SIDE EVENT

Lessons learnt from emissions trading implementation

Date: Friday, 09 December 2005

Time: 13:00-15:00

Location: Churchill River, Palais de Congrès, Montréal, Canada

- **Comparison of National Allocation Plans of EU member states**
  Karoline Rogge (Fraunhofer Institute Systems and Innovation Research)
- **Monitoring in the EU Emissions Trading Scheme – Lessons learnt**
  Sina Wartmann (Ecofys GmbH)
- **Carbon Trading in the "Real World" – a Legal Perspective**
  Hannah McCaughey (Baker & McKenzie)
- **Lessons learnt from environmental markets in Australia**
  Dr. Regina Betz (Centre for Energy and Environmental Markets, CEEM)

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COP 11 / COP/MOP 1

Comparison of National Allocation Plans of EU Member States

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Side Event:
Lessons learnt from emissions trading implementation

COP 11 / COP/MOP 1 in Montréal, Canada
December 9, 2005

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Content

This presentation will cover …

- Overview of the EU Emissions Trading Scheme (EU ETS)
- Quantitative assessment of targets within the EU ETS
- Comparison of allocation rules on installation level
- Lessons learnt for the second trading period 2008-12

1. Overview of the EU Emissions Trading Scheme (EU ETS)

- **Approach**: cap-and-trade system
- **Covered greenhouse gases**: only CO_2 + opt-in starting 2008
- **Regulated entities:** ca. 11.150 CO_2-intensive installations (CO_2 permit required)
- **Sectors:** energy, refineries, ferrous metals, cement, lime, glass, ceramics, pulp & paper
- **Timing**: successive phases: 2005-07, 2008-12 etc.
- **Allocation method**: 2005-07: at least 95% free of charge; 2008-12: at least 90%
- **Flexibility**: banking between / within phases, borrowing within phases
- **Accountable units**: EU allowances (EUAs), CERs (CDM) from 2005 and ERUs (JI) from 2008, quantitative limits from 2008 onwards, no forestry units
- **Monitoring:** Harmonized monitoring, reporting and verification of CO_2 emissions based on Monitoring Guidelines
- **Sanctions**: harmonized financial sanctions for non-compliance (40 €/t in 2005-2007; 100 €/t from 2008-) & surrender missing allowances + public notification

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Some basic numbers

- EU ETS covers approx. 50% of **CO_2 emissions** of EU
  - MS with highest share of CO_2 emissions in EU ETS: Malta (73%)
  - MS with lowest share of CO_2 emissions in EU ETS: LUX (28%)
- **Cap**: 2.2 Bill. EAU/a
  - MS with largest share: GER (499 Mt EAU/a, i. e. 25%)
  - MS with 2nd largest share: UK (245 Mt EAU/a)
  - MS with smallest share: Malta (3 mill. EAU/a)
  - EU-15 holds 4/5 of total EU ETS budget and EU-10 1/5
- Approx. 11,150 **installations** covered
  - MS with most installations: GER (1,849), ITA (1.240), FRA (1.172), POL (1.166)
  - MS with least installations: Malta (2), Cyprus (16), LUX (19)
  - Median: 140, Average: 197

Installation coverage

- Number of installations depends on
  - Sectors included in the scheme
  - Minimum thresholds (capacity/output) for activities to be included in the scheme
  - General structure of the national economy
  - Definition of combustion installation:
    variety in EU MS
  - National provisions on inclusion and temporary exclusion of installations (opt in / opt out)
    e.g. de minimis rule in NL

2. Quantitative assessment of targets for the EU ETS

- Macro-level allocation determines total budget for entire ET-sector of MS (including reserve for new entrants)

How to assess the amount of allocated allowances? (1)

- **Aim of EU ETS:** cost-effective reduction of CO_2-emissions to help EU reach its Kyoto target
- **Two criteria** suitable to evaluate whether CO_2 is being reduced:
  - Emissions of covered installations in base period (historic emissions)
  - Projected emissions of covered installations in trading period (BAU-scenario)

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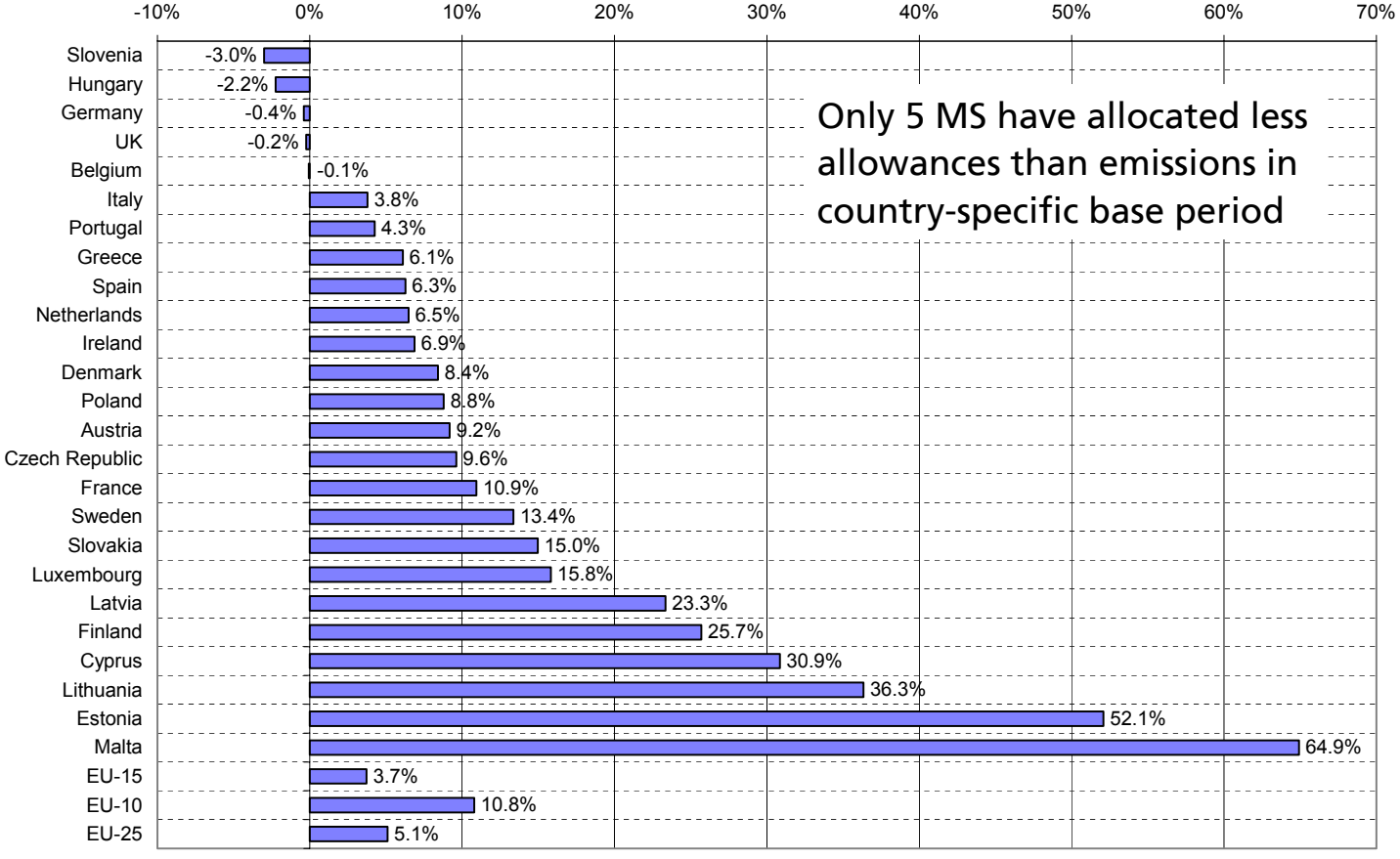
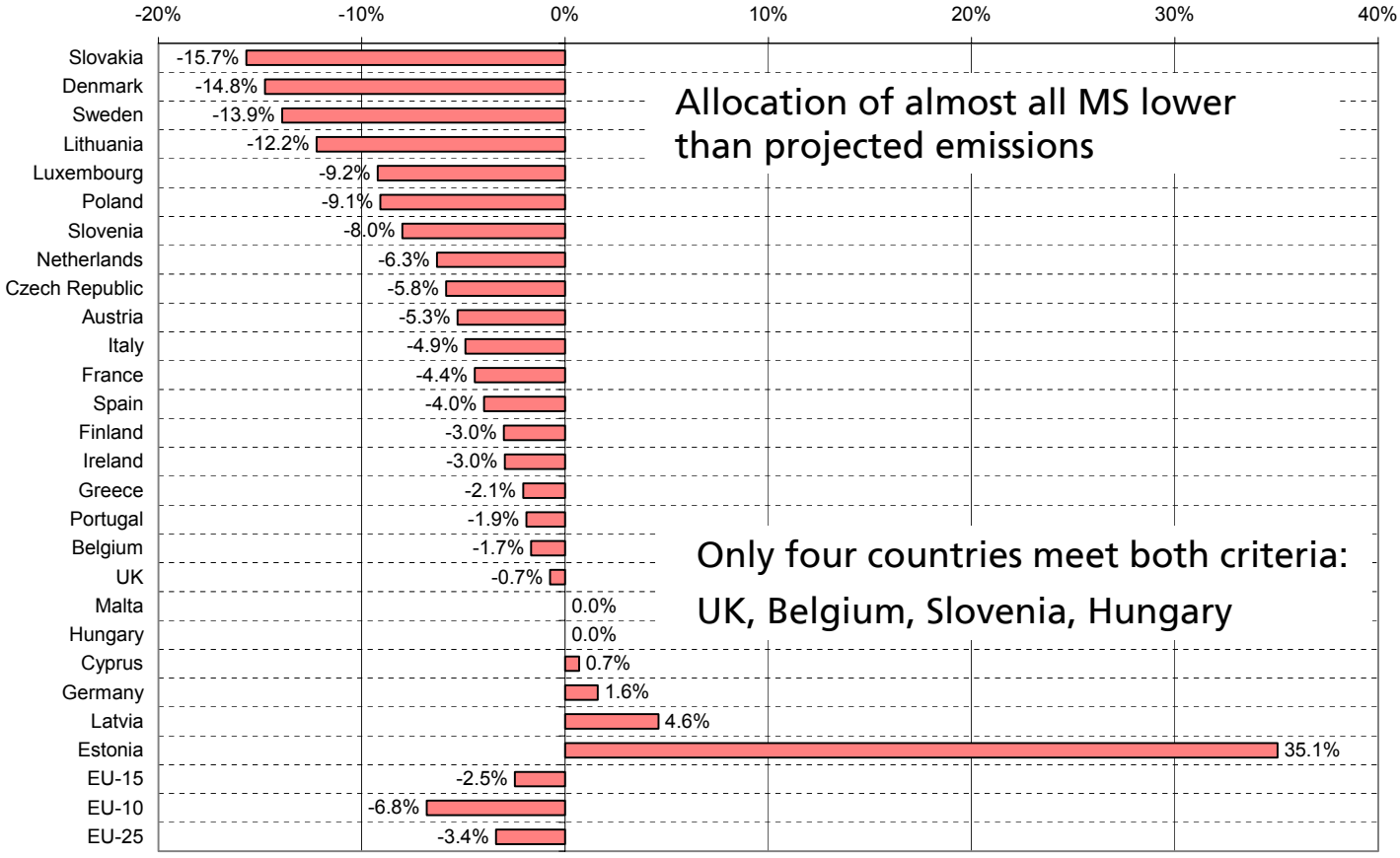
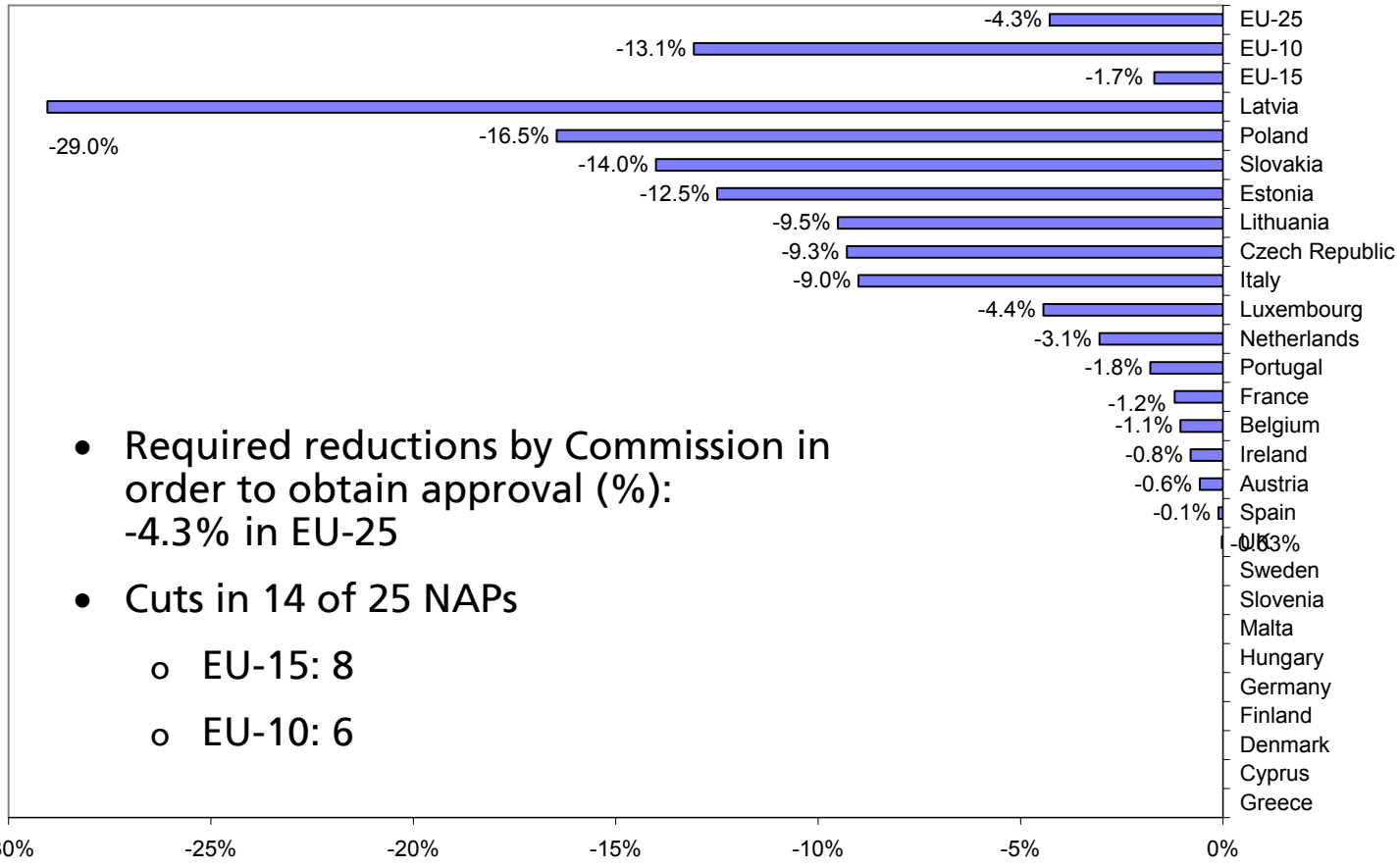
Allocation compared to historic emissions (base period)



Allocation compared to ETS emission projections 2006 (BAU)

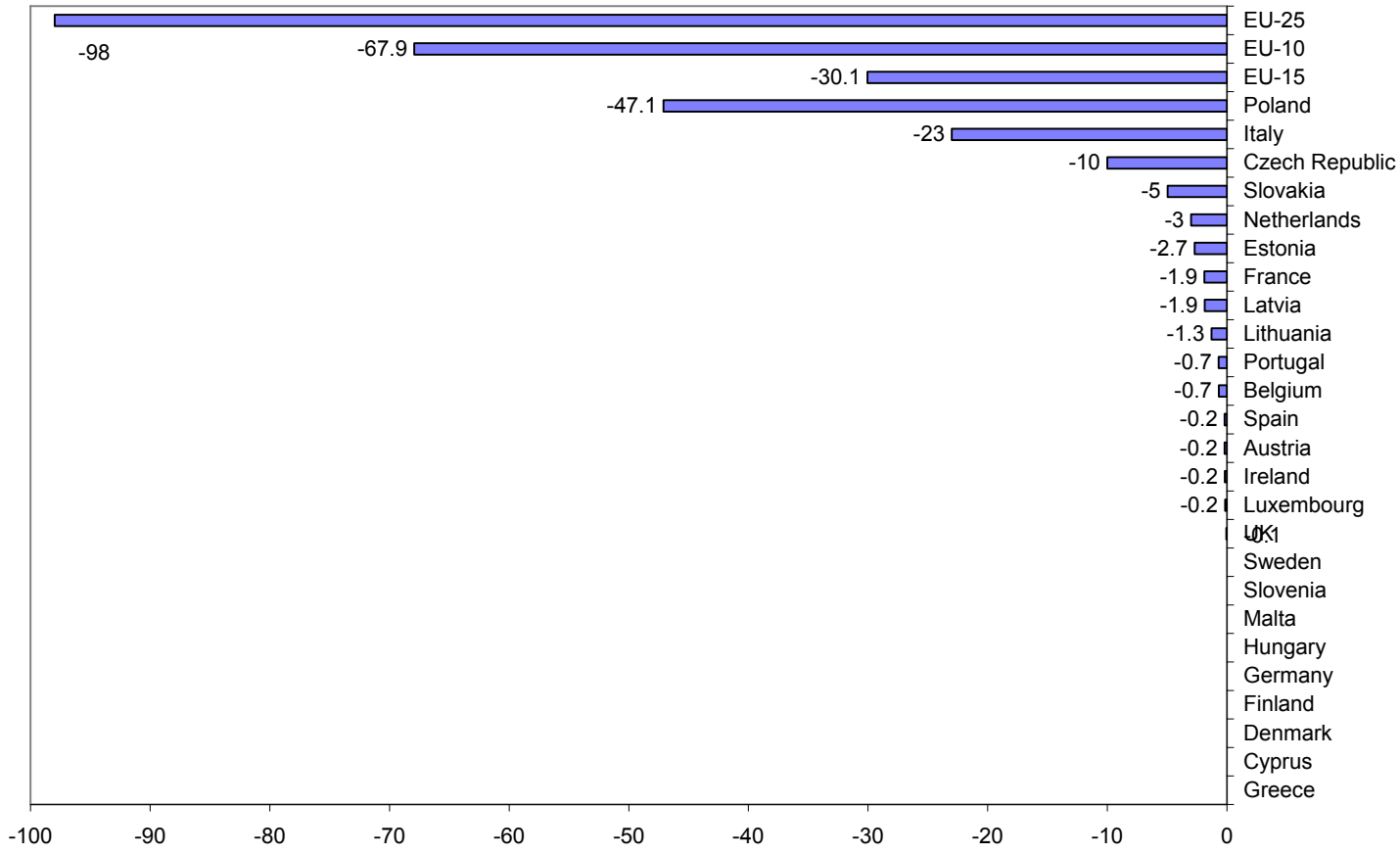


What was the impact of the EU Commission on the CO_2-budget?



- Required reductions by Commission in order to obtain approval (%): -4.3% in EU-25
- Cuts in 14 of 25 NAPs
  - EU-15: 8
  - EU-10: 6

Reductions by EU-COM in Mt CO_2 p.a.



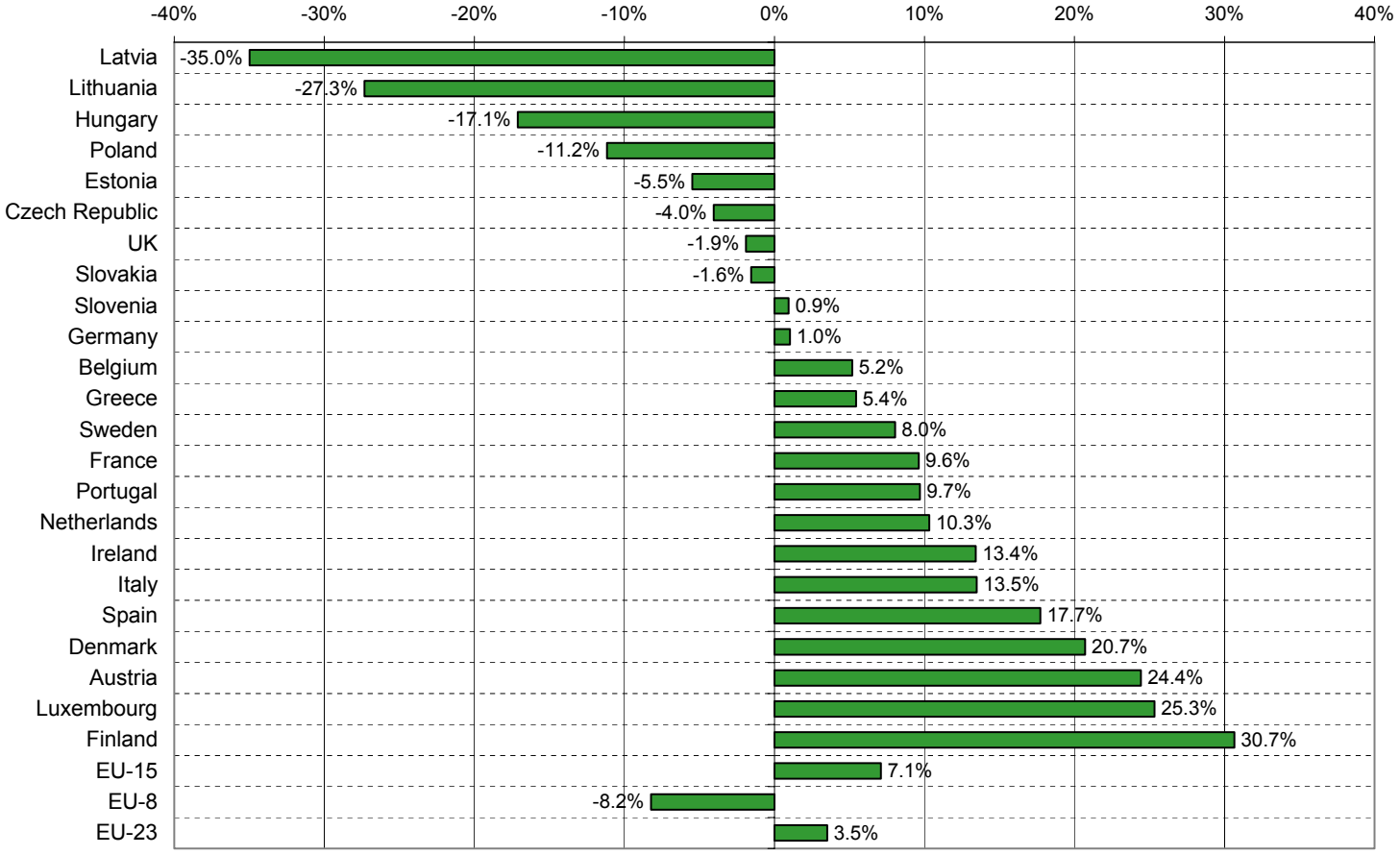
Allocation compared to Kyoto target

How to assess the amount of allocated allowances? (2)

- Assessment of contribution to reaching Kyoto target: Hypothetical emissions target for EU ETS sector (Kyoto conformity)
- Assumptions:
  - Starting point: Kyoto / Burden-Sharing target for all GHG emissions
  - Constant share of CO_2 emissions of EU ETS sector compared to all GHG
  - Linear interpolation between base period emissions and hypothetical EU ETS target for 2010 gives

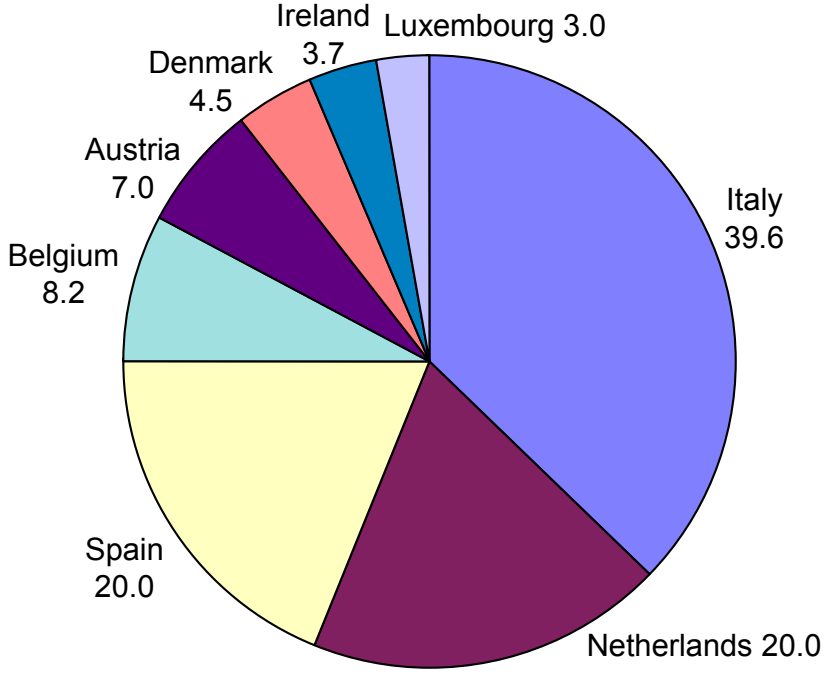
→ Hypothetical EU ETS target for 2006

EU ETS cap compared to hypothetical EU ETS Kyoto target



Accepted use of Kyoto Mechanisms 2008-2012

Total of 106 Mt CO_2e/a



Decision criteria:

- Administrative body
- Contracts
- Financial means

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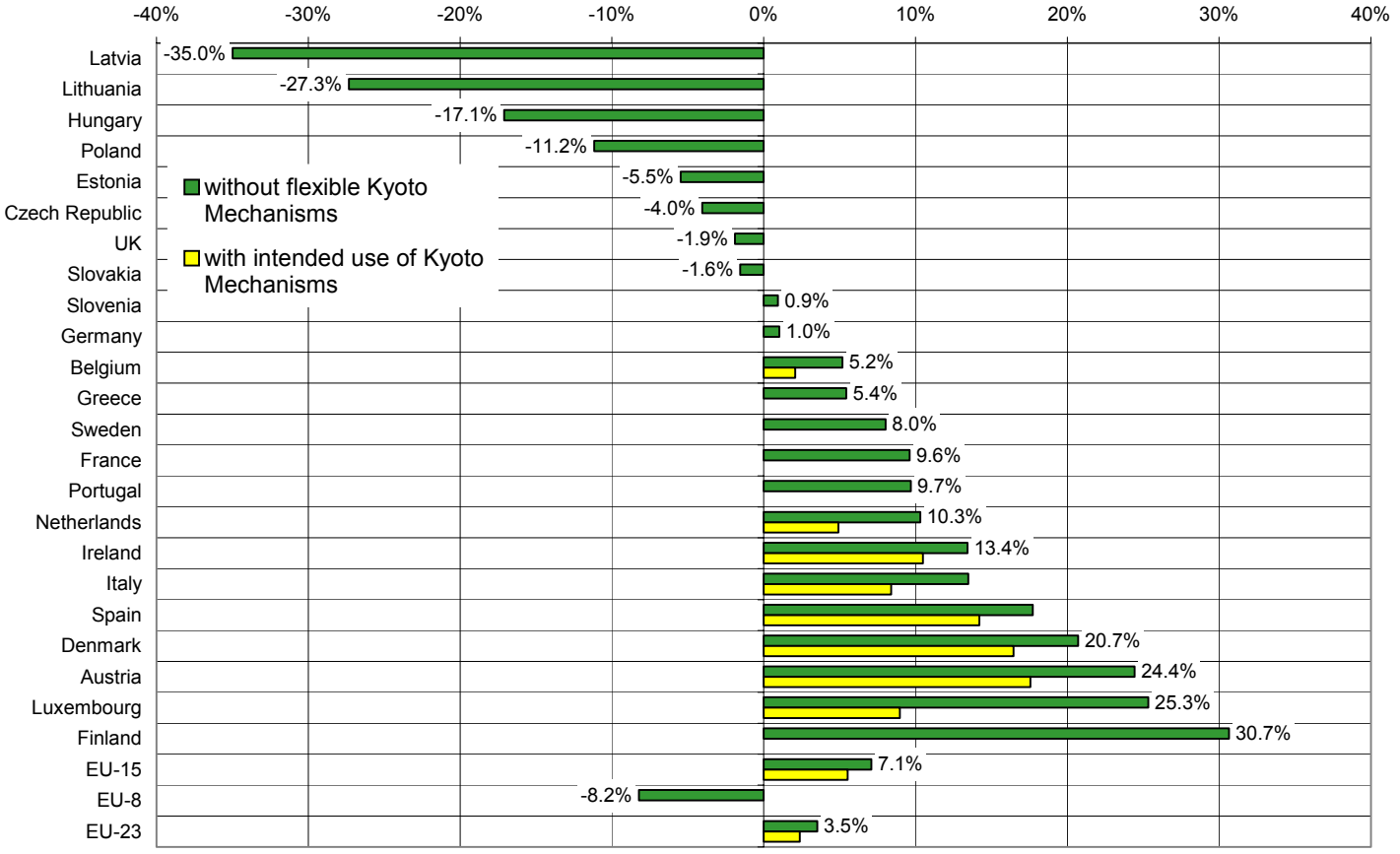
EU ETS cap compared to hypothetical EU ETS Kyoto target (with / without KM)



3. Comparison of allocation rules on installation level

Allowances are **allocated for free** in most MS:

- **Auctioning** only in DNK (5% ~ 33.5 Mio. € p.a.), HUN (2.5%), Lithuania (1.5%) and IRL (0.75%), revenues mostly used to cover administrative costs
- **Grandfathering:** Allocation based on historical emissions in most MS
  - Wide variety of **base periods**: from 1990 to 2004, mostly 3-5 years, often exclusion of year with lowest emissions, exemptions / case of hardship
  - almost all MS use **growth factors** (GER only partially through BM)
- **Benchmarking** elements: Allocation based on specific emissions in DNK, Lithuania, NL, FRA, GER (in GER choice between grandfathering and BM)
- **Special provisions** for, among others, CHP and other clean technologies, process-related emissions, early action
- **Ex-post adjustments** if emissions "lower than expected" (e.g. GER < 40 %, LUX < 10 %) **not accepted** by EU Commission!

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Sectoral differentiation of allocation method

- **Why** differentiation by sector?
  - Account for different reduction possibilities due to technical restrictions and competitive reasons
  - → Stricter allocation for energy sector compared to industry sector (e.g. in Spain, Sweden, UK)
- **How** did MS differentiate by sector?
  - Sector caps
  - Sector specific reduction / growth factors
  - Different base periods for different sectors
- **Who** differentiated by sector?
  - Only 3 MS do not use any sector specific features (GER, LUX, Malta)
  - All other MS incorporated differentiation by sector in allocation method

Early action

- **Problem:** Allocation based on recent base periods means disadvantage for installations that implemented CO_2 reduction measures in the past
- One **Solution:** Special rules to reward these early carbon-efficient installations
- Very limited **direct** consideration:
  - **Compliance factor** of 1.0: in GER for 12 years after implementation (instead of 0.9709), Latvia (fuel substitution and improvement of energy efficiency), EST (energy sector)
  - **Bonus / Reserve**: POL, CZR, HUN
- **Indirect** consideration through:
  - **Earlier base periods:** e. g. CYP (starting 1990), IRL, ITA, UK, LUX, Slovenia, Latvia, EST, Lithuania, FRA
  - **Substitution of years in base period**: Belgium/Brussels 2001-2003 (with one year from 1990-2000)
  - **Benchmarks for incumbents** favors efficient installations: AUT, NL, DNK, BEL / Wallonia, Lithuania, Slovenia

New entrants

New entrants usually get free allowances from reserves

- "Uncoordinated" EU harmonization as new entrant allocation could influence **choice of location**
- Only **exception is Sweden**: new installations in energy sector must buy allowances (except for CHP plants with a minimum degree of efficiency)
- **Benchmarking**: specific emissions * (projected) output
  - In general BAT (e.g. Denmark, Germany, Sweden)
  - Some MS use average BM
- Usually **no compliance factor** (exception: Spain)
- **Ex-post adjustment** based on actual output data (Germany)

→ **prohibited** by EU-COM – pending legal case against decision

Reserve for new entrants

- In EU **4.7% of ETS budget** reserved for new installations (ca. 102 Mt CO_2 p.a.,)
- Large **variety** among MS: 0.6% (GER) - 26.3% (Malta) of ETS budget
- If reserve **too small**:
  - Most MS allocate on first-come-first-served basis (AUT, BEL, DNK, EST, FRA, GRE, IRL, Latvia, Malta, NL, PRT, Slovenia, Slovakia, SPA, UK)
  - Some MS purchase missing EAUs on market (ITA, POL, FRA, LUX, GER)
  - Proportional reduction for each new install. for past year (HUN, CZR)
- If reserve **too large**: Excess allowances either
  - sold / auctioned (AUT, CZR, EST, FIN, GRE, HUN, IRL, ITA, LUX, POL, UK) or
  - cancelled at end of trading period in remaining MS (e. g. GER)
  - refunded to incumbent installations: NOT approved

Benchmark comparison for new entrants

- New entrants benchmarks for **electricity** production:
  - FRA: 900 g CO_2 / kWh
  - GER: 365-750 g CO_2 / kWh
  - Lithuania: 551 g CO_2 / kWh
  - BEL (FIN): 500 g CO_2 / kWh
  - ITA: 396-1.531 g CO_2 / kWh and 555 g CO_2 / kWh
  - DNK: 342 g CO_2 / kWh
  - SWE: 265 g CO_2 / kWh
  - UK: Gas benchmark (for 5 different technologies)

  → **only two MS use fuel-specific benchmarks** (GER, ITA)

  → a lot of MS did not specify benchmarks in NAP
- Ongoing research and policy dialogue on EU wide harmonization of benchmarks

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4. Lessons learnt for the second trading period 2008-12

- **More stringent cap** for ETS sector (fulfil all 3 criteria)
- Aim for **cost-efficient allocation** between non-trading and trading sectors (i.e., consider differences in marginal abatement costs)
- Extension of **auctioning** (increasing share over time, ultimate goal 100%)
  - Innovation incentive
  - Reduction of windfall profits, esp. if applied to electricity industry
- **EU Harmonisation**
  - Definition of **installation** (Annex I was not precise enough)
  - **Benchmarking** (for homogeneous product categories, no fuel differentiation)
  - **De minimis rule** to reduce transaction costs
- **Less exemptions** (e.g. process related, early action)
- Increase **transparency**
- Consider **innovation incentives** for climate friendly technology of all rules
- More **long-term certainty** for investors needed
- Inclusion of other gases and sectors to improve efficiency (e.g. aviation)

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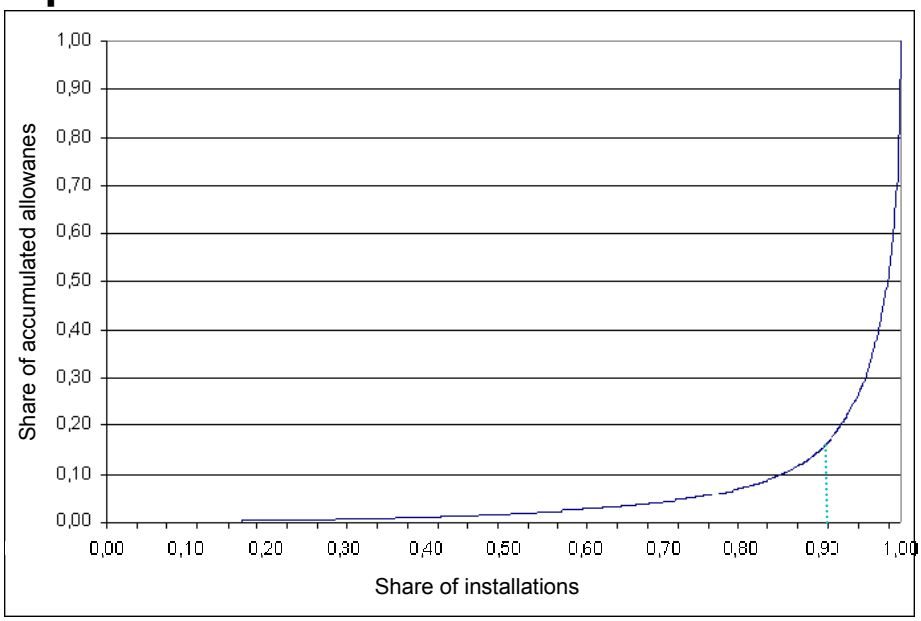
Transaction costs vs. compliance costs: the case of small emitters

Germany:

- 85% of allowances are allocated to top 10% of installations
- 50% of installations (small) only receive 1.6% of total allocation (similar in rest of EU: 33% ~ 0.7%, 55% ~ 2.6%)



Source: DIW/Fraunhofer ISI/Öko-Institut (Forthcoming): Final Report NAP 2005-2007 for Germany (in German).

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- High costs for industry and government!
- Thresholds have to be chosen carefully!

Final Conclusions

- EU ETS as EU policy innovation: ambitious and successful effort
  - More than 11,000 installations in 25 countries covered
- Sound framework of fundamental design choice (e. g. sanctions, monitoring, supervision by EU COM)
- Framework grants flexibility for improvement:
  - Implementation in different phases with review options
  - Banning of banking from 1st to 2nd trading period (fresh start)
  - → Shortcomings of first trading period can be overcome in future trading periods
- EU ETS on track to become model for future GHG emissions trading schemes

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Further information …

… can be downloaded free-of-charge from the German Emissions Trading Authority (DEHSt):

DEHSt / Fraunhofer ISI / Öko-Institut: "Implementation of Emissions Trading in the EU: National Allocation Plans of All EU States" (November 2005)

http://www.dehst.de/cln_027/nn_593634/SharedDocs/Downloads/EN/ETS/EU_NAP_Vergleich,templateId=raw,property=publicationFile.pdf/EU_NAP_Vergleich

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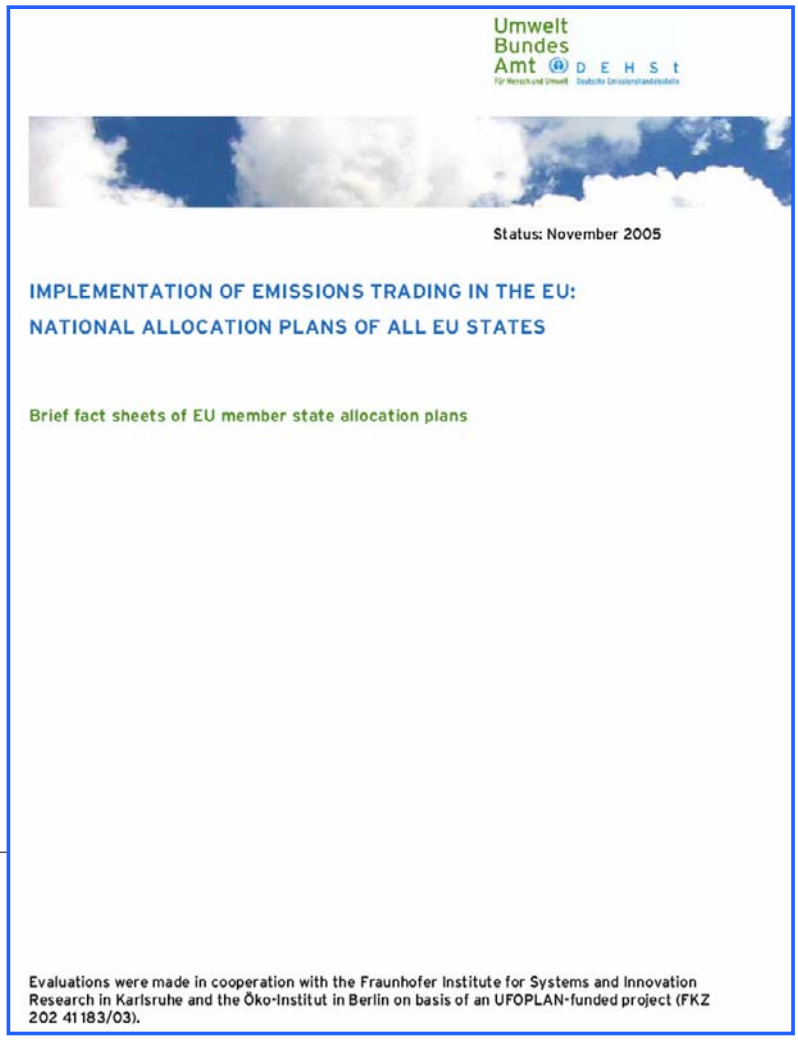

… and in the ISI-Manual …

"Flexible Instruments for Climate Protection" (2005, 3rd edition)

Detailed information on

- Emissions Trading
- CDM
- JI

Sponsor: Environmental Ministry of the Federal State Baden-Württemberg

Online available (in German only):

http://www.isi.fhg.de/n/klimapolitik.html

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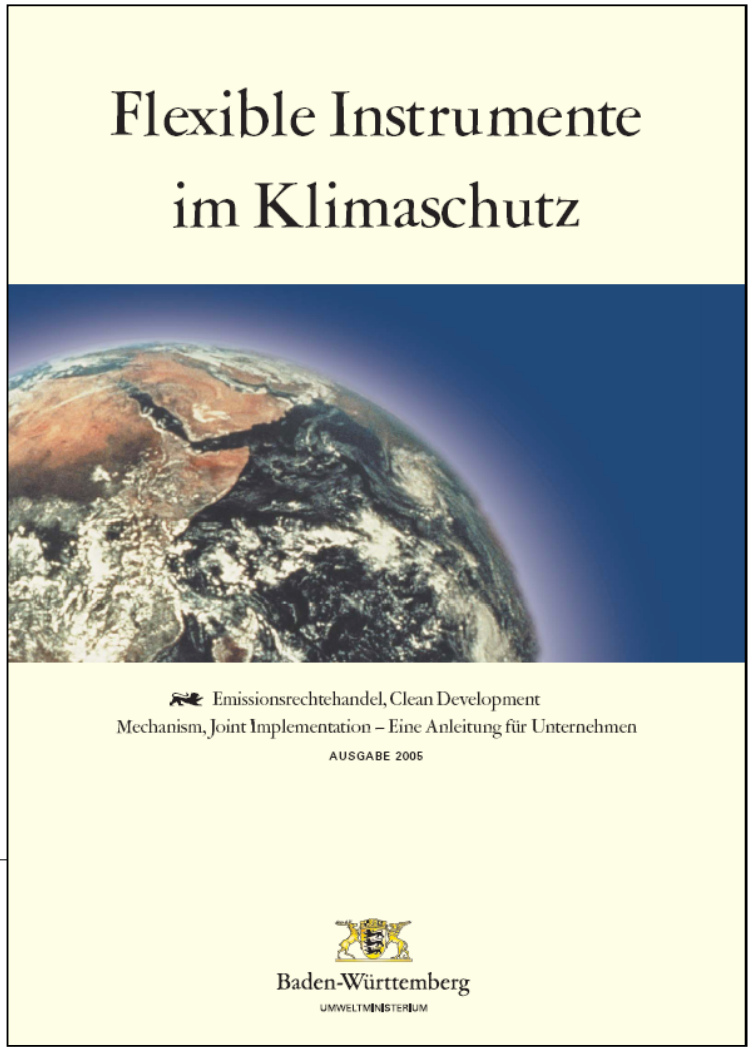

Thank you for your attention!

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