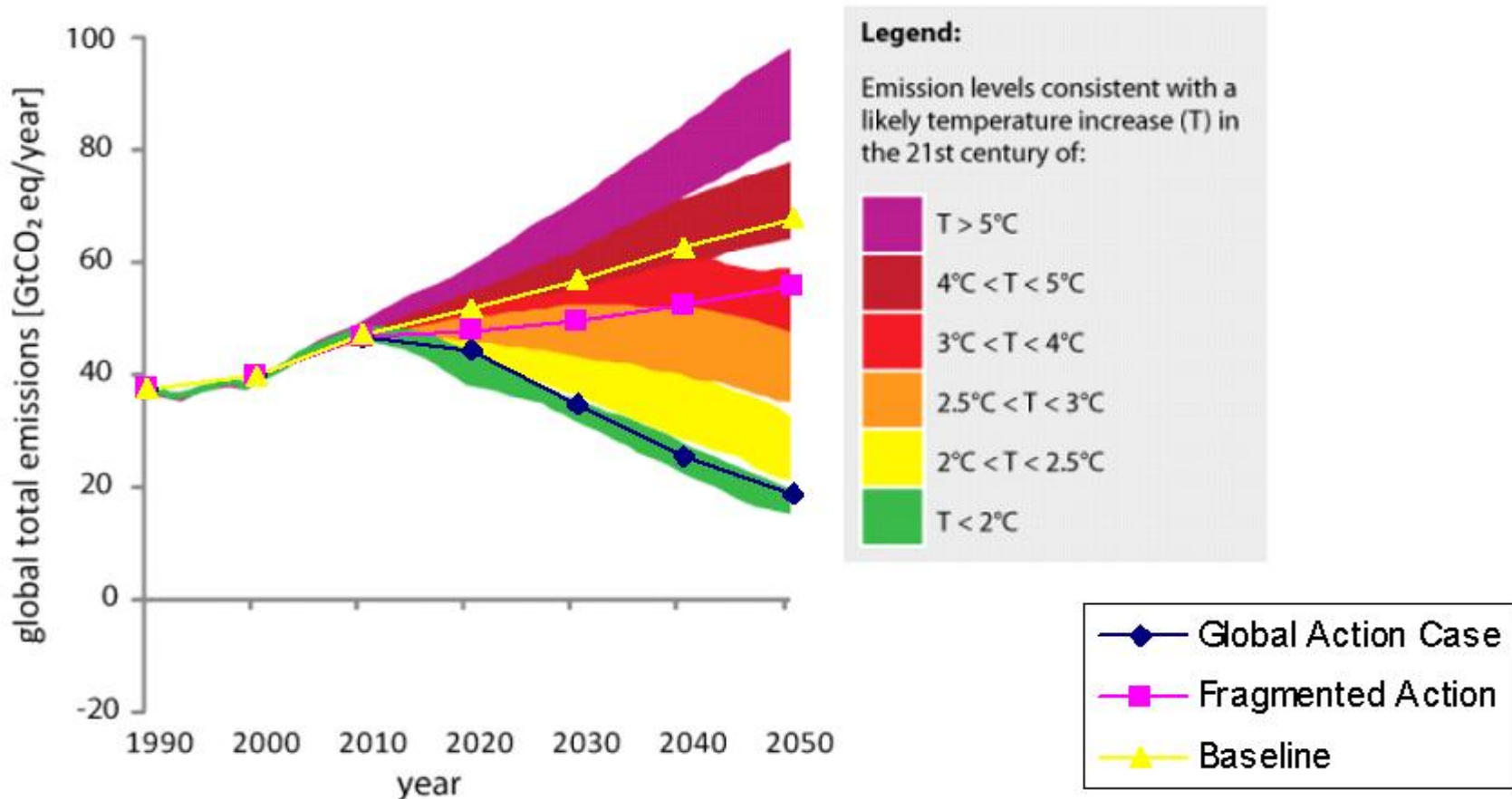
If EU would step up to 30% GHG reduction target:

- ETS: 2020 target from -21% vs 2005 to -34%
- Effort Sharing: 2020 target from -10% vs 2005 to -16%

2050 Roadmap Context

- 2 degree objective: global emissions are cut by -50% by 2050 compared to 1990
- European Council: objective of reducing greenhouse gas emissions by 80-95% by 2050 compared to 1990, in the context of necessary reductions by developed countries
- Need for a low carbon 2050 strategy providing the framework for the longer term domestic action
- Need to fix intermediary stages towards reaching the 2050 objective
- Need to keep developments under review on a regular basis

2°C objective: Global emission pathways (POLES + GLOBIOM models)



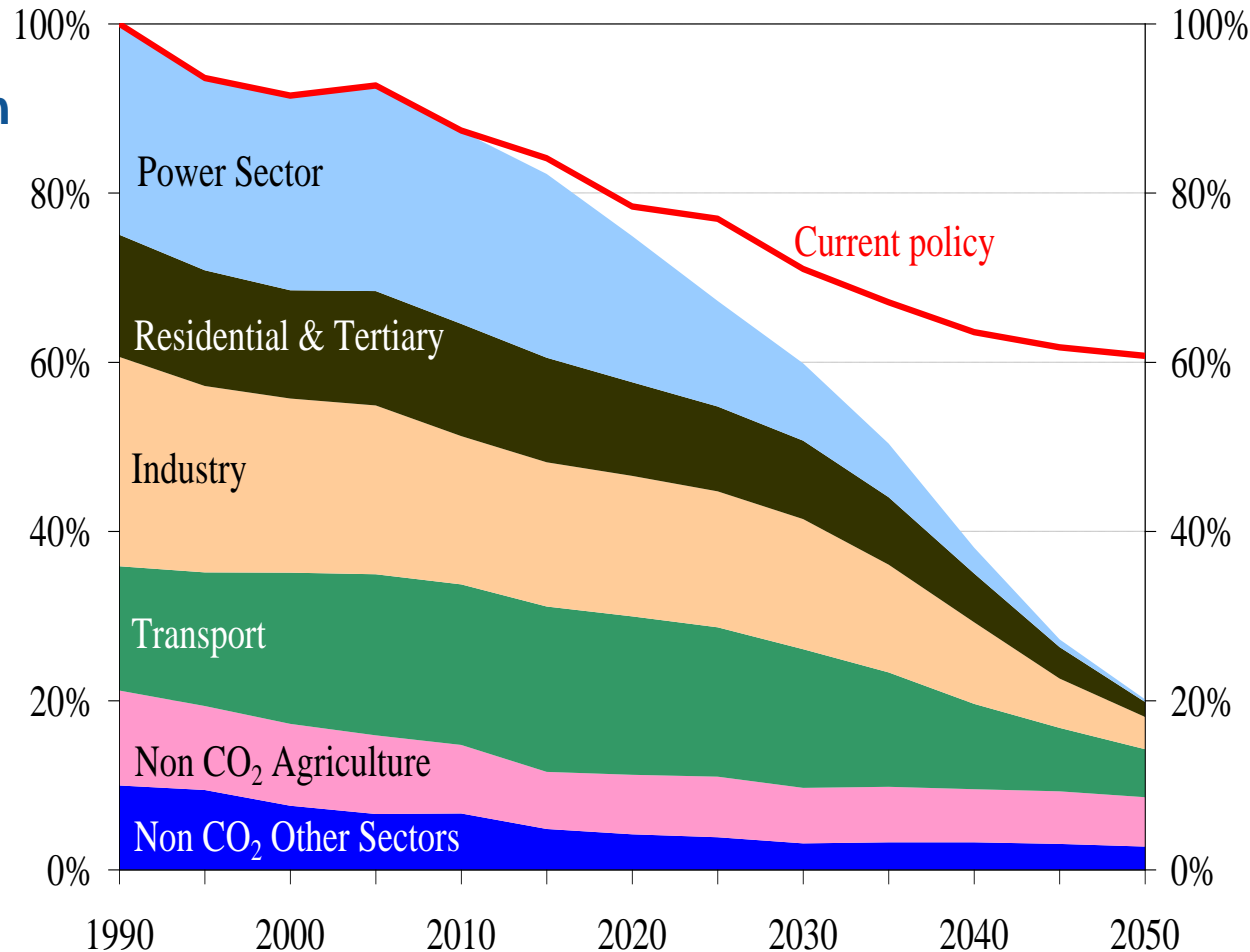
Cost-efficient pathway towards 2050 (PRIMES + GAINS)

80% domestic reduction in 2050 is feasible

- with currently available technologies,
- with behavioural change only induced through prices
- If all economic sectors contribute to a varying degree & pace.

Efficient pathway + milestones:

- 25% in 2020
- 40% in 2030
- 60% in 2040



Global climate action reduces emissions in all parts of the world

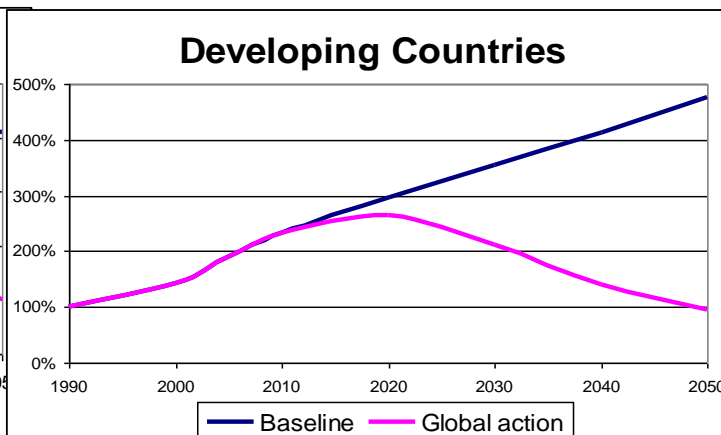
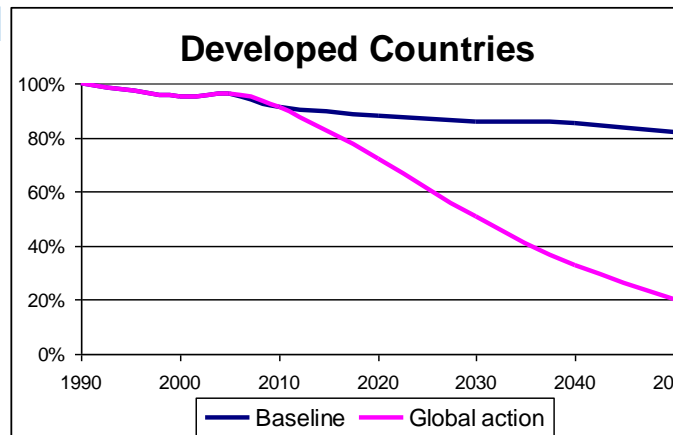
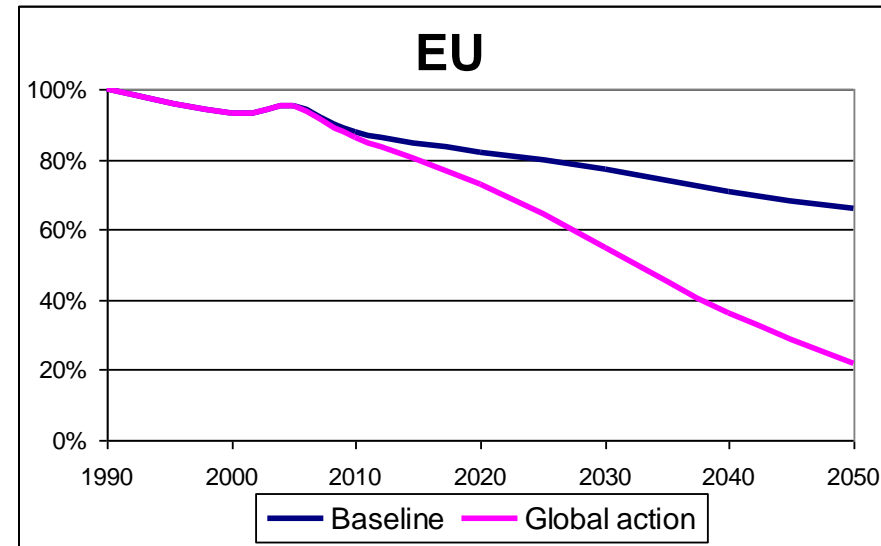
EU and developed country objective:
80 to 95% reductions largely through domestic measures:

↳ around -80% internal reductions in 2050 compared to 1990

Developing Countries:

↳ -5% compared to 1990

↳ Equivalent to - 80% compared to business as usual



EU ETS Modelling: Lessons learnt

- Use models to give a "feeling" on overall costs, advantages, disadvantages, distribution
- Certain models are better suited for certain things
- Modelling does not determine policy outcome
- Modelling is there to give policy-makers the possibility of making informed decisions



For further info please visit:

http://ec.europa.eu/dgs/clima/mission/index_en.htm