Factbook
CO_2 Emissions Trading in Europe

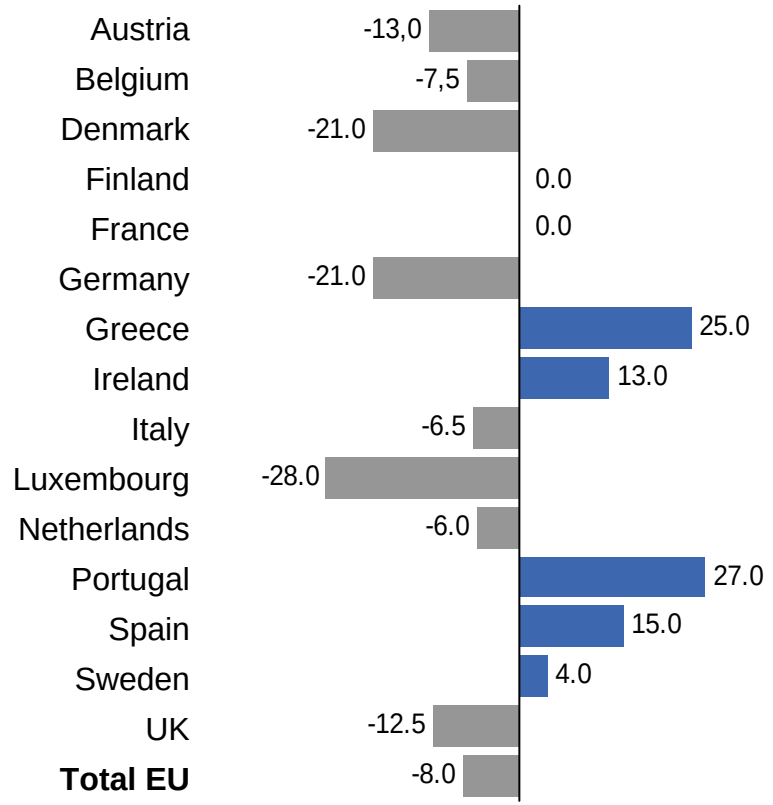
September 2007

Table of content

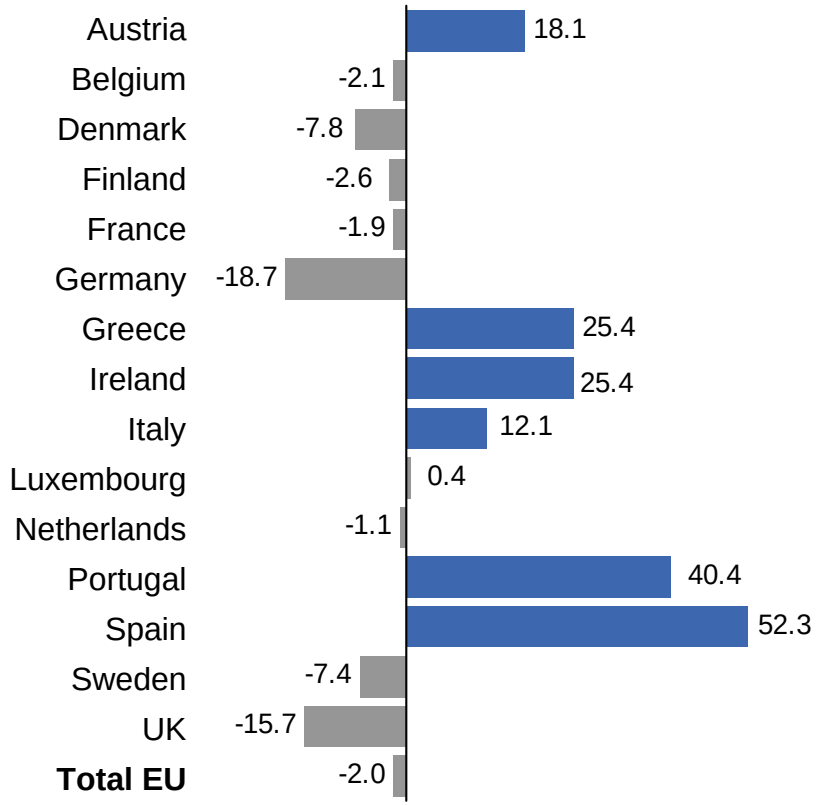
1	EU burden sharing – and what has been achieved by 2005	3
2	CO_2 emissions in 2005/2006	4
3	Allocation methodology	5
4	The German National Allocation Plan II	6 – 8
5	The UK National Allocation Plan II	9 – 10
6	Expected impact on RWE in Germany and the UK	11 – 12
7	RWE: measures to reduce our exposure to carbon	13
8	CDM/JI: How it works / RWE's approach	14 – 17
9	Timetable: NAP II and beyond	18
10	Glossary	19

Germany and the UK have made the key contribution to reducing emissions

EU burden sharing targets by 2008 – 2012 compared with 1990 [in %]



Developments in emissions of the six Kyoto gases between 1990 and 2005 [in %]



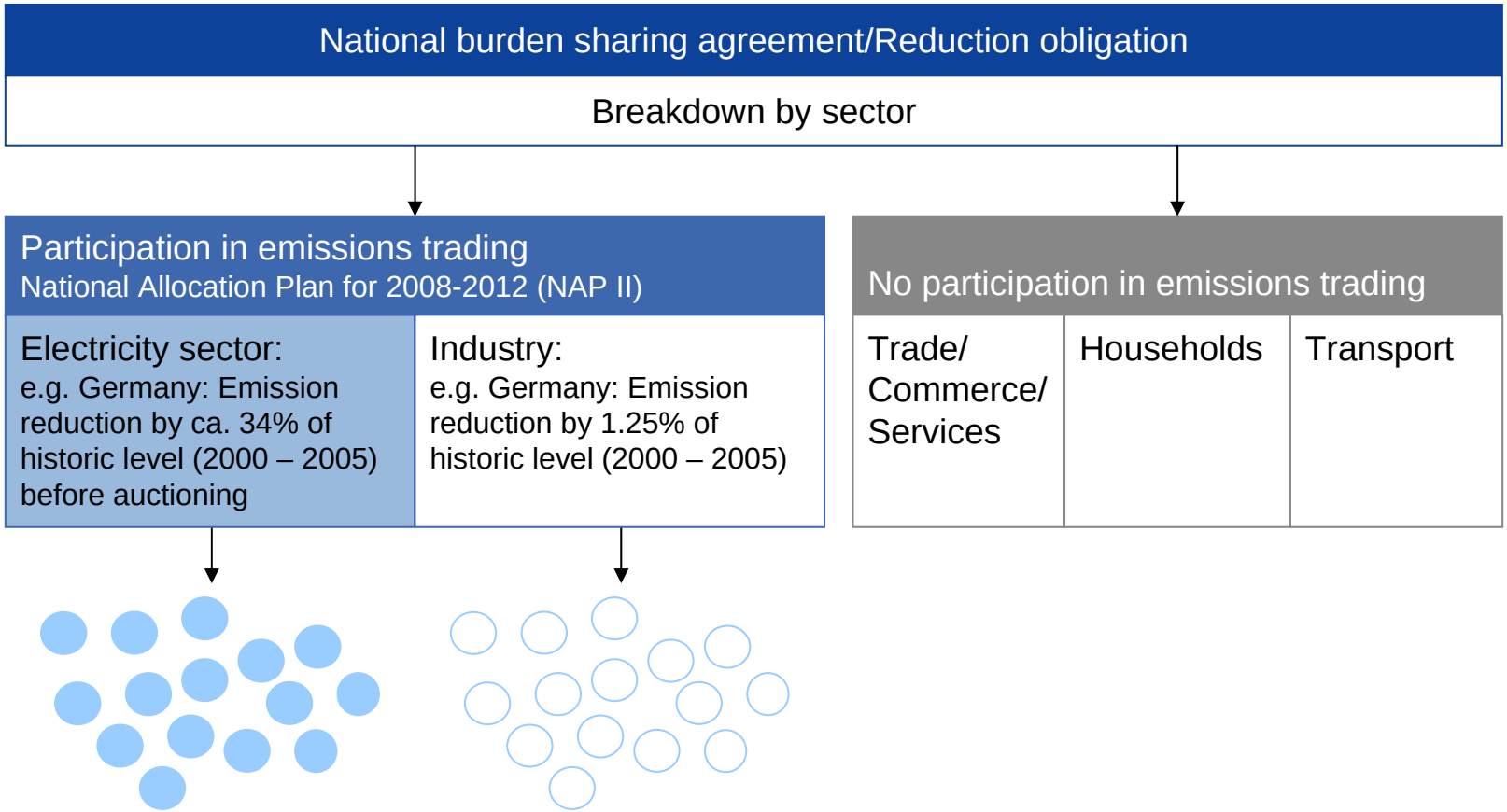
Source: European Environment Agency; http://www.eea.europa.eu/pressroom/newsreleases

CO_2 emissions in the EU in 2005/2006: Total allocation exceeded emissions

Member state	Average allocation of certificates p.a. in 2005 – 2007	Emissions in 2005 (tons)	Surplus (+) Deficit (-) in 2005	Emissions in 2006 (tons)	Surplus (+) Deficit (-) in 2006
Austria	32,900,512	33,372,841	-1%	32,382,819	2%
Belgium	62,114,734	55,363,232	11%	54,775,326	12%
Cyprus	5,701,075	5,078,877	11%	5,259,273	8%
Czech Republic	97,267,991	82,454,636	15%	83,624,960	14%
Denmark	33,499,530	26,475,718	21%	34,199,588	-2%
Estonia	18,953,000	12,621,824	33%	12,109,281	36%
Finland	45,499,284	33,099,660	27%	44,621,453	2%
France	154,909,186	131,271,511	15%	123,291,801	20%
Germany	498,390,019	474,606,747	5%	477,557,439	4%
Greece	74,400,198	71,267,752	4%	69,965,151	6%
Hungary	31,660,904	26,039,009	18%	25,834,714	18%
Ireland	22,320,000	22,441,006	-1%	21,702,789	3%
Italy	223,070,435	225,875,412	-1%	227,074,462	-2%
Latvia	4,560,191	2,854,492	37%	2,940,685	36%
Lithuania	12,265,395	6,603,869	46%	6,516,911	47%
Luxembourg	3,358,323	2,603,349	22%	2,712,972	19%
Malta	762,822	n. a.	n. a.	n. a.	n. a.
Netherlands	88,942,336	80,351,292	10%	76,701,187	14%
Poland	237,838,568	202,315,622	15%	208,625,209	12%
Portugal	38,161,413	36,425,933	5%	33,083,879	13%
Slovakia	30,489,902	25,231,769	17%	25,543,243	16%
Slovenia	8,743,680	8,720,550	0%	8,842,182	-1%
Spain	178,838,295	183,620,415	-3%	178,603,427	0%
Sweden	23,209,832	19,381,682	16%	19,880,711	14%
United Kingdom	224,831,370	242,476,625	-8%	251,134,835	-12%
Total	**2,152,688,994**	**2,010,553,823**	**7%**	**2,026,984,297**	**6%**

Source: EU; http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/776

Top-down allocation of certificates: How does it work?



The German National Allocation Plan for 2008 – 2012 (NAP II) vs. NAP I (2005 – 2007)

Allocation element	NAP I for 2005 – 2007	NAP II for 2008 – 2012
Quantity	499 million t CO_2 p.a.	453 million t CO_2 p.a., incl. 11 million t for installations (mainly crackers operated by the chemical industry) that were not included in phase 1
Allocation method	"Grandfathering" = allocation free of charge on the basis of historic emissions; reference period: 2000 – 2002	Benchmarking (see page 7)
Auctioning	No auctioning	Auctioning of 40 million t (8.8%) that are exclusively taken from the allocation to the electricity sector
Compliance factor [percentage of free of charge allocation]	Compliance factor = 93%, yet large number of special rules In principle, same compliance factor for electricity sector and industry	Compliance factor = 98.75% of the volume of emissions in the reference period for manufacturing industry. Approx. 66% of historic emissions (2000 – 2005) for electricity sector (before auctioning)

German NAP II vs. NAP I (2/3)

Allocation element	NAP I for 2005 – 2007	NAP II for 2008 – 2012
Allocation to existing installations (= in operation before 2003)	Based on historic emissions	■ Specific emission benchmarks (EB): - 750 g CO_2/kWh for hard coal and lignite - 365 g CO_2/kWh for gas ■ Further reduction of allocation by a malus factor (MF) depending on individual plant efficiency (see page 8) ■ Full load hours (FLH) based on historic utilization of the plant (average of 2000 – 2005) ■ Allocation: Capacity x EB x FLH x MF
Allocation to new installations	"14" rule: 100% free of charge allocation based on best available technology (cap at 750 g CO_2/kWh for coal and 365 g CO_2/kWh for gas) for the first 14 years of operation	■ "14" rule is abandoned ■ Emission benchmarks (see above) ■ Full load hours based on standard utilization factors: - 7,500 h/year for hard coal and gas - 8,250 h/year for lignite
Option rule	Allocation of certificates for plants that started operations in 2003/2004 according to expected emissions Ex-post adjustment: Unused certificates have to be given back	Option rule is abandoned No ex-post adjustments

German NAP II vs. NAP I (3/3)

Allocation element	NAP I for 2005 – 2007	NAP II for 2008 – 2012
Transfer rule for replacement of old plants by more efficient ones	"4 + 14" rule: ■ For the first four years, same amount of certificates as for the old plant ■ For further 14 years, 100% free of charge allocation needed for the new plant (based on the best available technology)	Transfer rule is abandoned
Reserve	3 million t p.a. for new entrants	25 million t p.a., mostly for new entrants
CDM/JI (see page 14)	No special rules	Up to 22% of the allocation per plant can be covered by certificates from CDM/JI projects
Malus rule	Reduction of compliance factor by additional 15 percentage points for power plants older than 30 years with efficiencies of n < 31% in 2008/2009 (lignite) n < 32% after 2009 (lignite) n < 36% after 2007 (hard coal)	Malus factor: Further reduction of allocation if emissions exceed the following levels: - 990 g CO_2/kWh for lignite - 750 g CO_2/kWh for hard coal - 365 g CO_2/kWh for gas (see also page 16)

United Kingdom: Key elements of NAP II approved by the EU vs. NAP I (1/2)

Allocation element	NAP I for 2005 – 2007	NAP II for 2008 – 2012
Quantity	245.4 million t CO_2 p.a. (= 736.3 million t CO_2 for the three-year trading period)	The overall cap is 246.2 million t CO_2 p.a. Total allocation to installations covered by phase 1 will be 236.6 million t CO_2 p.a.
Allocation to electricity sector	136.9 million t CO_2 p.a. (= 410.7 million t CO_2 for the three-year trading period)	The free-of-charge allocation to the electricity sector is 107.4 million t CO_2 p.a. including a contribution of 7.9 million t CO_2 p.a. to the new entrant reserve, Allocation free of charge based on benchmarks for the electricity sector using fuel and technology specific emission factors ■ coal plant meeting LCPD* limits, CCGT and peaking plant based on category average load factors (2000 – 2003) ■ coal plant opted out* of LCPD emission limits based on 28.54% load factor
Allocation to other industries	108.5 million t CO_2 p.a. (= 325.6 million t CO_2 for the three-year trading period)	The allocation to other sectors is 121.5 million t CO_2 p.a., including 9.6 million t CO_2 p.a. for new installations not previously covered. Use of "relevant emissions" – the average of the highest three years emissions during the baseline period 2000 – 2003

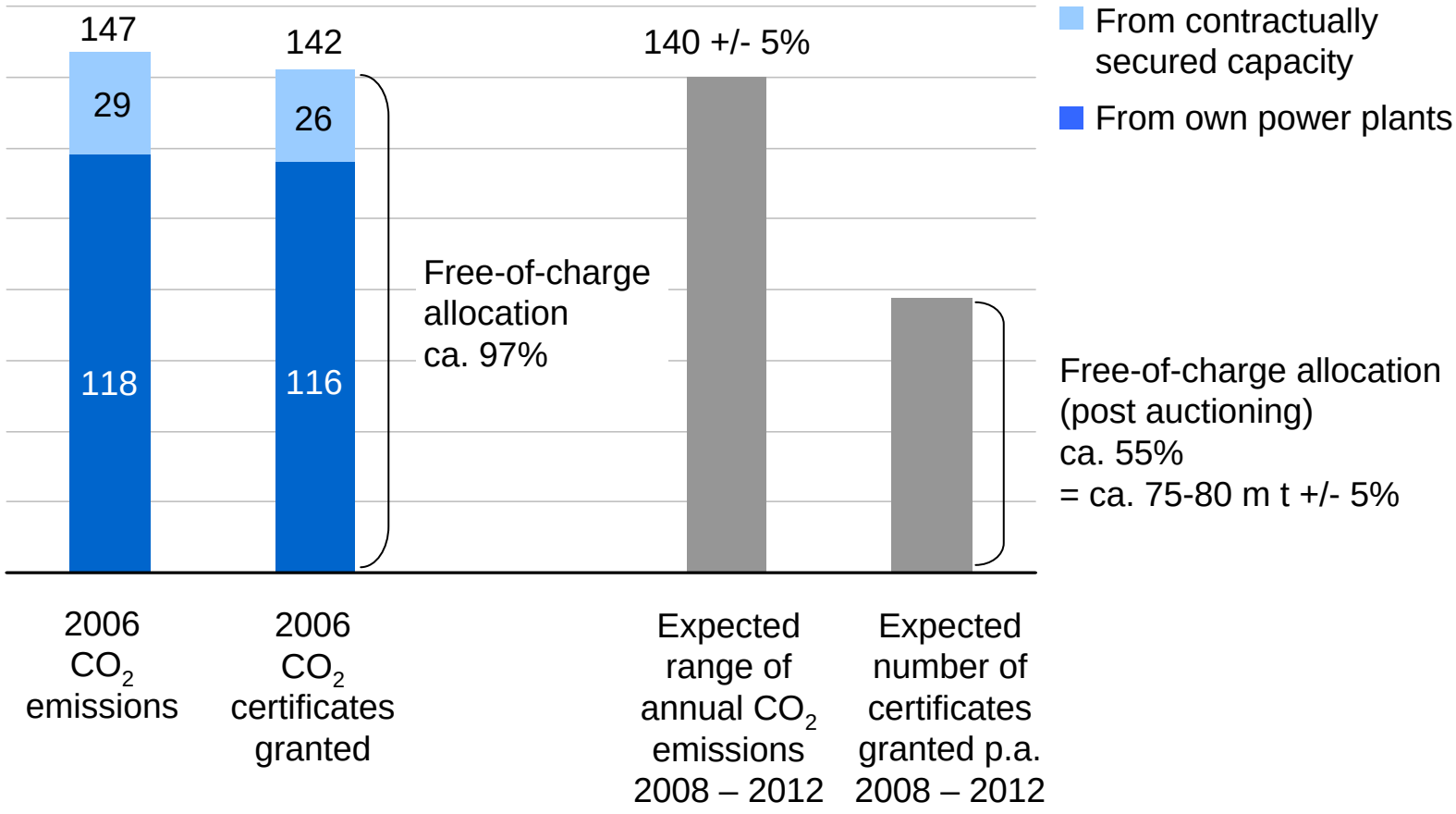
* See page 16.

The UK NAP II vs. NAP I (2/2)

Allocation element	NAP I for 2005 – 2007	NAP II for 2008 – 2012
Auctioning	Surplus allowances in the new entrant reserve will be sold rather than auctioned.	7% of allowances (17.2 million t CO_2 p.a.) will be auctioned. The auctioned allowances will come from the electricity supply sector.
New entrants	6.3% of allowances retained in new entrant reserve, with 4.6 million t CO_2 p.a. (= 13.9 for the three-year trading period) specifically ring-fenced for new entrant CHP plant Allocation to new entrants based on technology specific benchmarks, but with gas-specific emission factors in the electricity sector	The new entrant reserve will be 6.6% (total of 81.6 million t CO_2 equivalent to 16.3 million t CO_2 on average p.a.) of total allocation allowances at the following rates: ■ 100% to certified Good Quality CHP ■ To new entrants from the electricity sector in line with incumbents, scaled back to be consistent with reduced allocation to this sector ■ 95% to all other new entrants
Transfer rule (for replacement of old power plants)	No transfer rule. Closed plant does not receive allowances in the year following closure.	No transfer rule. Closed plant does not receive allowances in the year following closure.
CDM/JI	No restrictions	All installations can use up to 8% of their allocation. For the electricity sector this is equivalent to 9.3% of free allocations taking account of the auctioning deduction.

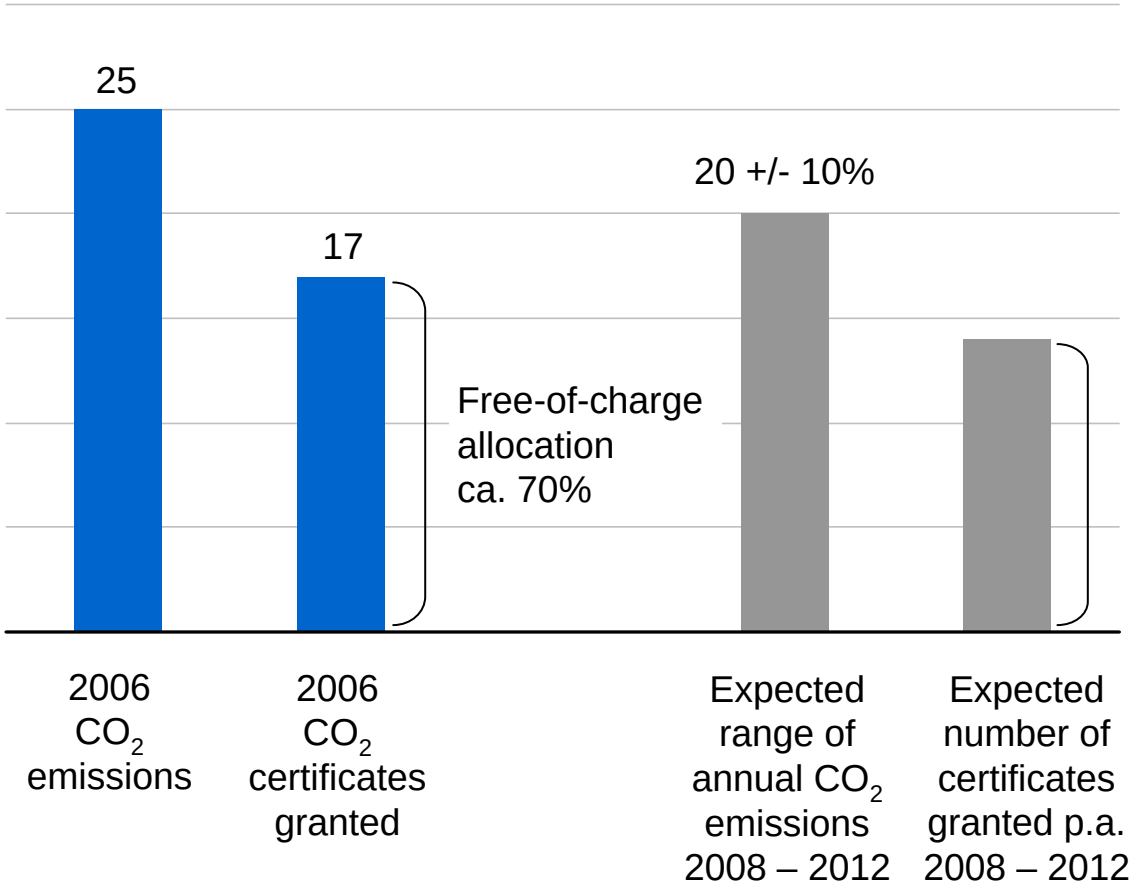
Expected impact of German NAP II on RWE

CO_2 emissions and free-of-charge allocation of RWE in Germany (in million tons)



Expected impact of UK NAP II on RWE

*CO_2 emissions and free-of-charge allocation of RWE in the United Kingdom (in million tons)**

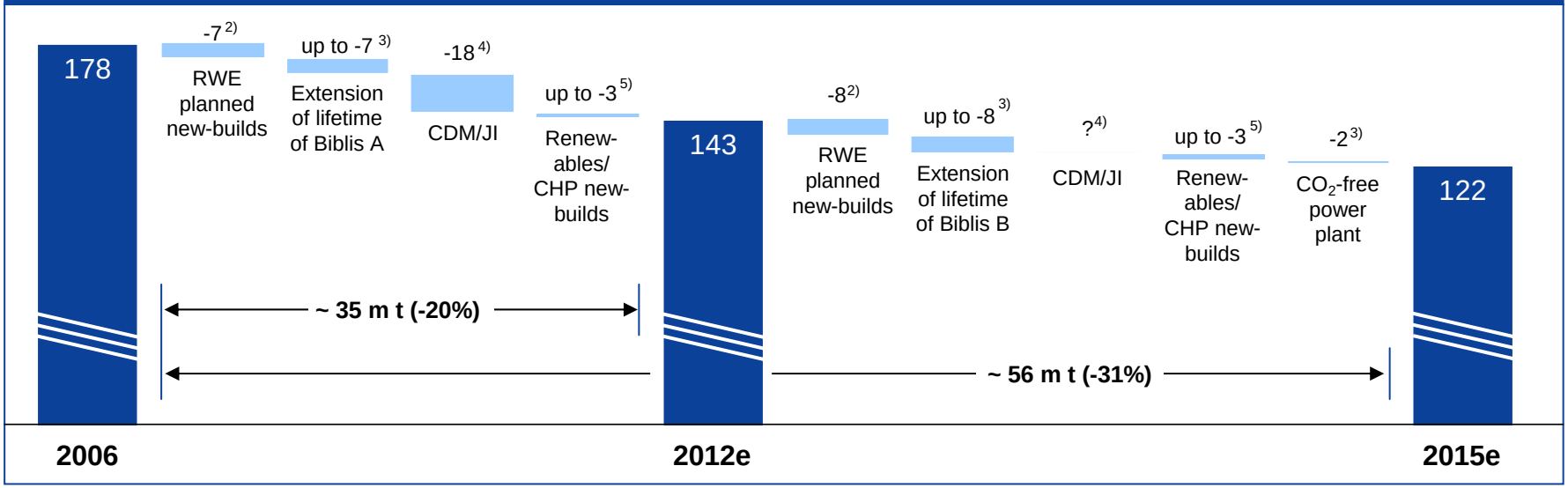


- Numbers for 2008 – 2012 exclude new build plant; in the second phase, additional CHP plant will be included in the scheme

Free-of-charge allocation (post auctioning) ca. 70% = 14 m t

We aim to significantly reduce our physical and financial exposure to carbon

CO_2-mitigation in RWE Group: Physical and financial measures and potential (m t/a)[1)]



Requirements for economically and ecologically reasonable CO_2-mitigation

- Political framework allows for extension of lifetimes of nuclear power plants, an economic use of renewables and CO_2-free coal technology
- Power plants with above average CO_2 emissions will be decommissioned, as long as it is economic and security of supply will not be endangered

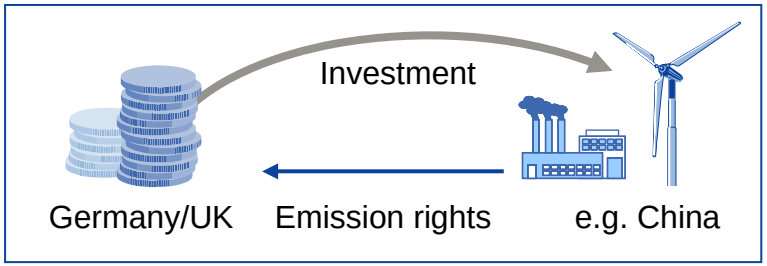
Comments

1) Excluding growth investments and market induced load factor changes
2) New-builds with decommissioning and lower load factors of old plants (depending on market conditions)
3) Depending on political framework; avoidance of emissions from old coal plants
4) CDM/JI-projects for covering a maximum of 22% of CO_2-allocation in Germany and 9% in UK (avg. 10-12€/t mix of price and costs); framework post 2012 not clear yet
5) Avoidance of emissions from coal- and gas-fired plants

CDM/JI projects give RWE access to cost-effective reduction of greenhouse gas emissions

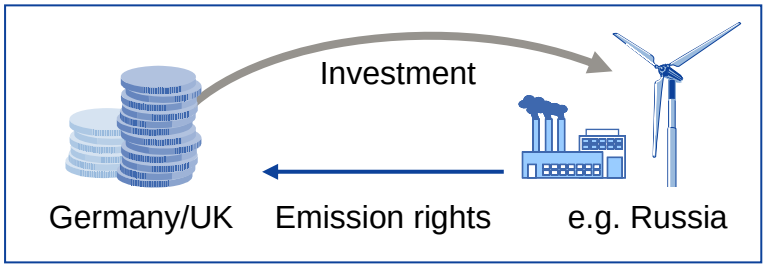
Clean Development Mechanism (CDM):

Emission reductions through investment by an industrialized country in a country without reduction commitments are credited to the emission account of the investor country

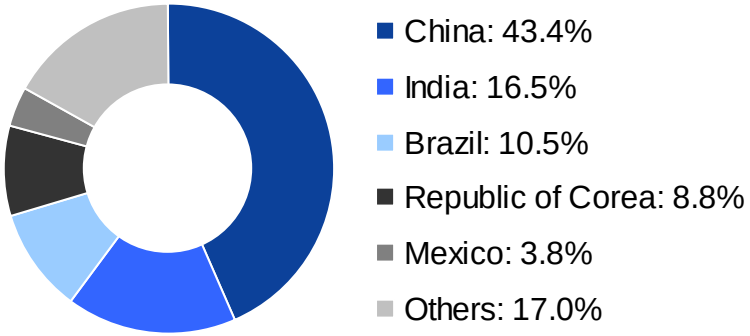


Joint Implementation (JI):

Emission reductions through investment by one industrialized country in another industrialized country are credited to the emission account of the investor country and debited from the account of the host country



Expected average annual certificates from registered CDM projects by host country at the end of August 07:



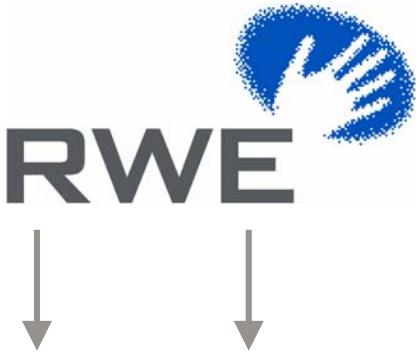
- At the end of August 2007, the UN had approved more than 760 CDM projects that are expected to supply more than 1 billion certificates by 2012.
- Much of the certificate volumes contracted are accounted for by Chinese projects, while India is leading in the number of projects.

Source: UNFCCC; http://cdm.unfccc.int

CDM/JI: How does it work?

Project Cycle	Players in the CDM Market	Players in the JI Market
Project Design	Project Participant	Project Participant
Letter of Approval	Host country's & investor country's Designated National Authority, e.g. German Emissions Trading Authority (DEHSt)	Host country's & investor country's Designated National Authority, e.g. DEHSt in Germany
Validation	Inspection company accredited by United Nations Framework Convention on Climate Change (UNFCCC) so-called Designated Operational Entity	Inspection company accredited by UNFCCC, so-called Accredited Independent Entity
Registration	UNFCCC CDM Executive Board	No registration at international level
Implementation & Monitoring of project performance	Project Participant	Project Participant
Verification & Certification of achieved emission reduction	Designated Operational Entity	Accredited Independent Entity under supervision of the UNFCCC JI Supervisory Committee
Emission Reduction Certificates	Issuance of Certified Emission Reductions (CERs) by UNFCCC CDM Executive Board	Transfer of Emission Reduction Units (ERUs) by host country
Use under the EU Emissions Trading Scheme		

RWE's approach to the CDM/JI market

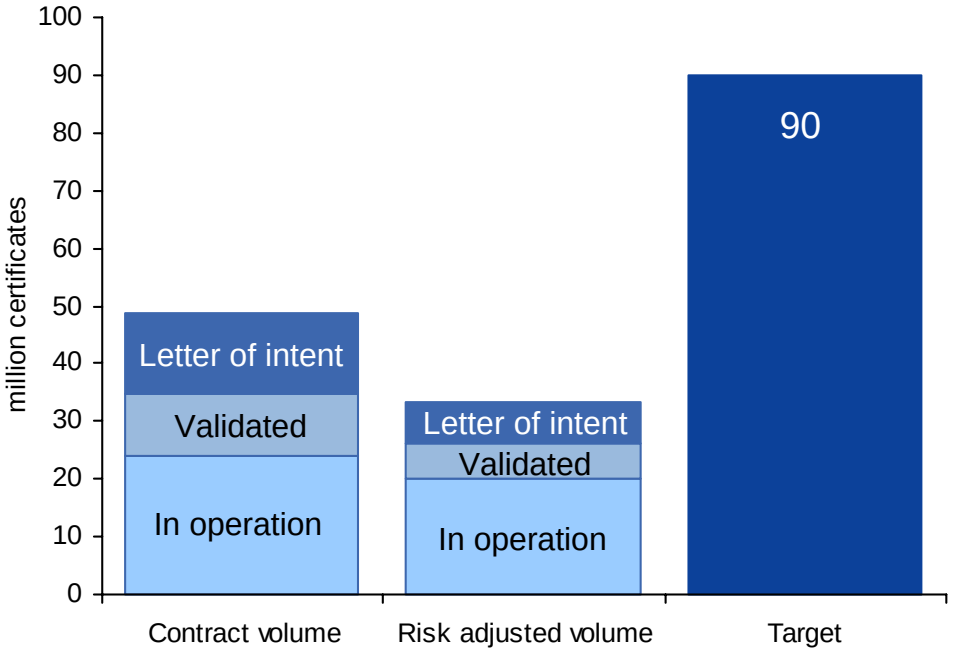


Purchase of Kyoto credits via:	Direct involvement in CDM/JI projects via:
■ Direct transactions with sellers	■ Financial investment
■ Tender-process	■ Technology contribution
■ Participation in carbon funds	■ CDM/JI regulatory process

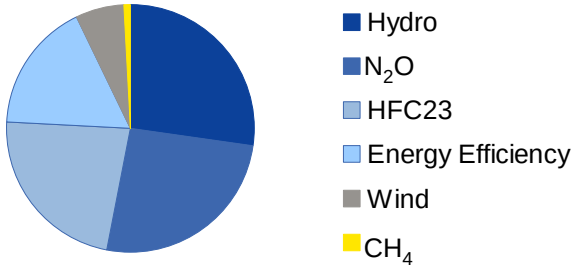
› RWE aims to utilize its full CDM/JI redemption capacity of approx. 90 million certificates for the period 2008 – 2012

RWE's current Kyoto credit portfolio for 2008 – 2012

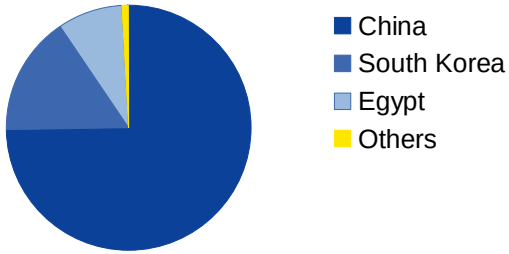
Projects by July, 2007



Contract volume by technology



Contract volume by region



The average price per contracted certificate is < 10 €. We expect to reach the target volume at 10-12 € per certificate.

Timetable: NAP II and beyond

March 16, 2007	Publication of approved UK NAP II with installation level allocation
May 1, 2007	Greenhouse Gas Trading Scheme Regulations (2007) specifying approved UK NAP II come into force
June 22, 2007	Enactment of the German Allocation Act (NAP II) by the Bundestag
July 6, 2007	German Allocation Act approved by the Bundesrat (Upper House)
December 2007	World Climate Conference: Start of negotiation of a post-Kyoto agreement in Bali
February 28, 2008	Companies receive emission certificates for 2008
April 30, 2008	Submission date for NAP I certificates referring to 2007
2009 – 2011	Finalization of the post-Kyoto agreement
2009	Likely publication of revised EU Emissions Trading Scheme Directive

Emissions Trading Glossary

- **Deutsche Emissionshandelsstelle (DEHST)**
  The German Emissions Trading Authority at the Federal Environment Agency was established as the competent authority for emissions trading in Germany. According to the German Greenhouse Gas Emission Allowance Trading Act (TEHG), it is responsible for the allocation and issuing of allowances, monitoring and control tasks, the administration of the national registry as well as national and international reporting.
- **EU Burden Sharing Agreement**
  Legally binding commitment agreed in 1998 by EU Member States to break down the Kyoto Target within the EU. Targets range from -28% for Luxembourg to +27% for Portugal and shall reflect member states' capabilities, special characteristics and different development stages.
- **Kyoto Protocol**
  A legally binding obligation, ratified by a sufficient number of participants, to limit emissions over 2008 – 2012.
  It was agreed in 1997 under the auspices of the UNFCCC. Three flexible mechanisms are established by the Protocol:
  CDM, JI and Emissions Trading.
- **Large Combustion Plant Directive (LCPD)**
  The LCPD is the EU Directive that sets sulphur dioxide (SO_2), oxides of nitrogen (NO_X) and dust emission limits for plants over 50 MW thermal. The limits for plants licensed before 1987 come into force from 1.1.2008 until 2016 when tighter NO_X limits are introduced. Plants can either meet these limits (opted-in plant) or choose a limited life (20,000 operating hours from 2008 to 2015) derogation (opted-out plant).
- **Malus Factor in the German NAP II**
  Efficiency related adjustment factor to calculated allocation leading to lower allocation for plants exceeding predetermined emission factors (990 g CO_2/kWh for lignite, 750 g CO_2/kWh for hard coal, 365 g CO_2/kWh for gas). It is derived from the ratio between the predetermined and the effective emission factor (ES or plant efficiency standard) multiplied by a standard adjustment factor (AF, between 0.5 and 1.0), which is still unknown and will be derived from a sensitivity analysis (malus factor = 1 – AF x (1 – ES)). The malus factor cannot exceed a value of 1.
- **National Allocation Plan (NAP)**
  National plan to allocate emission rights to different industries. The plan also contains the specific emissions trading rules per country and is transferred into national law after being accepted by the EU.