

Implementing the EU ETS in Germany

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on the occasion of the

**Side event „The EU emissions trading scheme: State
of the Play“**

at the UNFCCC (SBSTA/SBI)

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Bonn**

Discussion in Germany is
going on...

... in a „business as usual“
manner!



But ...

By implementing the EU emissions trading scheme a chain reaction is going on which is changing business culture: Carbon dioxide is moving more and more out of the domain of the environmental officer at a company to the boardroom and the chief financial officer and the chief executive officer.

Germany's Climate Change Programme: Targets and Timetables

Climate Change related Targets		Status
burden sharing	Reduction of CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs and SF ₆ by 21 % in the period 2008 – 2012 compared to 1990 and 1995	Ratification of the KP by national law
2020 target	Reduction of greenhouse gas emissions more than 30 % by 2020 on the condition that the EU agrees to a GHG reduction of 30 % by 2020 (base year 1990).	Contract of the black-red Coalition (2005)
Renewables	Doubling the share of renewables by 2010 to primary energy consumption from 2.4 to 5 % and by 2020 to 10 % to electricity generation from 5 % to 12,5 % and by 2020 to 20 %	Renewable Energy Act (2004)
CHP	Maintaining, modernising and expanding CHP with the aim of reducing CO ₂ by an additional 10 mill. t and 23 mill. t by 2010 (base year 1998)	CHP – Act (2001) + CHP commitment by German Industries (2001/2004)
Energy Efficiency	Doubling the energy productivity of the society by 2020 compared to 1990	National Strategy on Sustainable Development

Background

- **Germany is close to comply with it's Kyoto target (approximately 19,5 % of 21%)**
 - **but: important impact of unification (significant emission reduction in the early 90ies, high costs, clear cuts between East and West)**
- **Germany's energy balance is traditionally based on hard coal and lignite**
 - **But: the role of renewables and energy efficiency is getting more and more important**
- **Germany has a successful record in climate policies**
 - **but: a long and strong tradition on command and control and voluntary agreements**

Current emissions trends

- Trend in energy sector since 1999-2004: upwards: **plus 31 million t (!)**
- Trend in industry: further decrease in CO₂ emissions since 1998 – **minus 7 million t**
- Trend in private households: tendency towards reduction with very substantial temperature-related deviations (2004: **minus 14 million t compared with 1990**)
- Trend in transport sector: downward trend since 1999 with private transport (**minus 15 million t between 1999 and 2004**) but still 8.4 million t higher than in base year 1990
- Conclusion: Germany will not automatically reach its target (minus 21 % in period 2008-2012). Instead, decisions on NAP I and NAP II lead to need for action in remaining sectors “private households” and “transport”. The 2005 Climate Protection Programme (13th July 2005) covers areas where action is still needed

The implementation of the ET – scheme in Germany

The EU Trading Scheme – Legal implementation in Germany

- **TEHG – Treibhausgasemissionshandelsgesetz (Greenhouse Gas Emissions Trading Act) entered into force on 14. Juli 2004**
- **ZuG2007 – Zuteilungsgesetz2007 (Allocation Act 2007) entered into force on 31. August 2004**
- **ZuV2007 – Zuteilungsverordnung (Allocation Ordinance 2007) entered into force on 1. September 2004**
- **KostV – Kostenverordnung (Cost Ordinance) entered into force on 1. September 2004**
- **Act on the implementation of the „linking directive“ („ProMechG“ - Linkage between the EU – ETS and the Kyoto-Mechanisms „Joint Implementation“ and „Clean Development Mechanism“) entered into force on 30th september 2005**

Under preparation – to be developed:

- **NAP II (draft on 13 April 2006) and ZuG2012 (under preparation)**
- **Act on Reporting and Monitoring – KSSG (under preparation)**

Consultation Structure

- **Working Group „Emissions Trading To Combat the Greenhouse Effect (AGE)“- Permanent Hearing**

Established by the Federal Cabinet on 18 October 2000 under the chairmanship of the Environment Ministry (Chairman: Franzjosef Schafhausen)

90 Members: Federal Government, State Governments (*Länder*), Business (Associations as well as Companies), Environmental NGO's, Trade Unions

Subgroups on: Cross-cutting issues, legal implementation, Joint Implementation and Clean Development Mechanism

55 two days lasting meetings held since December 2000.

National Allocation – The Strategic Challenge

- Numerous installations in the energy industry and energy-intensive production sectors – 1849 installations covered

99 % of CO₂ emissions in public electricity supply

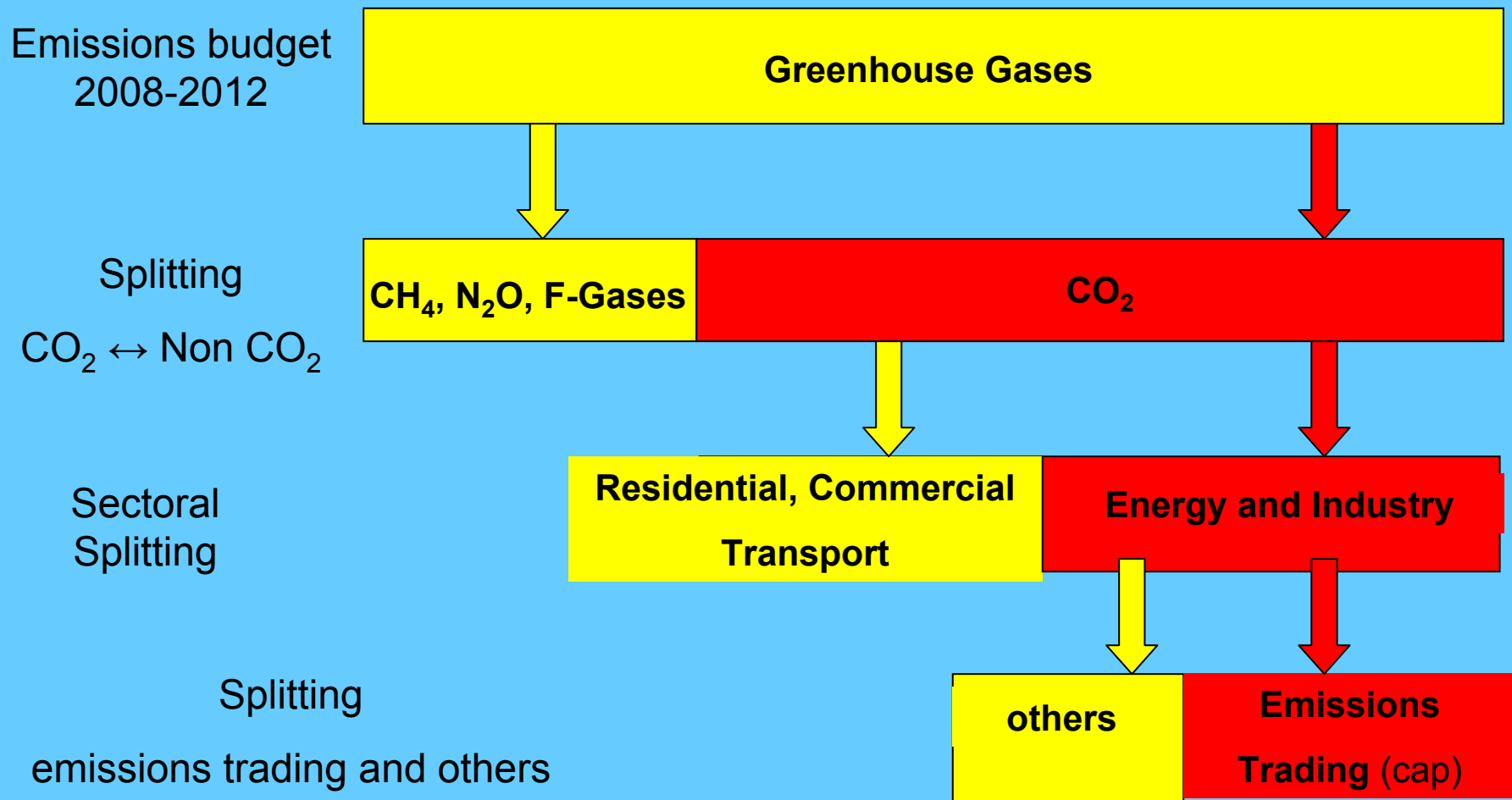
96 % of CO₂ emissions in the industrial energy sector

87 % of process-related CO₂ emissions

> 60 % of CO₂ emissions in all other industrial production installations

- ET sector represents 500 million t CO₂
of which 250 million t CO₂ are concentrated among the four largest electricity and energy suppliers: E.ON, RWE, Vattenfall and EnBW.

Definition of the cap



NAP I

Emission Budgets

	Period 2005 - 2007	Period 2008 - 2012
Greenhouse Gases	974	962
CO₂ - Total	859	846
CO₂ – E+I	503	495
CO₂ – Tertiary+HH+T	356	351
CO₂ - Emissions Trading	499	491
	495	---

Allocation Rules and Criteria

Allocation Rules	
General Allocation Method	Free allocation based on historic emissions (2000 – 2002 for the first period) for both trading periods (2005 – 2007 und 2008 – 2012) multiplied with the compliance factor < 1 Issuance of allowances in equal annual shares Special rules for installations commissioned in 2003 and 2004: allocation based on estimated emissions with ex post adjustments to output volume – compliance factor 1 for 12 years.
Closure Rules	In case of closure , allowances are cancelled Operator's obligation to report on closure to the competent authority (DEHSt). Subsequent cancellation of emissions permit possible. If actual emissions fall below the allocated amount by 40 %, the allocation will be adjusted ex post

Allocation Rules and Criteria

Allocation Rules	
New Comer Rule (totally new entrants on the german market)	Allocation according to demanding BAT benchmark 750 g CO₂/kWh for power production but not more as to be needed – at least 365 g CO₂/kWh for gas power plants < for 14 years Reserve for new entrants only. 2008 – 2012: Compensation for phase-out of nuclear energy under the new installations rule.
Early action Rule	Criteria for Early action installations: Improvement of specific CO₂- emissions (product oriented CO₂-efficiency) by 7 (1994) to 12 per cent (2002) Installations commissioned between 1. January 1994 and 31 December 2002 are allocated on the basis of compliance factor 1 without specific reduction evidence
Malus Rule for old and inefficient power plants	Malus = „efficiency dividend“ (additional minus 15 %) for Power plants with very low efficiency rates (lignite fired 31 % resp. 32 % / hard coal fired 36 %)

Allocation Rules and Criteria

Allocation Rules	
CHP Rule	Avoidance of negative incentives and prevention of market entry barriers. For old installations: allocation of 27 t CO₂/GWh CHP power The CHP-allocation is reduced by 5 % if the CHP power production decreases by 1 % (ex post adjustment) The special CHP-allocation is not applied if the installation gets compliance factor 1 because of early action For new installations: double benchmark: 750 g CO₂/kWh for power and 220 g CO₂/kWh (to be discussed further) for heat
Transfer Rule	Transfer of allowances from existing installations to be closed to replacement installations (4 years). Following the Transfer Period: compliance factor 1 for 14 additional years.

Allocation Rules and Criteria

Allocation Rule	
Option Rule	Possibility for incumbents to use the New Comer rule (521 installations did)
Banking Rule (between 2007 and 2008)	No banking between the first and the second trading period

Special provisions NAP I (2005 – 2007) **– creating burden for the Compliance** **Factor**

- **Set aside for new entrants:** 3 mio. t CO₂/year
- **Compensation for nuclear power:** 1.5 mio. t CO₂/year
- **Budget for combined heat & power:** 2,0 (1.5) mio. t CO₂/year
- **Emissions with compliance factor = 1**
early action (estimation): 111 (114) mio. t CO₂/year
 - process-related emissions**
(steel, lime, cement, glass) 64,2 (61) mio. t CO₂/year
 - process-related emissions**
(refineries/mineral oil) 7,5 mio. t CO₂/year

Compliance Factor

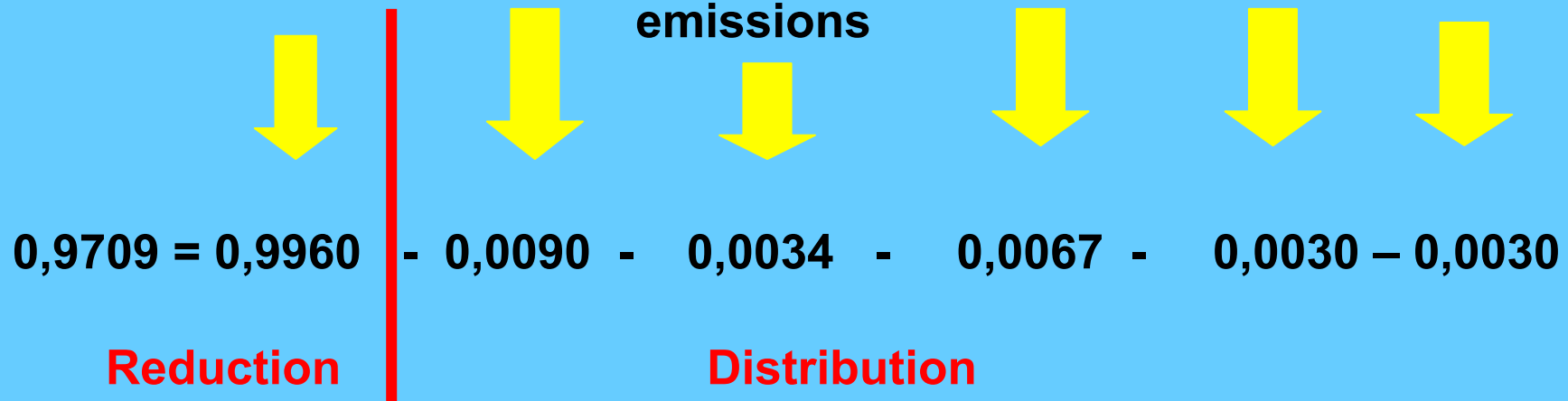
- **Compliance factor 2005 – 2007: 0,9709**
- **Emission reduction of 2.91 % for incumbents compared to baseline period 2000 – 2002**
- **Compliance factor = 1 for**
 - **process-related emissions (CO₂-emissions resulting from a chemical reaction and not from a combustion process)**
 - **installation with “early action” (mainly used for installations in the eastern part of Germany)**
 - **new installations**

Reduction by German Industries?

Yes. But most of the compliance factor is due to distributional effects.

NAP 2005 - 2007

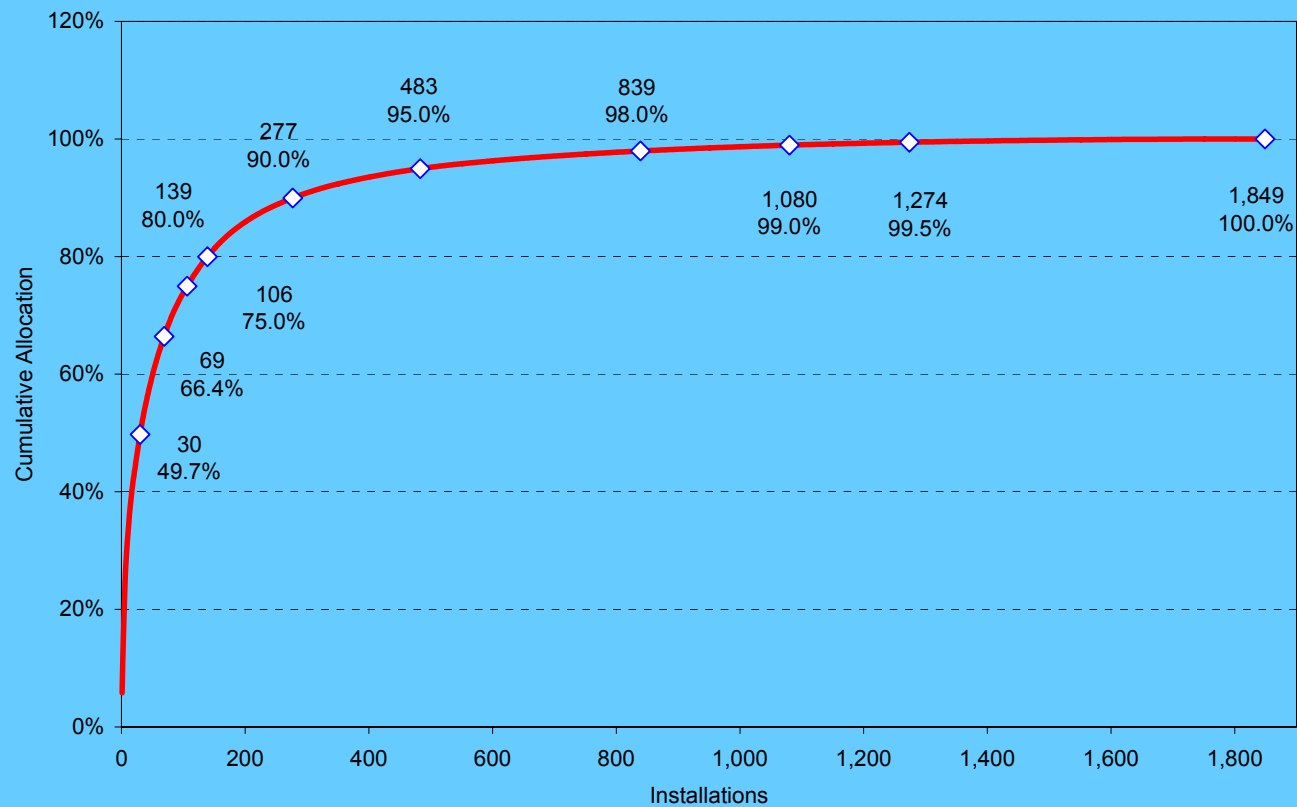
EF = reduction- set aside – process- - Early action – CHP - hardship
factor oriented
emissions clause



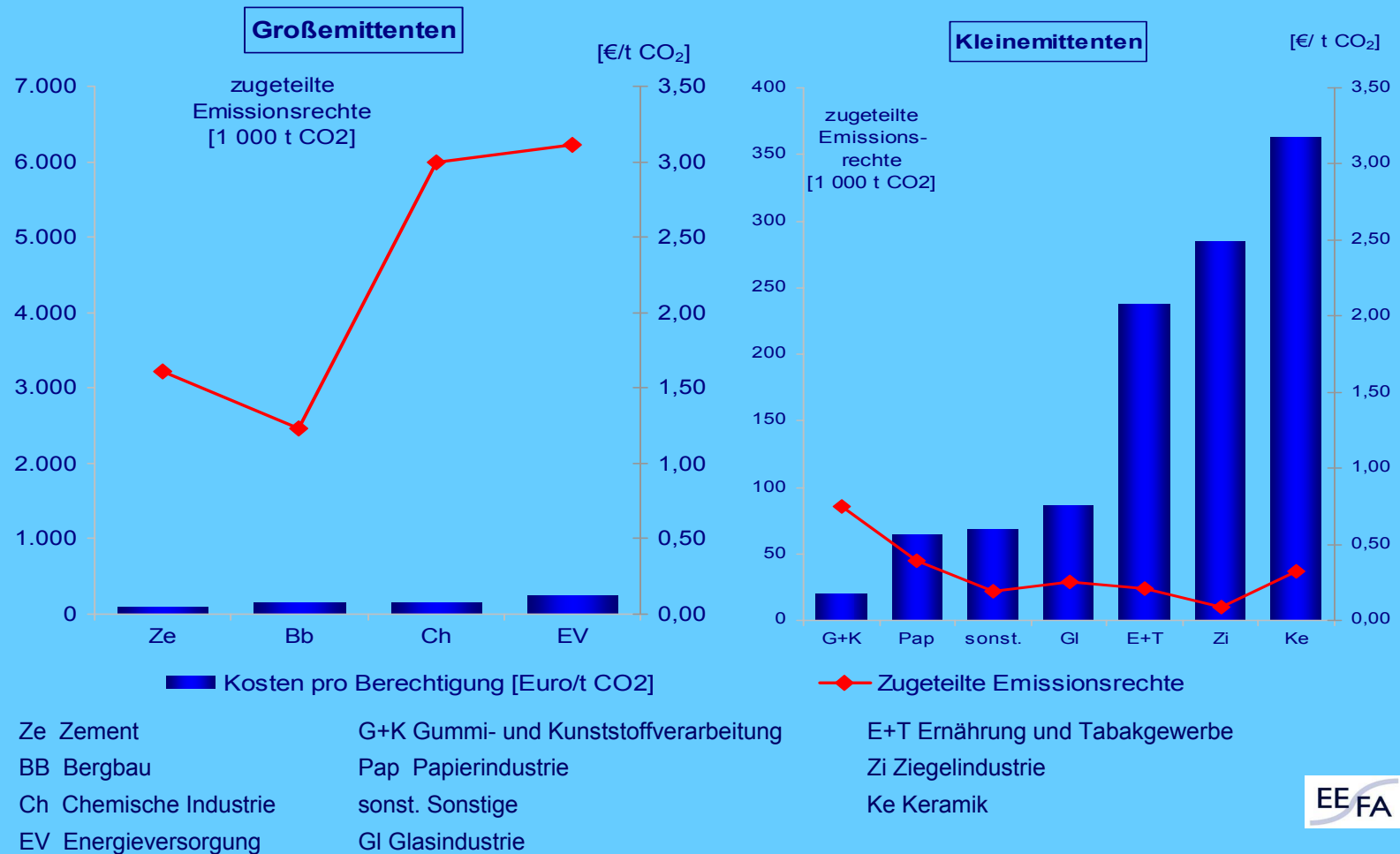
Results of the Allocation

Sektor	Number of Installations		Volume of allowance Trading Period 2005 – 2007	
Energy supply	1.236	66,8 %	1.171	78,9 %
Industry	613	33,2 %	314	21,1 %
total	1.849	100 %	1.485	100 %

Results of the Allocation



Transaction costs



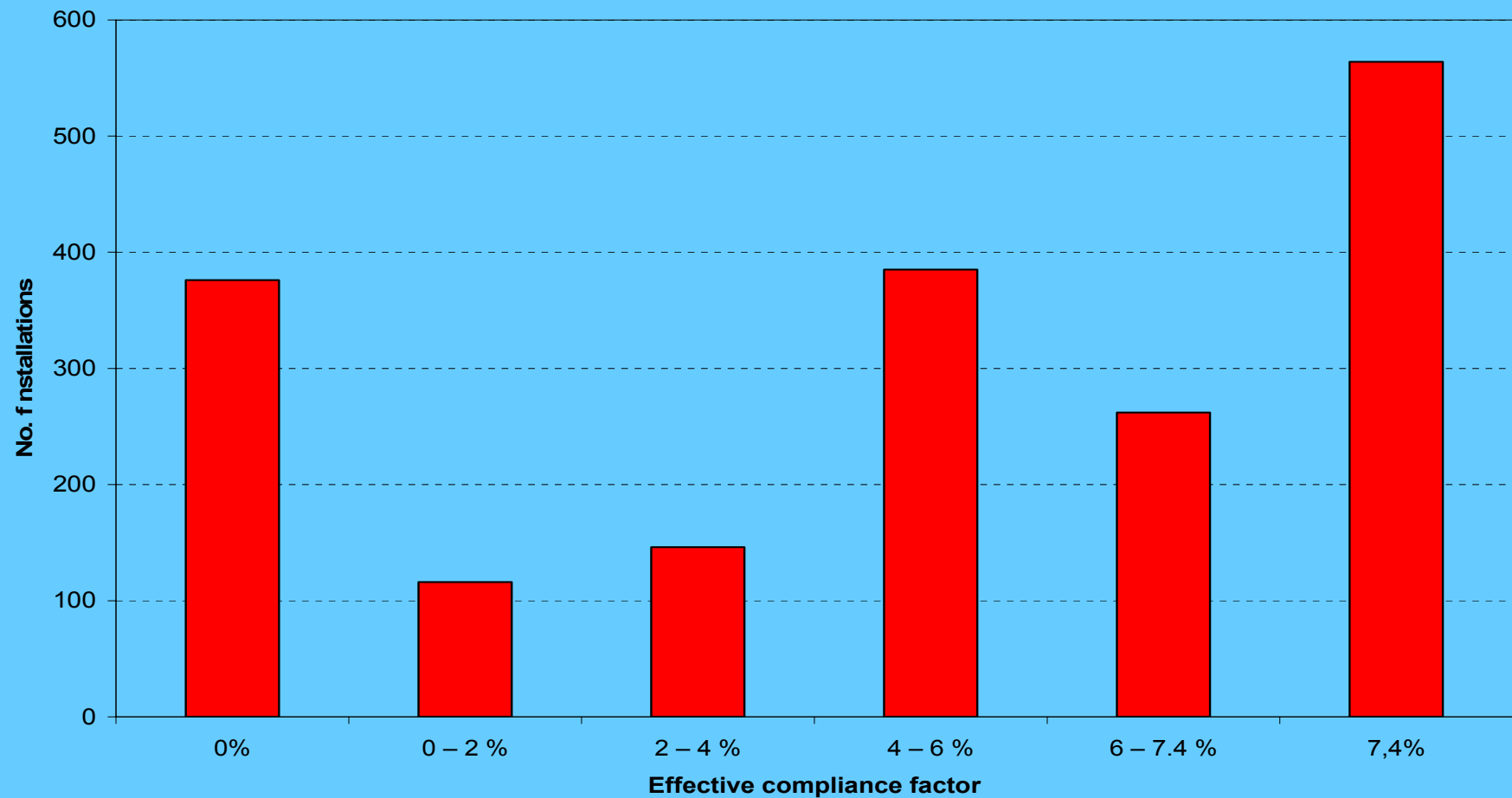
Results of Allocation

Activity	Average Allocation per installation	Highest Allocation per installation	Lowest Allocation per installation
Energy	947.196	86.001.132	12
Steel	2.591.343	21.199.014	723
Refineries	1.981.696	10.913.541	8.070
Cement	1.483.454	4.450.791	107.661
Lime	414.148	6.765.480	12.165
Paper & pulp	122.632	1.178.316	312
Glass	156.268	834.162	6.873
Ceramics	36.669	269.028	840
Zellstoff	1.086.962	2.317.182	42.193
total	803.137	86.001.132	12

Installations affected by cutbacks pursuant to Art. 4 (4) and Art. 5 ZuG2007

Cutback of allocation in %	No. of installations
0 %	376
0 – 2 %	116
2 – 4 %	146
4 – 6 %	385
6 – 7.4 %	262
7.4 %	564
Total	1,849

A unique Compliance Factor?



Institutional Structure

<u>Task</u>	<u>Actor</u>
Supervision (permit and control)	Federal and Regional Governments/Administration – Federal Emissions Trading Authority – DEHSt – Implementation problems between the federal and the regional level
Administration – 'competent authority' (Registry – Transaction Log – Inventory)	Government – Federal Emissions Trading Authority – (DEHSt)
Trade – trading platform (electronic, like electricity exchange)	Private industry (exchange(s), trading intermediaries, brokers, OTC traders)
Monitoring / Verification	State/Private (accredited verifiers) – Federal Emissions Trading Authority

The allocation process

- **poor data availability**
 - many installations (complicated definition of installations based on German Clean Air Act - BImSchG)
 - Scope of the implementation not exactly defined
 - problem: Federal administration vs. Laender administration
 - reference period definition in a very early stage
- **political statements/decisions at a very early stage**
 - free allocation for all installations (incumbents & new entrants)
 - early action provisions
 - National Allocation Plan must be implemented by an Act (ZuG 2007)
 - No political acceptance for auctioning

The allocation process

- **allocation adjustment by fixed cap on a very late stage (“second compliance factor”)**
- **many uncertainties for the operators as well as the administration and policy makers on final allocation**
- **58 combinations between the allocation rules possible – from the economic point of view a real nightmare**
- **fixed caps for 2005/2007 and 2008/2012 not only for industry + energy but also for households + small consumers + transport (§ 4 ZuG2007)**
- **no differentiation between sectors**

Consequences

- **Relativising the basic concept on two levels – Brussels and Berlin**
- **Existence of a highly complex and intransparent system (58 combinations of rules used for the first allocation period)**
- **Contribution to climate protection comparatively small**
- **Effects of reallocation are considerable**
- **Although self-inflicted by massive lobbying, there are complaints about the burden caused by business**
- **Dispute over the consideration of opportunity costs for the calculation of electricity prices**

VET - table

- **21 Mio. t gap between the 2005 allocation and the 2005 emissions**
- **9 Mio. t reduction (2000/2002 – 2005)**
- **12 Mio. t over allocation (option rule)**
- **more than 10 Mio. t could be taken back (withdrawal through ex post adjustment)**
- **RWE, E.ON, EnBW are „short“**
- **Vattenfall is „long“**
- **Local energy suppliers are „long“**
- **Industry ist „long“ (+ 10,6 %)**

VET - table

Rank ing	Sector/branch	Difference in absolute terms (- = surplus / + = deficit)	in % (- = surplus / + = deficit)
1	Fibre	- 1.179.000	- 81,4 %
2	Ceramics	- 667.500	- 27,7 %
3	Paper and pulp	- 785.500	- 15,7 %
4	Cement	- 3.661.500	- 15,4 %
5	Combustion installations 20 – 50 MW	- 1.532.700	- 15,4 %
6	Glass	- 685,700	- 14,9 %
7	Iron and steel	- 2.039.000	- 14,0 %

VET - table

Ranking	Sector/branch	Difference in absolute terms (- = surplus / + = deficit)	In % (- = surplus / + = deficit)
8	Compressor	- 248.000	- 13,2 %
9	Combustion installations	- 68.200	- 13,0 %
10	Lime	- 790.000	- 8 %
11	Iron and Steel	- 500.000	- 3,2 %
12	Combustion installations > 50 MW	- 7.503.000	- 2,0 %
14	Refineries	- 87.000	- 0,4 %

**Cost-effective possibilities to reduce CO₂ in
Germany !? – Opportunities -
The Ecofys - Study**

Range of costs (€/t CO₂- reduction)	Reduction potential in mill. t CO₂/a
< - 10	23
- 10 bis 0	16
0 - + 10	16
+10 - + 20	15
+ 20 - + 50	19

Opportunities of CO₂- emission reduction in Germany (Lower Saxony – „co2ncept – study“ by the association of enterprises Lower Saxony)

Installations	Total CO ₂ -emissions	CO ₂ -emission reduction
59	780.000 t	
41		225.000 t = 28 % technically feasible
29		210.000 t < 10 €/t CO ₂ Compared with the actual price of european allowances (EUA) companies mentioned above could benefit by reducing CO ₂ -emissions ~3 mio €/y

Federal Ministry for Economics and Labor:

„Marginal Costs of CO₂ – reduction are very much lower than 30 €/t“

(letter by Federal Minister Michael Glos, Berlin, 16 May 2006)

So – ET provides the right economic incentives to reduce greenhouse gases

Potenziale – η gestern und heute

Braunkohle- kraftwerk

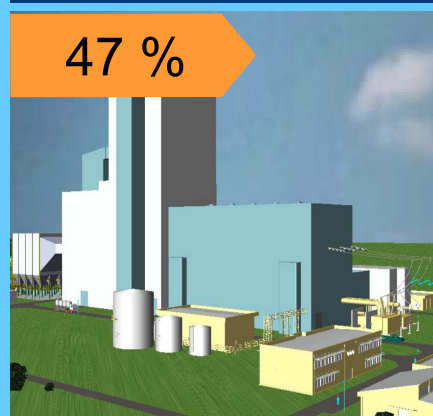
43 %



Niederaußem
965 MW

Steinkohle- kraftwerk

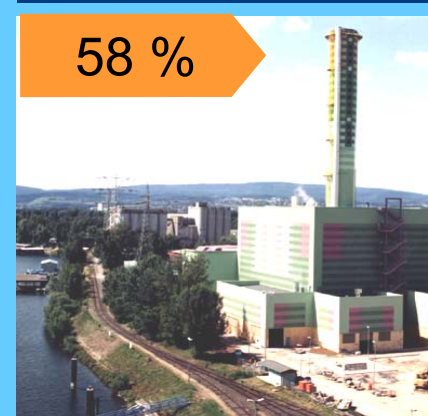
47 %



Referenz-DKW
600 MW

Gas- und Dampf- kraftwerk

58 %



Mainz-Wiesbaden
400 MW

Entwicklung des Netto-Wirkungsgrades

1992: 36 %*
2005: 43 %
Ziel 2020: > 50 %

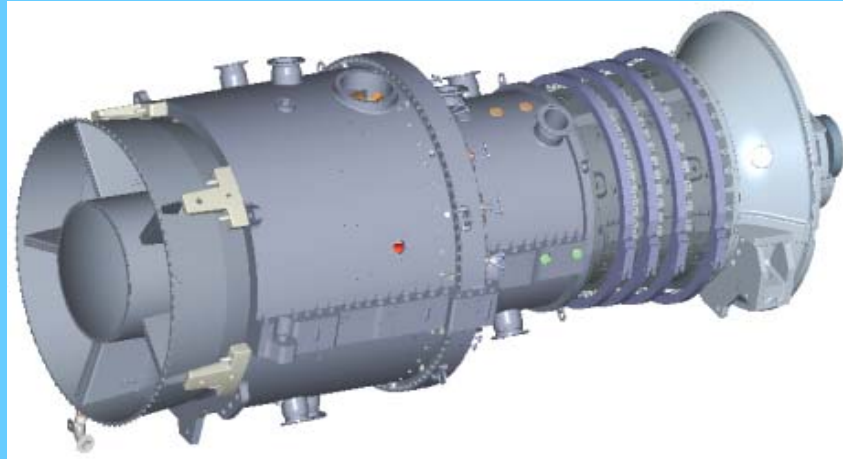
1992: 43 %
2005: 47 %
Ziel 2020: > 53 %

1992: 52 %
2005: 58 %
Ziel 2020: > 60 %

* Technik von 1972 (RWE, Niederaußem, 300 MW Block – 35,8%)

+Technik von 1953 (RWE, Frimmerdorf, 150 MW Block – 30,2%)

Potenziale – η gestern und heute



Gasturbine SGT5-8000H

Brennstoff Gas, Öl

Leistung 340 MW

Wirkungsgrad **39 %**



**GUD-Anlage SCC5-8000H in
Irsching/Deutschland**

Leistung 530 MW

Wirkungsgrad **60 %**

GT Versuchsbetrieb ab 2007

GUD kommerzieller Betrieb ab 2011

The German Government's Position on Flex Mechs

- **Priority is given to 'domestic action,**
- **Use of 'Kyoto mechanisms' supplementary**
- **Great interest among German industry in the use of JI and CDM**
- **German Government interest is focussed on 'improved energy efficiency' and 'use of renewable energy, - a „CDM – Initiative“ will be started during the nex months**
- **Wait and see attitude due to the ongoing work in Bruxelles – reports on „sinks“ and „National Compensation Projects“ until 30th June 2006**
- **Germany not in compliance for JI First Track**

Present Situation in Germany

	CDM	JI – Germany as investor country	JI – Germany as host country
Number of projects	47	47	65
Endorsed	14	4	15
Approved	2	0	2
Indirect participation	1	0	0
expected reduction in CO₂-equivalents	58,8 Mio. t		20 Mio. t

CDM – Projects (Germany as investor country)

Type of project	number
Energy efficiency	22
Renewables	10
CH ₄	5
N ₂ O	5
HFC's	3
others	2

CDM-Projects (Germany as investor country)

Country/region	number
China	11
India	6
Other Asian countries	11
Africa	9
Latin America	8
Other countries	2

JI – Projects (Germany as investor country)

Country/region	Number
Russia	19
Ukraine	17
Bulgaria	4
Romania	2
Poland	3
Others	2

Negotiations on MoU's

- **CDM**

Brasilia, Chile, China, Cuba, Costa Rica, Ecuador, Ghana, India, Israel, Columbia, Morocco, Mexico, Moldavia, Panama, Pakistan, South Africa, Thailand, Tunesia, Vietnam,

- **Jl**

Bulgaria, Latvia, New Zealand, Netherlands, Poland, Romania, Russia, Slovakia, Czech Republic, Ukraine, Hungary

NAP II

Main stream on the EU Level

- **One Directive – but 25 National Allocation Plans**
- **Harmonisation strongly needed**
- **First come first served basis for new entrants**
- **Sectoral differentiation**
- **Auctionioning used only in some MS (Ireland, Denmark, Hungary) – but there is an interest**
- **Benchmarking for incumbents – without fuel differentiation (unique emissions factor – unique load factor)**
- **Not ex post adjustments**

Germany's starting point

The framework for NAP II

- **no modification of the EU Directive**
- **no ex post adjustment (NAP guidance - 22 december 2005)**
- **Coverage of additional installations**
- **NAP II has to be more reliable and more transparent**
- **NAP II has to be less complex**
- **Special provisions have to be reduced**
- **the Problem of the windfall profits caused by the calculation of the Opportunity – costs has to be solved**
- **Facilitation for small emitters – simplifying application, monitoring and allocation**

The Contract of the black-red Coalition **(11th November 2005)**

- **more Transparency**
- **more Simplicity**
- **less comprehensiveness**
- **reducing of the number of special provisions**
- **Solving the opportunity costs problem**
- **Avoiding distortions of the competition**
- **Supporting the inclusion of the aviation**

Burden for the second trading period

- Early action 56 Mio. t
 - Transfer provision § 10 ZuG2007 2 Mio. t
 - New entrants § 11 ZuG2007 20 Mio. t
 - New entrants in 2003/2004 § 8 ZuG2007 19 Mio. t
 - volume of emissions with CF 1 102 Mio. t
 - KfW-Mechanism 5 Mio. t
 - volume of emissions with CF 0,9875
 - volume of emissions with CF 0,85
-
- annual reserve for the second trading period 10 Mio. t
 - annual budget to cover the administration costs 2 Mio. t
 - allocation to small emitters (CF = 1) 6 Mio. t
 - CHP – provision (CF = 0,9875) 60 Mio. t

The Macro Plan

- **Cap for installations under the Emissions Trading Scheme: 495,5 mio. t CO₂/a**
- **Cap includes small emitters and additional industrial-scale installation (nap guidance 22 december 2005)**
- **Reduction performance: households, transport, Trade/Commercial/Services: additional reduction of 7 mio. t/a CO₂ for the 2008 – 2012 trading period (base year 2004)**
- **General allocation method: grandfathering = allocation on the basis of average emissions during a reference period**
- **Reference period: 2000 – 2005 - levelling out of extraordinary developments**

Compliance factor – sectoral differentiation

- **Industry including the additional installations (NAP guidance on 22 december 2005) and industrial and public CHP: 0,9875 of the average emissions amount in the reference period (reasons: strong international competition, limited possibilities to avoid CO₂-emissions because of process related emissions)**
- **Energy supply: 0,85 (low international competition, high windfall profits)**
- **Compliance Factor 1: small emitters, new entrants under the new comer rules (§ 8 ZuG2007 + § 11 ZuG2007), new entrants under the transfer rule, early action installations**

New entrants

New comers

- **Compliance Factor 1 = Allocation 100 % free of charge for new installations with highly efficient technology (bat benchmarks) – exemption from compliance factor for 14 years**
- **CHP: double benchmark for power and heat**

Transfer Rule for installations which replace others

- **Transfer of allowances from existing installations to be closed to replacement installations (4 years). Following the Transfer Period: compliance factor 1 for 10 additional years.**
- **Installations which replace others and already have a permit in accordance with the Federal Immissions Control Act (BImSchG) receive their allocations pursuant to the transfer rule of the Allocation Act 2007**

Reserve

- **10 mio. t CO₂/a for new entrants not applying for the transfer rule**
- **A small proportion of 2 mio. t CO₂/a will be sold to finance the costs of the system (administration of JI/CDM + „KfW-Mechanism“)**

Special provisions

- **Process related emissions: sectoral differentiation takes process-related emissions into account – Compliance Factor hardly ambitious – no special process related emissions provision**
- **Small emitters: simplifying application and monitoring. Compliance factor 1 for emitters with average CO₂-emissions during the reference period lower than 25.000 t CO₂/a**
- **Option rule: waived**
- **Hardship clause (§ 7 (10) ZuG2007): waived**
- **Early action: early action rule of NAP I expires**
- **CHP: 98,75 % allocation (promotion of climate friendly technologies)**

Special provisions

- **Malus rule: continues**
- **Closure rule: Avoiding closure bonuses beyond the respective trading period – satisfactory solution to the problem of partial closure**
- **JI/CDM: threshold 12 % of the volume of allowances allocated for the whole trading period (300 Mio. t CO₂ 2008 - 2012)**
- **No ex post adjustments**

Thank's for listening

Current Information and Assistance

**Information on current developments, documents for download,
findings of the Working Group Emissions Trading As A Means To
Combating Climate Change:**

[http: www.bmu.de](http://www.bmu.de)

[http: www.umweltbundesamt.de/emissionshandel](http://www.umweltbundesamt.de/emissionshandel)