EU Emission Trading - Better Job Second Time Around?

ECEEE Summer Study
La Colle sur Loup, France
5-9 June 2007

Joachim Schleich
Fraunhofer ISI, Karlsruhe, Germany
Regina Betz
CEEM, Sydney, Australia
Karoline Rogge
Fraunhofer ISI, Karlsruhe, Germany

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Overview of EU ETS

- Cap-and-trade type scheme …
- Operates in stages:
  phase 1 (2005-07), phase 2 (2008-12) etc.
- Banking between phase 1 and phase 2 not possible but from 2008 unlimited
- Links to project credits established
- Allocation rules given by EU Directive:
  - up to95% for free 2005-07 and 90% in 2008-2012, rest to be auctioned
- National Allocation Plans for each phase:
  - Define ET-budget (Macro) and rules on installation level (Micro)
  - To be approved by EU Commission

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

EUA spot prices and volumes traded in the EU ETS

Source: EEX (download 11 May 2007)

Phase 1: Likeliy excess allocation; little incentives to save emissions and energy

EUAs allocation exceeded 2005 emissions by around 100 Mio. t CO2

Source: Point Carbon

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Outline

Macro Analysis

planned and approved NAPs for phase 2

- Assess stringency of ET budgets
- Assess economic efficiency of the split between covered and non-covered sectors

Micro Analysis

- Assess economic efficiency: compare allocation rules for existing and new installations with "ideal" rules

Conclusions

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Assess stringency of ET budgets

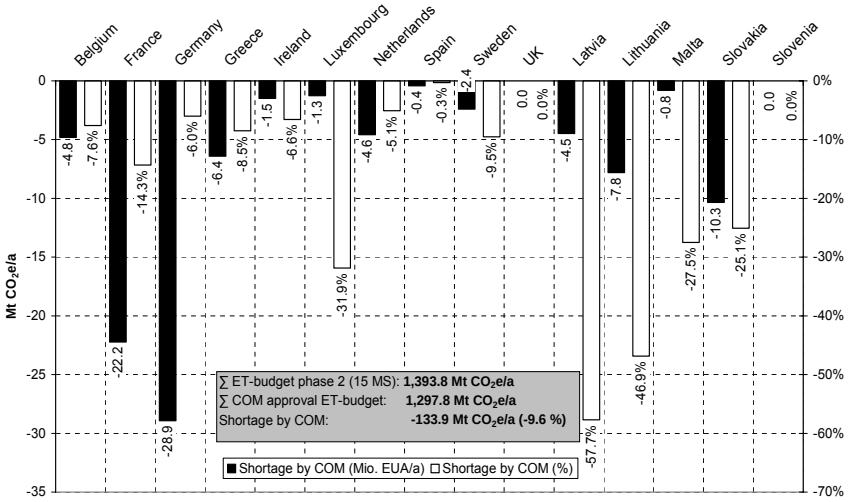
		ET-budget in phase 2 compared to						KM limit for companies
		VET 2005 (criterion 1)		ET-budget in phase1 (criterion 2)		Emission projections for 2010 (criterion 3)		
		in million EUA	in % of VET 2005	in million EUA	in % of ET-budget phase 1	in million EUA	in % of projected emissions	in million ERU-CER/a
EU-15 (15)	Notified	-149.1	-9.6%	-111.5	-6.7%	-119.7	-7.2%	286.4
(10)	*Accepted*	*-176.6*	*-15.0%*	*-152.9*	*-12.3%*	*-150.8*	*-12.1%*	*163.3*
EU-10 (10)	Notified	127.9	25.8%	65.8	12.7%	67.9	13.1%	86.7
(5)	*Accepted*	*1.8*	*3.6%*	*-7.0*	*-13.2%*	*-20.4*	*-38.1%*	*4.1*
Total (25)	**Notified**	**-21.2**	**-1.0%**	**-45.7**	**-2.1%**	**-51.8**	**-2.4%**	**373.1**
(15)	***Accepted***	***-174.8***	***-14.2%***	***-160.0***	***-12.3%***	***-171.1***	***-13.2%***	***167.4***

- ET-budgets in notified NAPs imply little efforts (because very generous EU10 budgets)
- ET-budget in NAPs accepted by EU Commission are significantly more ambitious
- If maximum of Kyoto Mechanism is used, no need for internal reductions, gap could be closed by KM

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Budget cuts required by European Commission



Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

EUA futures (2008) prices and volumes traded in the EU ETS

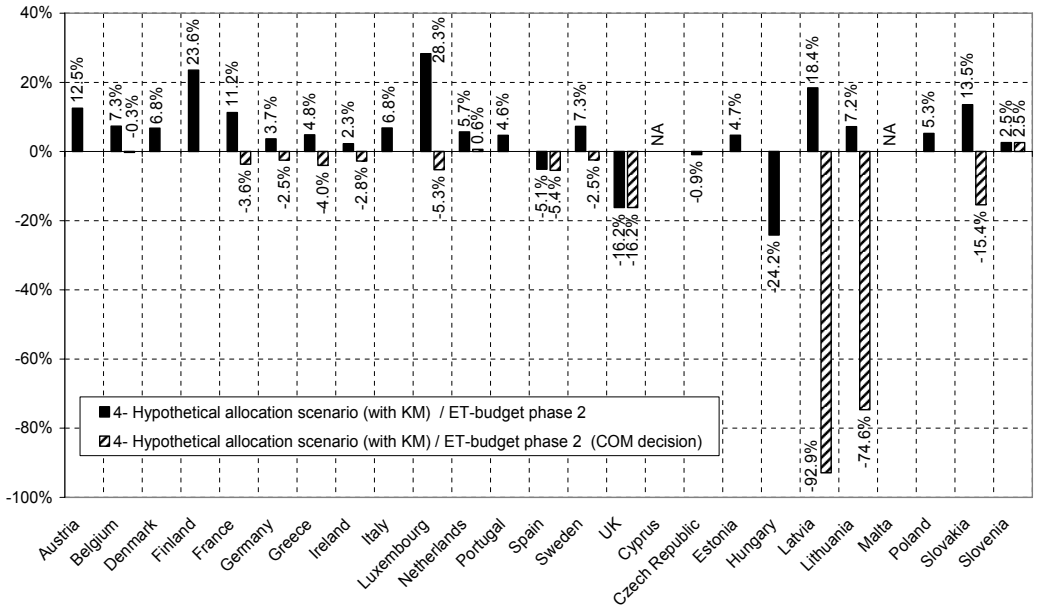
Source: EEX (download 11 May 2007)

Centre for Energy and Environmental Markets

Source: Point Carbon

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Are emission budgets economically



Notified NAPs imly ineffecient split of reduction burden between covered and non-covered sectors

Acceptes NAPs situation improved for most countries

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Micro level allocation (selected issues)

Existing installations

- Ideal: full auctioning (polluter pays)
- Second best: benchmarks (early action recognized; incentives for replacements)
- Actual: grandfathering based on historic emissions still dominating

New installations

- Ideal: purchase all allowances
- Second best: uniform benchmarks
- Actual: fuel/technology-specific benchmarks (BAT)

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Conclusions

Environmental effectiveness

+ Substantially improved by EC decision, higher prices for EUAs; improved incentives to invest in energy efficiency; signal to other MS and carbon markets ("EC is serious about climate change and about ET")

Economic efficiency

+ Improved by EC decision at macro level
- auction share (x%) lower than allowed (10%); must increase in future (MIN rather than MAX)
+ increase in benchmarking (primarily in energy sector) as "second best"
- free allocation to new projects (= technology specific subsidies"); fix closure rules

Comparison to phase 1

- path dependency of methods and concepts
- "improvements" are small (auctioning, use of benchmarks, standardized load factors, less special provisions in old MS, but additional in new MS, transparency)
- increased harmonization does not always lead to increased efficiency

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Reality: Allocation Method for Existing Installations

Allocation method

- conventional grandfathering (based on historic emission levels) remains dominating method
- increase in (average) benchmarking for "sufficiently homogenous product groups" (power sector) – often differentiated by fuels (distributional issues!)
- several MS use installation-level verified emission data 2005
- auction share of 1.3 % in phase 2 (maximum share allowed by Directive: 10 %)

Assessment

- updating leads to biased decisions on output and emissions
- Low auction share
- benchmarking may be second best ("fair", incentives to modernize, but data problems and distributional implications; sunk cost)

Theory: Micro-Level Allocation

Allocation method: 100 % Auctioning

- "polluter pays principle" applies, "fair" outcome
- addresses windfall profits, no "closure problem"
- transparent, easy, no rent seeking
- auction revenue: double dividend, compensation

New projects: buy all allowances at market prices

- otherwise: investment decision does not consider social marginal costs
- output subsidy
- inefficient outcome

Closure of installation: keep allocation

- otherwise: firms may postpone closure of old plants
- output subsidy
- inefficient outcome

Reality: New Projects

Allocation rule

- all MS: free, from new entrant reserve; (except: SWE: power plants)
- most MS: first-come-first served; some MS: reserve replenishment rule;

Allocation base

- most MS: specific emissions ; projected activity
- many MS: BAT-benchmarks, projected activity (standardized utilization rates; capacity), typically for power sector
- most MS (power sector): allocation is differentiated by fuels, technologies, load factors (exceptions include UK, Lux)

Assessment

- poor economic incentives for innovation
- rules tend to subsidize and manifest existing production structures
- no even level playing field, prisoners' dilemma (?)

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Perspectives

Future of EU ETS

- EU-wide emission target rather than targets for MS (?)
- independent "central bank" responsible for allocation; would avoid "abuse" of allocation to address issues of distribution and competition
- longer trading periods (10 year rule?) to improve certainty for investments and mitigate incentives from "inefficient" closure rules
- include other sectors and gases (aviation, N_2O)

Exporting EU ETS

- to other countries (CH ?)
- linking with existing or new ETS, e.g. in US (RGGI)

Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Reality: Closures

Closure rule

- all (?) MS: distribution of EUAs terminated in year of closure
- few MS: transfer rule for plant replacements to increase incentives for modernization (strings attached)

Assessment

- Problem is two fold:

  1) ET Directive links allocation to GHG permit for installation; MS link GHG permit to operation permit; if operation permit expires, GHG permit expires, and allocation has to stop

  2) Fear of exporting plants *and* allowances