TranSust.Scan Workshop in Madrid
CSIC, April 3-4, 2008

The EU 2020 energy and climate targets

First comments on their design and implementation

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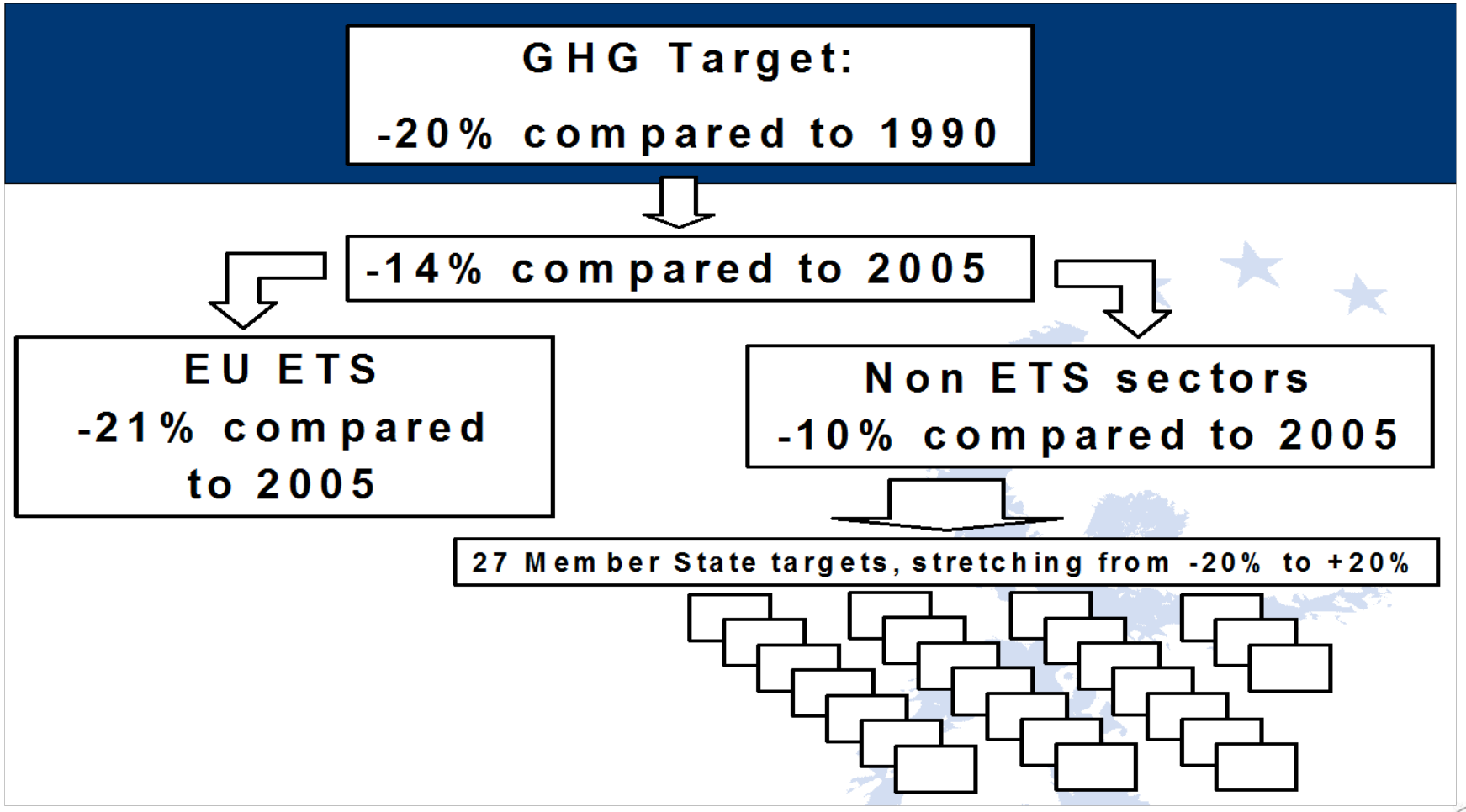
The architecture of the EU 2020 GHG targets

The architecture of the 2020 EU GHG target



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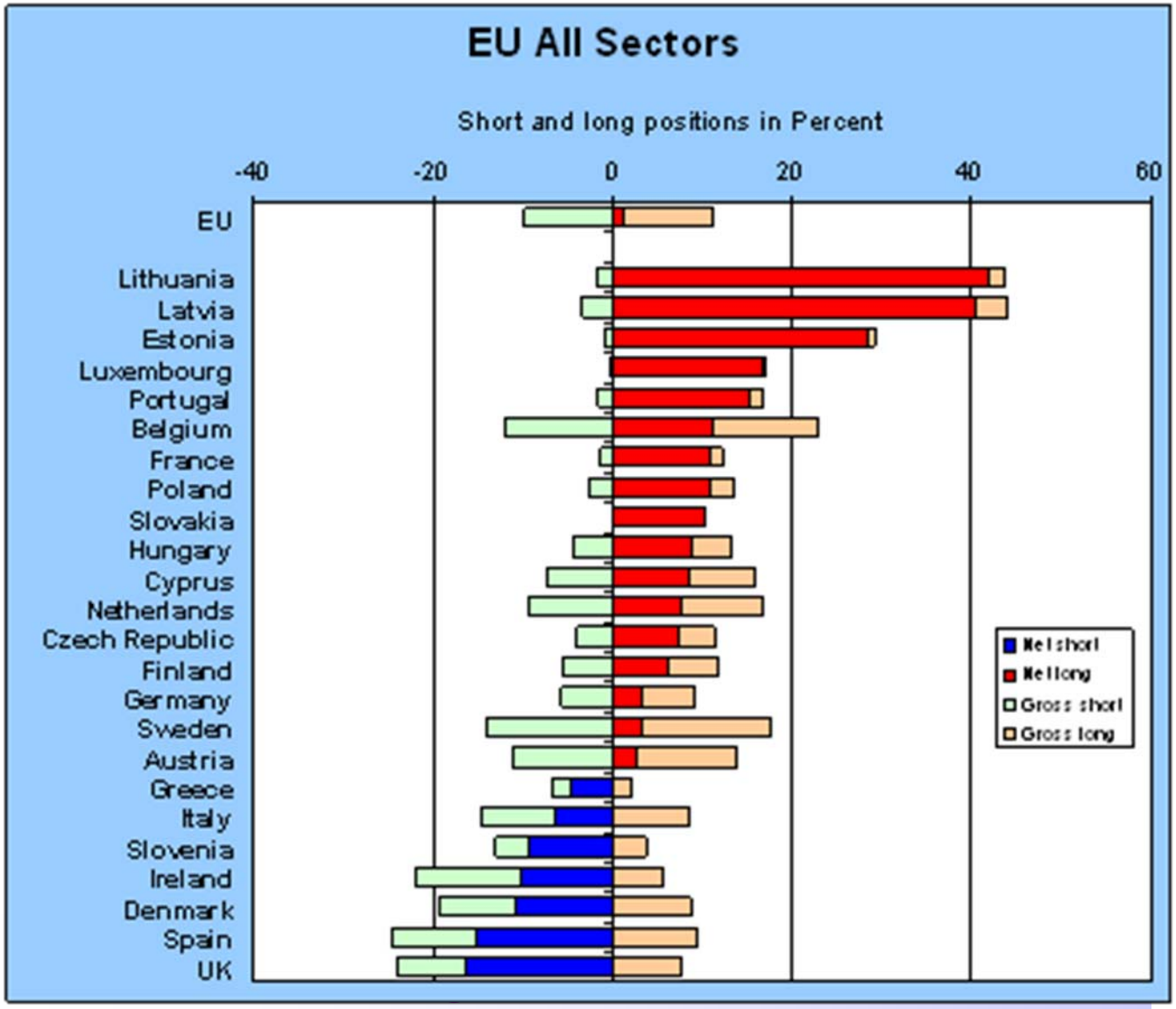
EU ETS
Phase 3

EU ETS: The 2007 performance (1)



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EU ETS: The 2007 performance (2)

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	Allocation 2007 tCO2	Verified emissions 2007 tCO2	Short Absolute tCO2	Short Relative Percent	Long Absolute tCO2	Long Relative Percent	Net Absolute tCO2	Net Relative Percent
EU	2,085,596,937	1,905,785,492	204,437,604	9.8	232,585,798	11.2	27,973,924	1.3
Austria	32,647,046	31,740,118	3,602,316	11.0	4,519,179	13.8	899,599	2.8
Belgium	60,428,821	52,789,641	7,149,101	11.8	13,887,536	23.0	6,738,435	11.2
Cyprus	5,899,493	5,396,164	424,618	7.2	927,947	15.7	503,329	8.5
Czech Republic	96,919,971	77,795,822	3,820,115	3.9	10,967,021	11.3	7,146,906	7.4
Denmark	27,902,895	28,760,461	5,390,907	19.3	2,434,125	8.7	-2,956,782	-10.6
Estonia	21,348,726	15,251,055	178,667	0.8	6,249,081	29.3	6,070,414	28.4
Finland	42,571,106	39,946,586	2,346,213	5.5	4,969,522	11.7	2,624,309	6.2
France	149,775,970	104,541,176	1,955,301	1.3	18,318,022	12.2	16,362,721	10.9
Germany	497,296,562	485,705,026	28,366,652	5.7	45,387,790	9.1	17,021,138	3.4
Greece	71,162,432	38,015,923	4,877,309	6.9	1,519,457	2.1	-3,357,852	-4.7
Hungary	30,236,166	22,304,085	1,327,454	4.4	4,049,391	13.4	2,721,937	9.0
Ireland	19,240,229	20,756,377	3,960,297	21.8	1,967,958	5.6	-1,992,339	-10.4
Italy	203,250,244	193,482,645	29,803,862	14.7	17,064,831	8.4	-12,739,031	-6.3
Latvia	4,035,018	2,391,955	136,550	3.4	1,774,431	44.0	1,635,674	40.5
Lithuania	10,291,397	5,914,263	175,687	1.7	4,492,463	43.7	4,316,776	41.9
Luxembourg	3,229,321	2,131,604	4,420	0.2	548,708	17.0	544,288	16.9
Netherlands	86,476,714	78,548,911	8,034,808	9.3	14,527,207	16.8	6,492,399	7.5
Poland	248,804,920	219,520,503	6,659,983	2.7	33,733,675	13.6	26,918,893	10.8
Portugal	36,908,808	30,730,346	617,099	1.7	6,232,272	16.9	5,615,173	15.2
Slovakia	30,486,829	7,522,337	1,664	0.0	3,151,079	10.3	3,149,415	10.3
Slovenia	8,245,914	8,994,267	1,072,876	13.0	313,033	3.8	-759,843	-9.2
Spain	159,716,691	168,202,928	39,408,159	24.7	15,023,564	9.4	-24,384,595	-15.3
Sweden	22,846,480	15,190,989	3,232,183	14.1	4,005,933	17.5	773,750	3.4
UK	215,875,184	250,152,310	51,892,363	24.0	16,521,573	7.7	-35,370,790	-16.4

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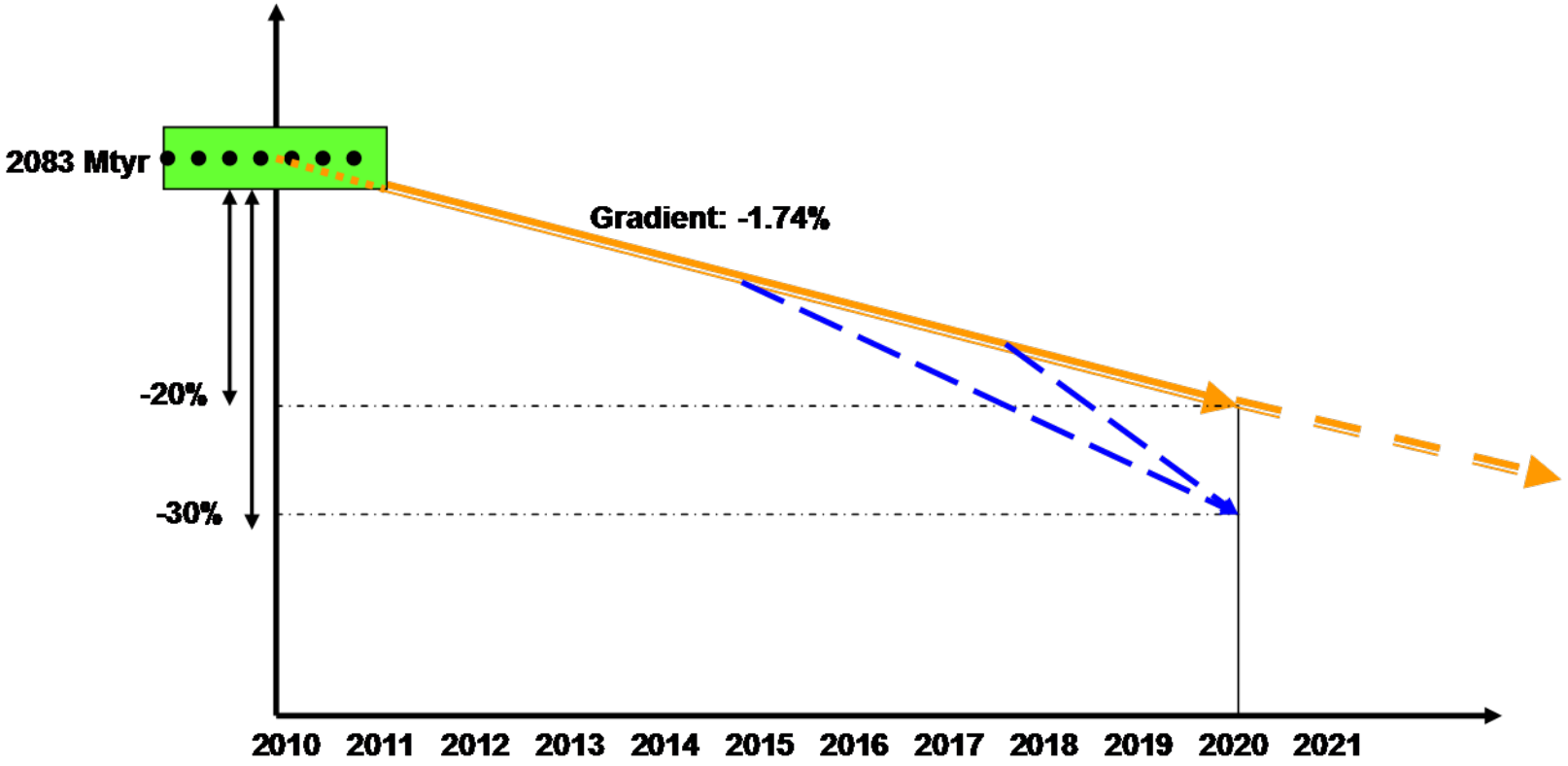
EU ETS: What is new?

- **Harmonized overall target of -21% over 2005**
  - The first sectoral approach
  - Still to be decided
    - Sector allocation
    - Schedule for auctioning
    - Guidelines for free allocations
- **Extended coverage**
  - More sectors (chemicals, aluminum), maybe aviation
  - More gases (N_2O – fertilizers, PFCs – aluminum)
- **Opt-out for small emitters**
  - If equivalent measures (e.g. taxes) are introduced

EU ETS: Schedule for cap setting



EU ETS: Allocation principles

- **Harmonized allocation rules - level playing field**
  - No distortion of competition
  - No state aid risks for operators
  - Special attention will be given to carbon leakage
    - EC to report by 2011
- **From free allocations to auctioning**
  - Schedule for auctioning to be negotiated
  - Use of auctioning revenues is a crucial design element
  - Full auctioning for electricity from the very beginning

EU ETS: Design of auctioning

- **Share of the cap to be auctioned**
  - Full auctioning for power sector from the very beginning
    - Full cost pass through
  - Gradual increase of share for other sectors
- **Harmonized auctioning rules**
  - Transparency and non-discrimination
  - What should be the impact of auctioning on the carbon price?
- **Distribution of the auctioning rights**
  - 90% of the auctioning CAP is distributed according to the MS share of 2005 Verified Emissions
  - 10% distributed to Member States that have a GDP per capita below 120% of EU average
- **Use of auctioning revenues**
  - 20% of auction revenues should be used for combating climate change and promoting renewable energies

EU ETS: Rules for free allocations

- **Phase-out of transitional free allocations to "normal" industries by 2020**
  - Start with 80% free allocations in 2013
  - Allocation according to Community-wide rules, e.g. benchmarking
  - No free allocations to power sector
- **Industries exposed to a significant risk of carbon leakage**
  - Can receive up to 100% free allocation of the quantity of allowances determined under the general Community-wide rules
  - These sectors to be determined at the latest in 2010

Renewables

Renewables: 2020 target

	Share of Renewables Percent		
	Calc. 2005	EC 2005	EC 2020
Austria	23.2	23.3	34.0
Belgium	2.4	2.2	13.0
Bulgaria	10.7	9.4	16.0
Cyprus	2.9	2.9	13.0
Czech Republic	6.3	6.1	13.0
Denmark	16.8	17.0	30.0
Estonia	17.8	18.0	25.0
Finland	28.1	28.5	38.0
France	9.8	10.3	23.0
Germany	6.8	5.8	18.0
Greece	7.6	6.9	18.0
Hungary	4.1	4.3	13.0
Ireland	3.2	3.1	16.0
Italy	5.2	5.2	17.0
Latvia	35.2	34.9	42.0
Lithunania	15.2	15.0	23.0
Luxembourg	2.4	0.9	11.0
Malta	0.0	0.0	10.0
Netherlands	2.4	2.4	14.0
Poland	7.2	7.2	15.0
Portugal	17.1	20.5	31.0
Romania	18.5	17.8	24.0
Slovakia	6.9	6.7	14.0
Slovenia	14.7	16.0	25.0
Spain	8.0	8.7	20.0
Sweden	40.9	39.8	49.0
United Kingdom	1.5	1.3	15.0

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Renewables: Calculation of the share

- **Final consumption of energy from renewables**
  divided by
  final consumption of all energy sources

- **The actual calculation is very difficult**
- **Numerator**
  - **FEC_RES +**
    FEC_Electricity(hydro, biomass, wind) +
    FEC_Heat(biomass) +
    FEC_Biofuels
- **Denominator**
  - **FEC_TOTAL +**
    Own_Use_Electricity +
    Own_Use_Heat
    Distribution_Losses_Electricity +
    Distribution_Losses_Heat

Implications for modeling

- **Renewables target is crucial for the energy system**
  - Potential for renewablesis limited
  - Share for renewables puts a cap on final energy consumption (FEC)
  - Can this limit for FEC fulfill the energy services needed?
- **Interaction with the cap for the Non-ETS**
  - Is the carbon cap for the Non-ETS compatible with the FEC from fossils needed for this sector?