Lessons learnt from emissions trading implementation

SIDE EVENT

COP 11 / COP/MOP 1

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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ECOFYS

BAKER & McKENZIE

UNSW THE UNIVERSITY OF NEW SOUTH WALES

Centre for Energy and Environmental Markets

Comparison of National Allocation Plans of EU Member States

Karoline Rogge

Fraunhofer Institute for Systems and Innovation Research (Fraunhofer ISI)

Karlsruhe, Germany

Side Event:

Lessons learnt from emissions trading implementation

COP 11 / COP/MOP 1 in Montréal, Canada

December 9, 2005

Fraunhofer Institute Systems and Innovation Research

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

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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

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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

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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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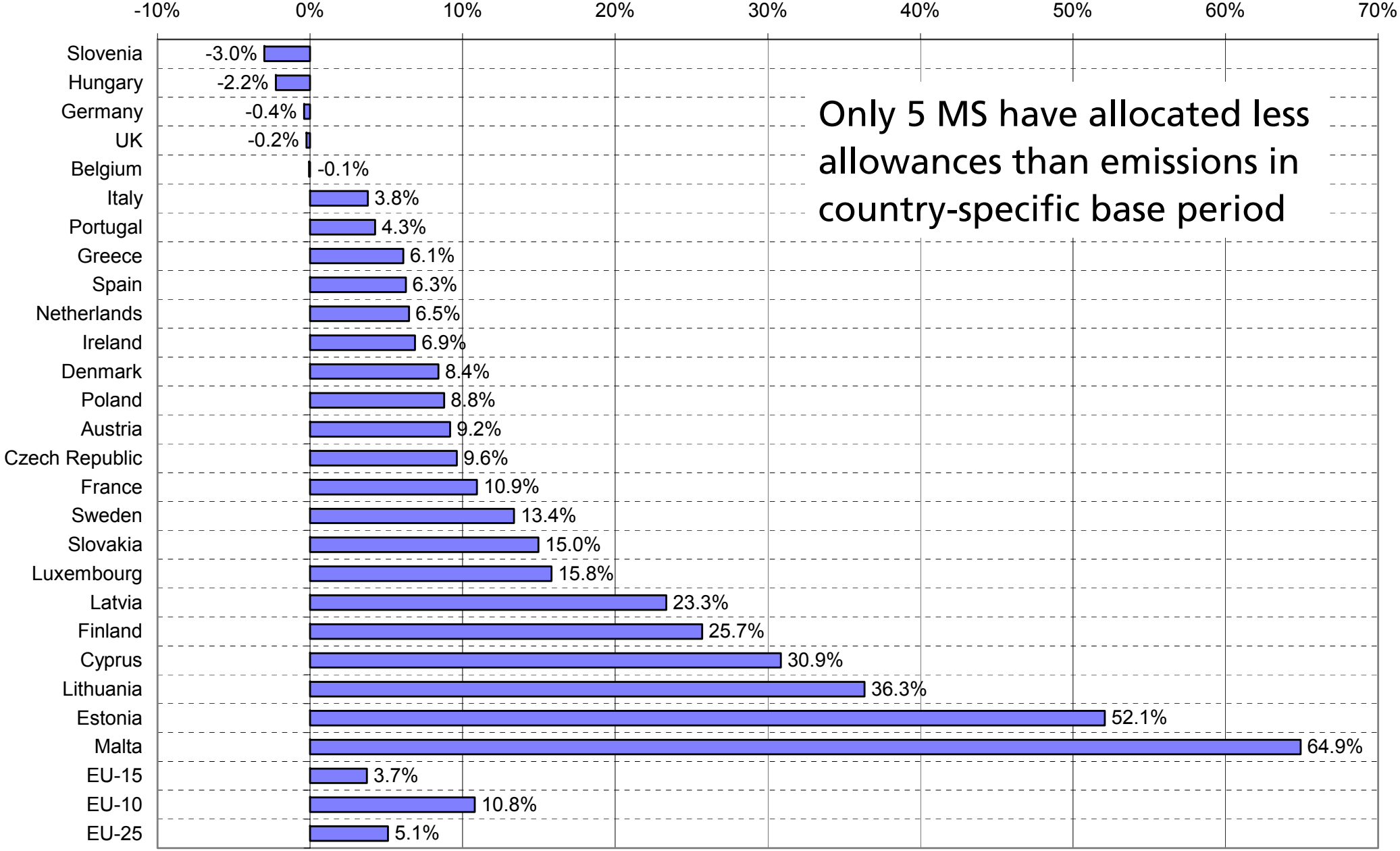
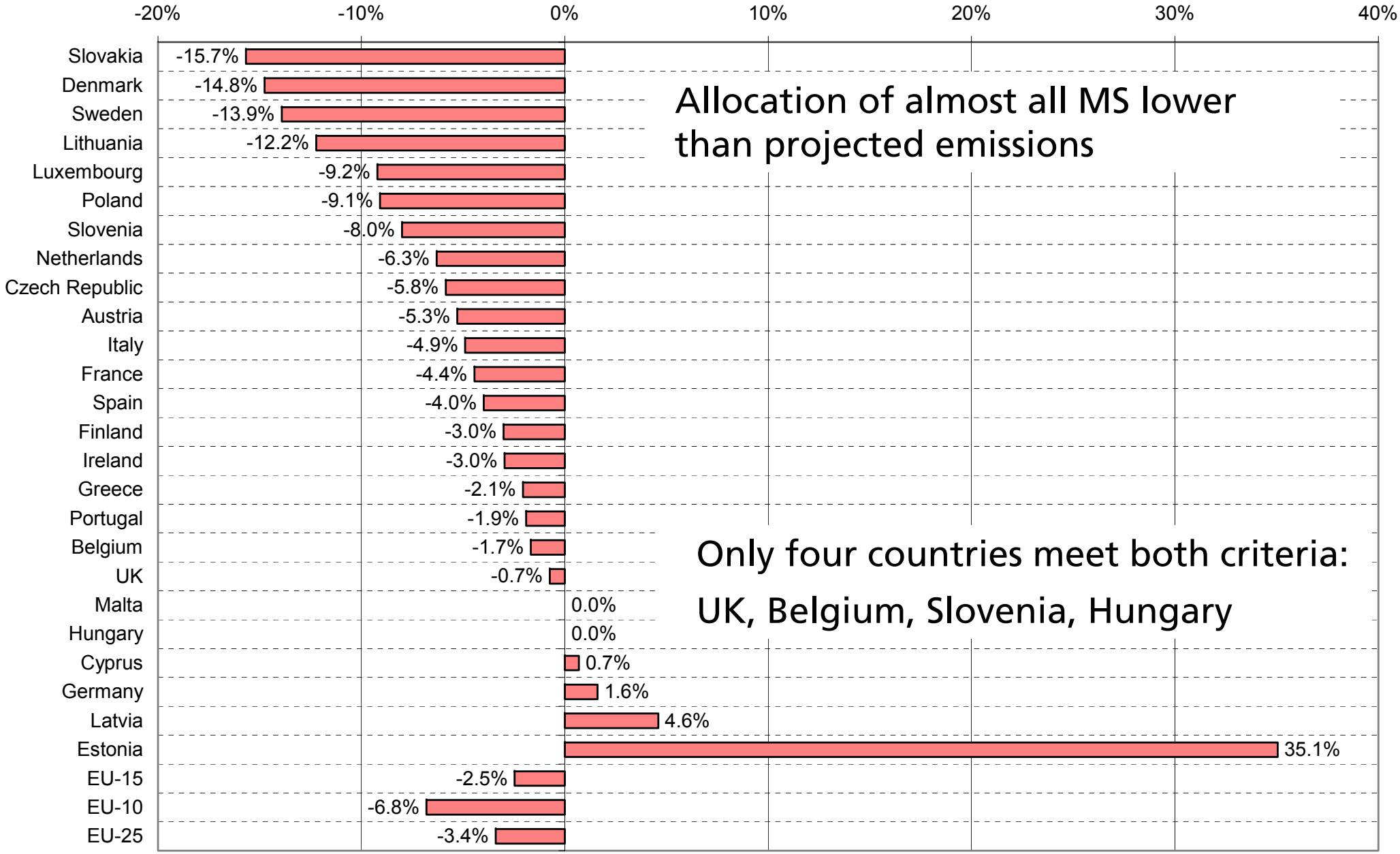
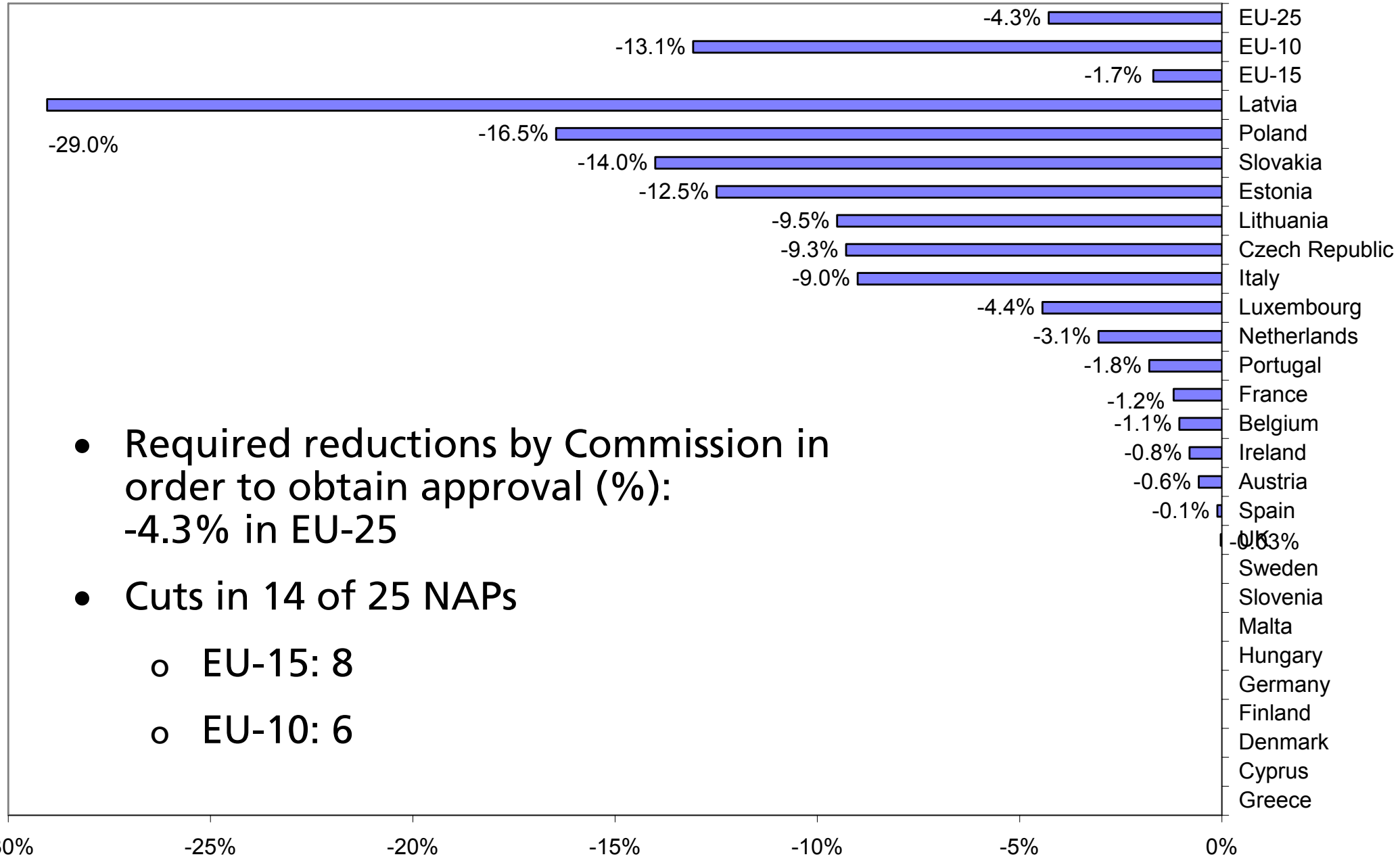
Allocation compared to historic emissions (base period)



Allocation compared to ETS emission projections 2006 (BAU)

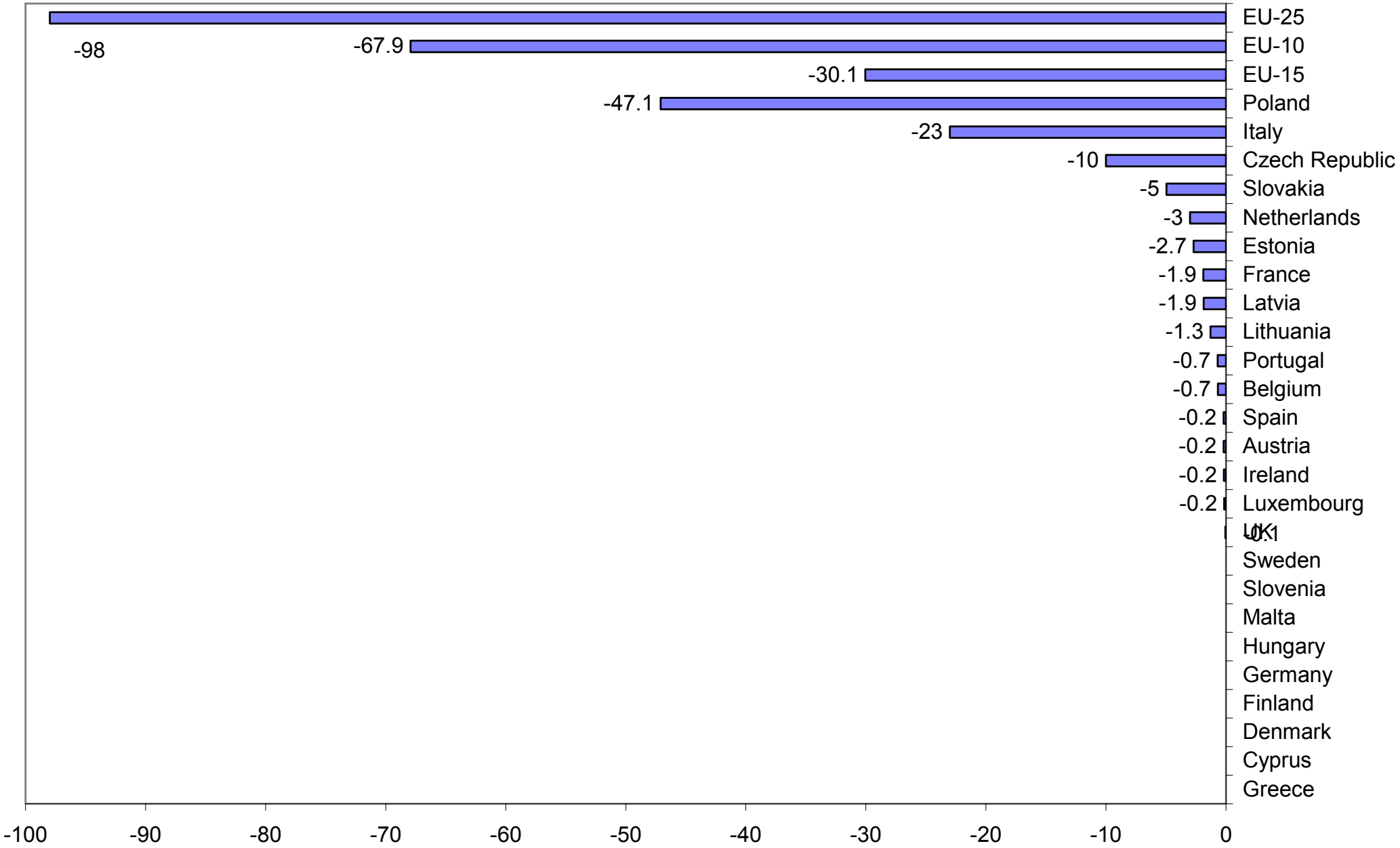


What was the impact of the EU Commission on the CO_2-budget?



- 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

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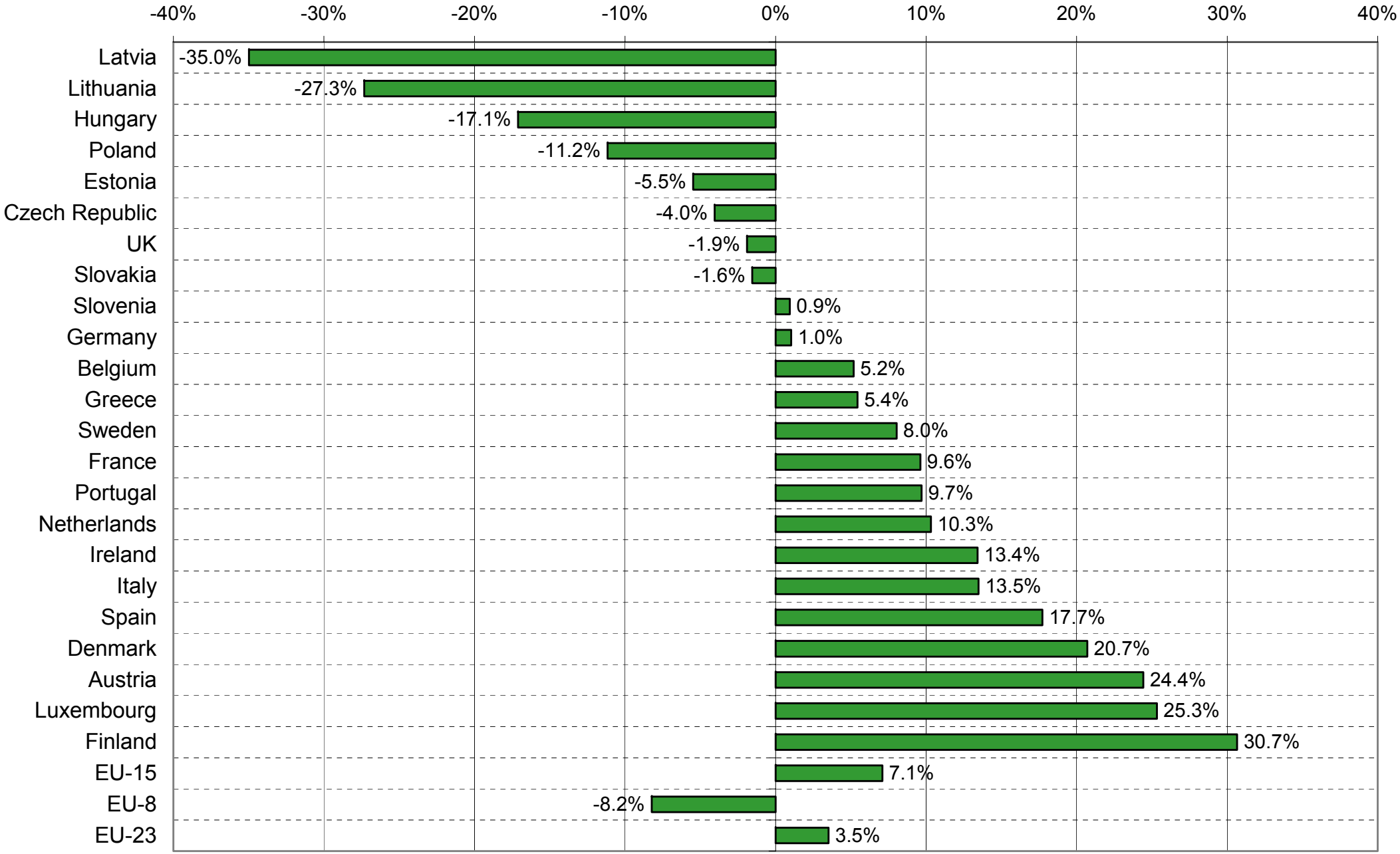
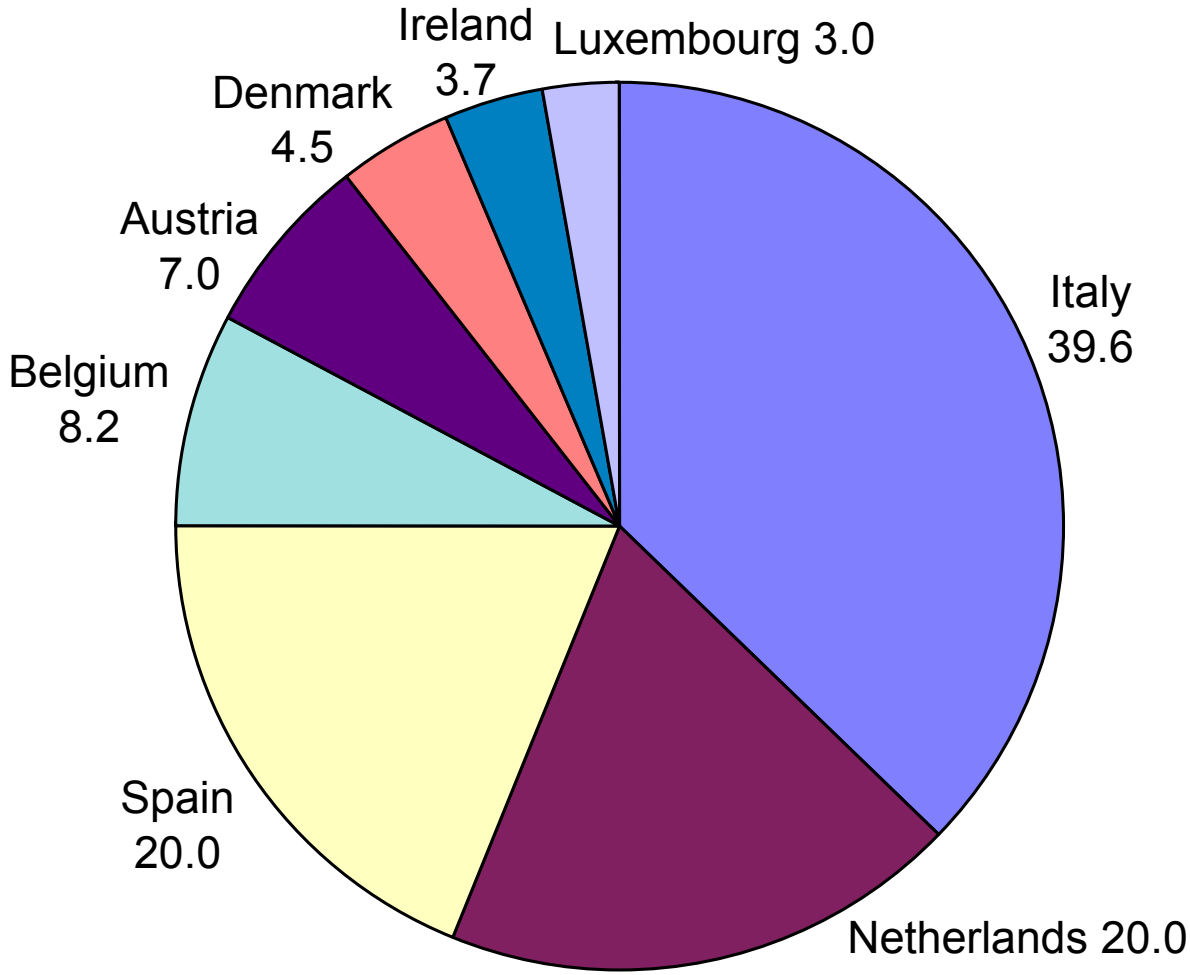
EU ETS cap compared to hypothetical EU ETS Kyoto target



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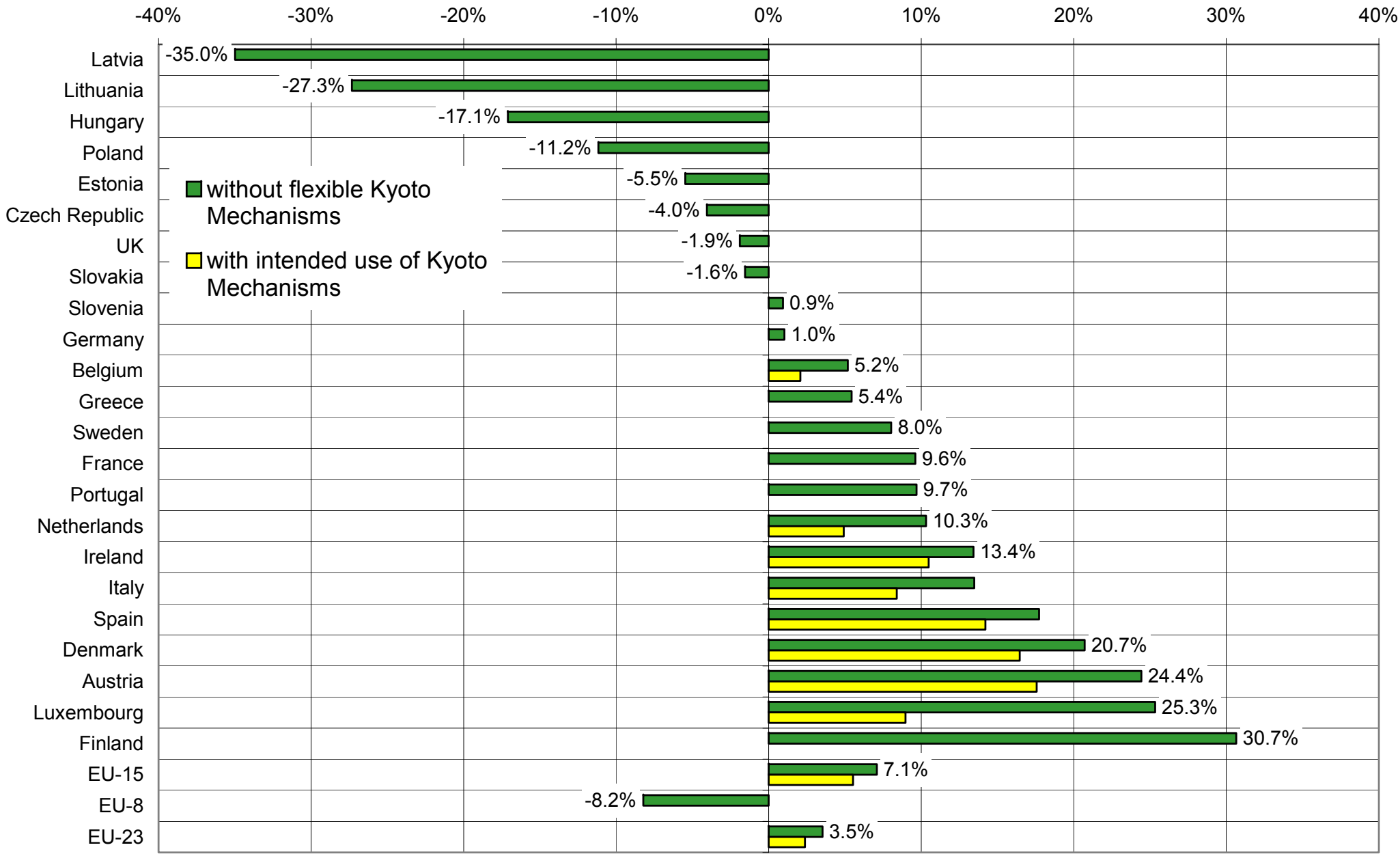
EU ETS cap compared to hypothetical EU ETS Kyoto target (with / without KM)



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

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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

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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

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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

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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 (consistency with 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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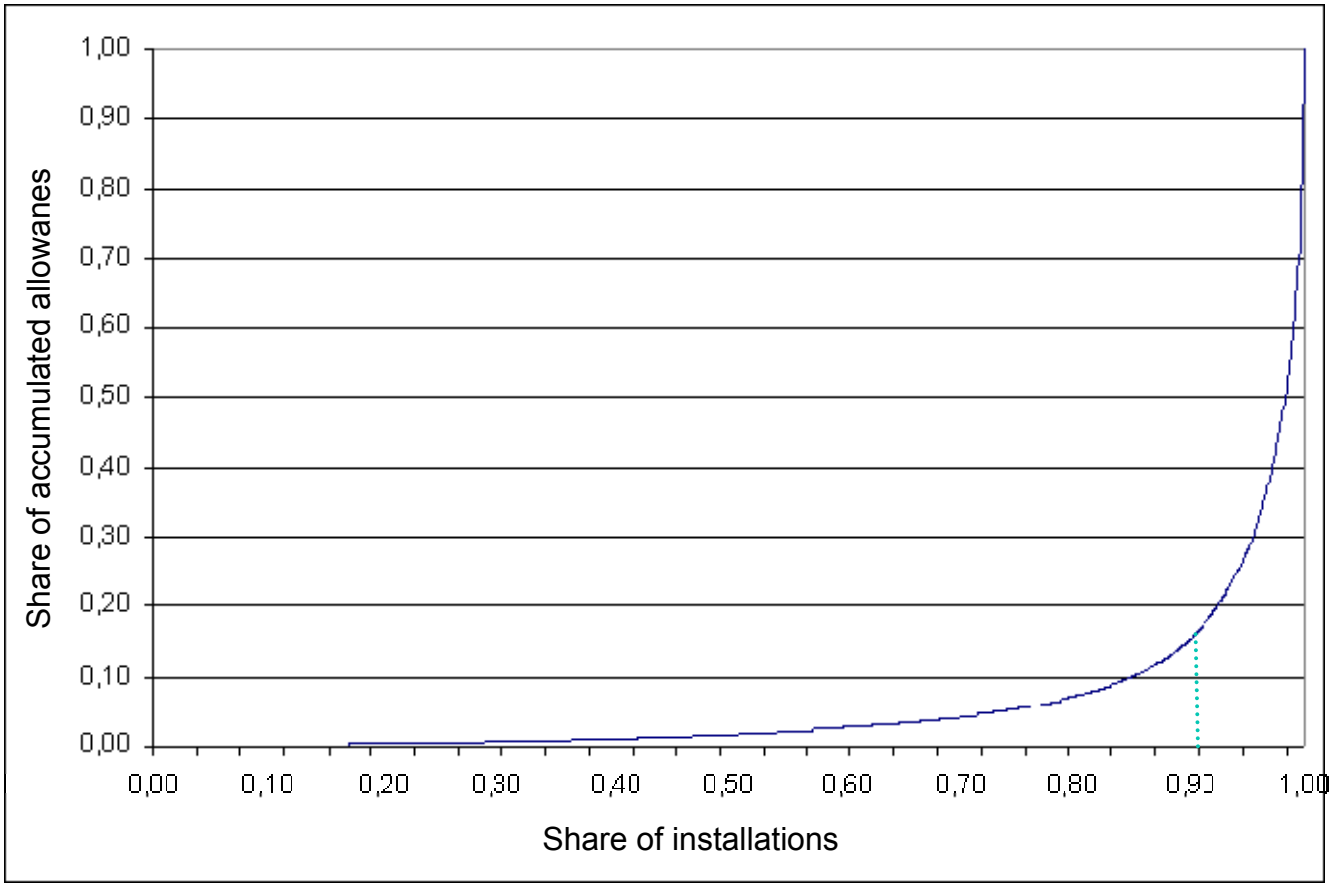
Transaction costs vs. compliance costs: the case of small emitters

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).

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

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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 choices (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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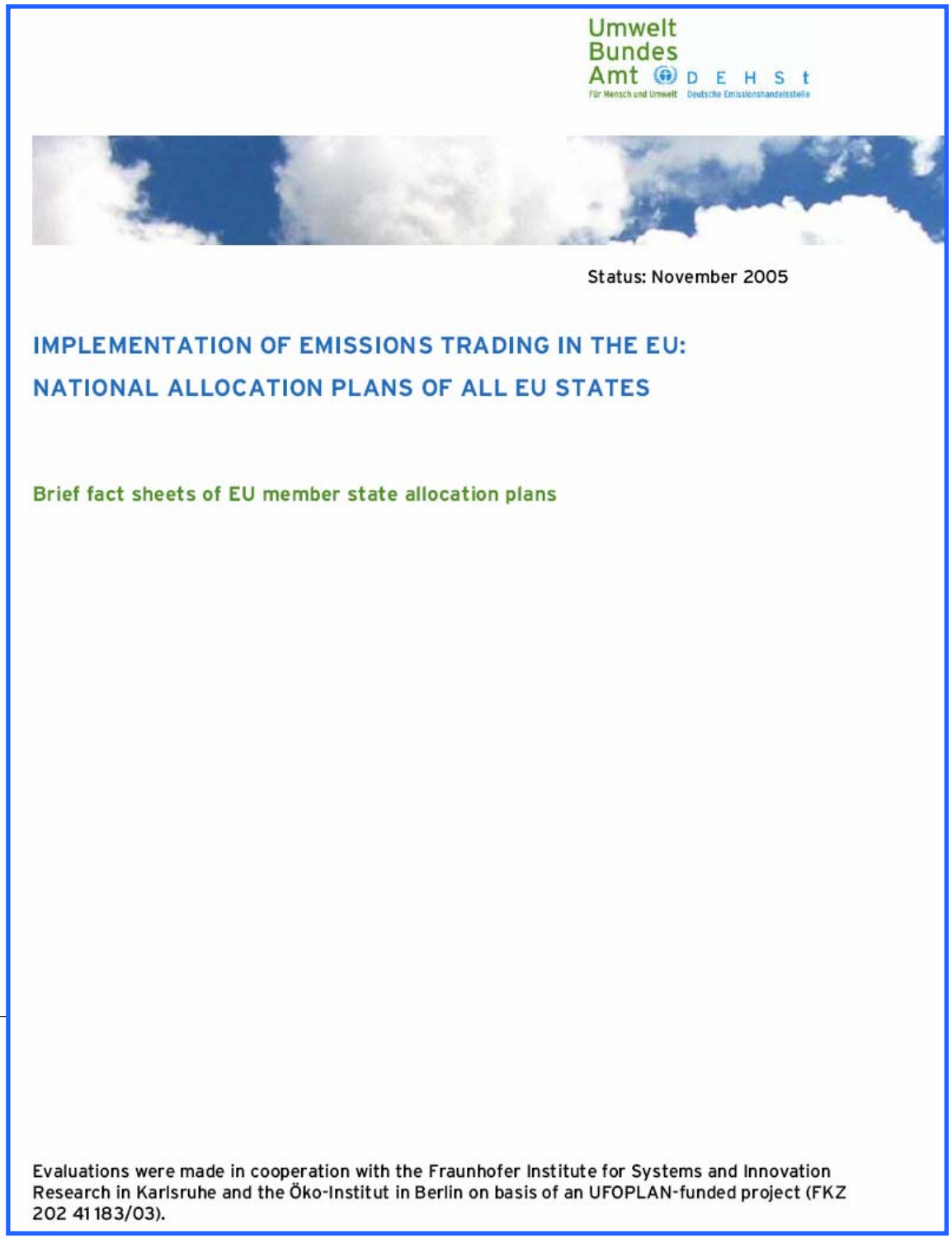
Further information …

… 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)

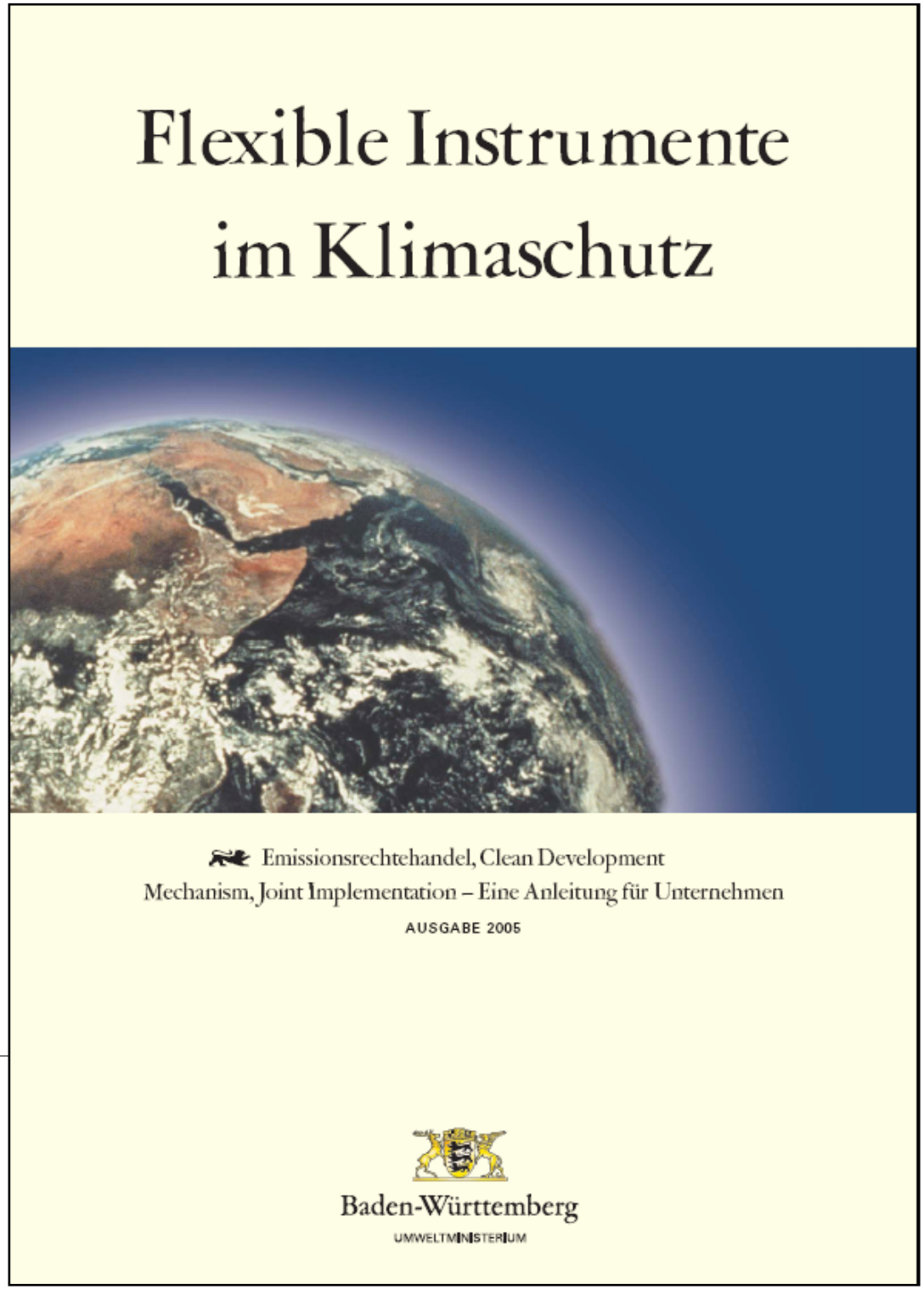
Detailed information on

- Emissions Trading
- CDM
- JI

Funded by the Environmental Ministry of the German 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!

Karoline Rogge

Karoline.Rogge@isi.fraunhofer.de

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