

EU ETS

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Climate dimension of EEP

Energy sector (extraction, transport, combustion and distribution) harms the environment significantly.

- Climate change (regional/global level) – measures to reduce GHG emissions.
 - EU ETS, GHGs outside of the EU ETS, RES, energy efficiency, new technologies (CCS).
- Local environment protection – covered mainly by the EU environmental policy.
 - Air, land and water pollution, noise, light pollution, industrial (energy) waste, protection of biodiversity, extraction of non-conventional sources of energy.

Climate dimension of EEP

Two interlinked processes:

- International regime of climate change mitigation (EU plays a leading role).
- Interlinked but independent climate policy of the EU (part of the EU energy policy).

Climate dimension of EEP

Climate change mitigation via:

General tools to reduce GHG emissions

- EU ETS
- Individual targets of MS for the non-EU ETS sectors (housing, agriculture, transport, waste)
- CCS.

Measures to transform the energy sectors

- RES
- Energy Efficiency
- Research and development, new technologies

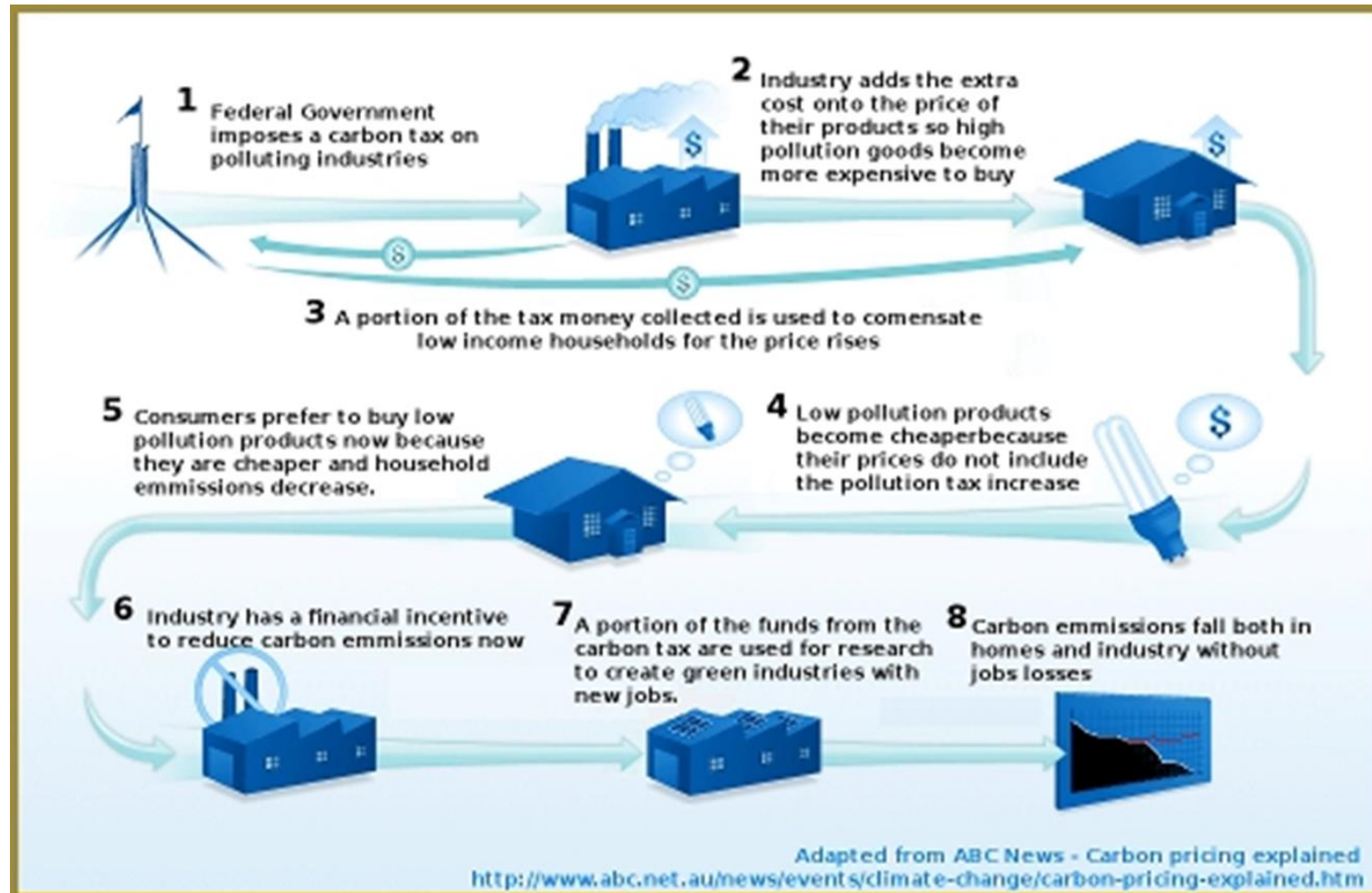
2009 Energy and climate package (2020 targets)

- A 20% reduction in EU greenhouse gas emissions from 1990 levels.
- Raising the share of EU energy consumption produced from renewable resources to 20%.
- A 20% improvement in the EU's energy efficiency
- EU ETS (2009/29/ES), CCS (2009/31/ES).

2030 Climate and Energy Policy Framework (2014)

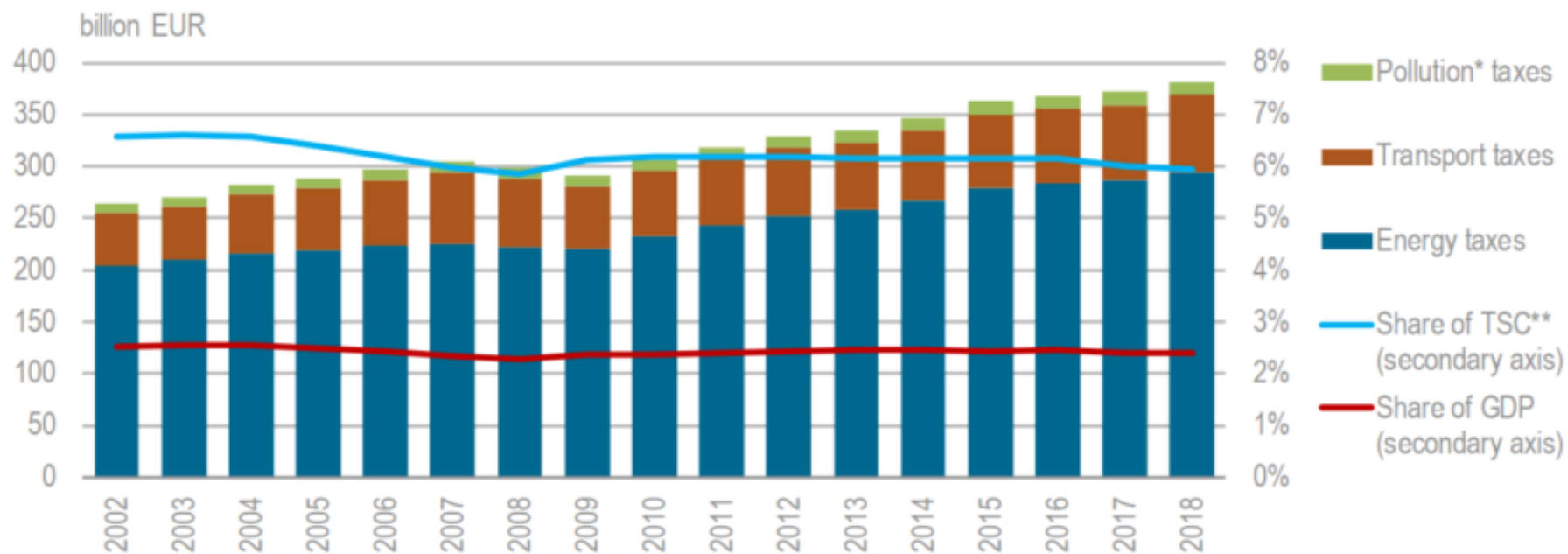
- At least 40% cut in greenhouse gas emissions (from 1990 levels) – binding EU target.
 - RED II (2018/2001/EU) - At least 32% (originally 27%) share for renewable energy – binding EU target, no national targets – countries to deliver 10-year National Energy and Climate Plans to outline their plans for RES.
 - At least 32.5 (originally 27%) improvement in energy efficiency. Non-binding target, indicative national targets.
- + reform of EU ETS (EU ETS 43% compared to 2005, no external credits. Non-ETS 30% compared to 2005 (national targets)).
- + interconnection of isolated energy markets of the Baltic states, Spain, Portugal.

Carbon tax



Energy (and carbon) taxation (2018)

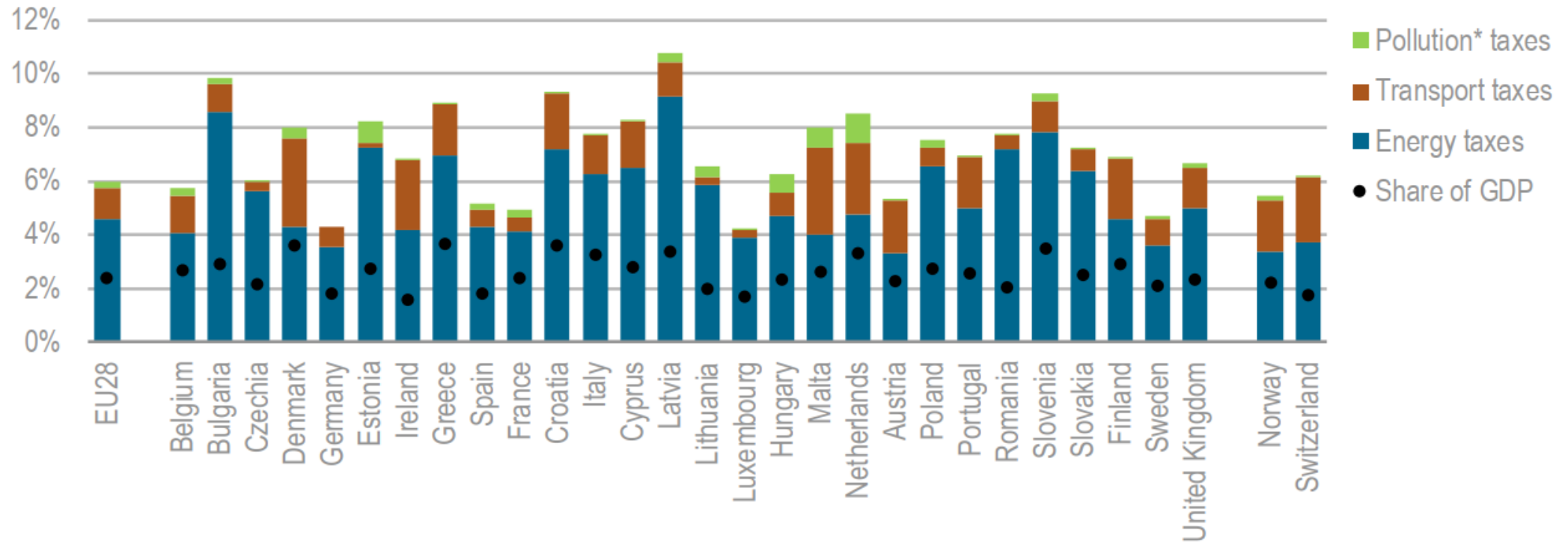
Environmental tax revenue of member states made about 6% of total revenues from taxation in 2018 (EUR 370 bn). 4/5 of that was excise duties on oil products.



*Pollution includes pollution and resources

**TSC: Total revenues from taxes and social contributions

Tax revenues, % of TSC and GDP, 2018



*Taxes on pollution and resources

Note: TSC: Total revenues from taxes and social contributions

Mechanism of emission trading

ET: Central authority ... sets a limit ...on the amount of pollutant to be emitted ... the cap is sold/allocated as permitscompanies are required to hold those permits ...if they need to increase this volume...have to buy those permits or pay the fee.

= the buyer is paying a charge for pollution = he is motivated to invest in less-polluting technologies.

= in areas where emission could easily be measured, reported, and verified.

Kyoto protocol (COP3)

- To reduce GHG concentration in the atmosphere to a level preventing dangerous interference with the climate system.
- Annex I. parties (37 industrialized countries + EU15), Non-annex I. parties.
- Reducing of GHG emissions by 5,2 % for the period of 2008-2012. (4,2 % after the U.S. left). Base year 1990.
- Flexible mechanisms – Emission trading, CDM, JI (Assignment Amount Units).
- Art. 4 – burden sharing agreement of European Community.
- First commitment period expired 2012.
- Common but differentiated responsibility.

Main principles

- It creates a dynamic monetary incentive so companies can sell their allowances to other producers and make profit.
- These incentives are based on real needs (scarcity) of allowances and on adequate monitoring and enforcement.
- This system (at least in theory) offers certainty of emission reduction corresponding to the stringency of the cap.
- Unlike domestic schemes effective international systems are more difficult to establish.
- Even a well-designed system is not to work if it is not implemented correctly by the participants in the system (MS).

EU ETS: The first phase (2005-2007)

Country	Mil. EUAs	Share of the overall amount of EUA	Number of incl. facilities	The aim of Kyoto
Belgium	188,8	2,9	363	-7,5
Czech Republic	292,8	4,4	435	-8
Denmark	100,5	1,5	378	-21
Estonia	56,85	0,9	43	-8
Finland	136,5	2,1	535	0
France	469,5	7,1	1 172	0
Ireland	67	1	143	+13
Italy	697,5	10,6	1 240	-6,5
Cyprus	16,98	0,3	13	-
Luxembourg	10,07	0,2	19	-28
Lithuania	36,8	0,6	93	-8
Latvia	13,7	0,2	95	-8

Zdroj: Massai, 2012, s. 174

The first phase (2005-2007)

- Only CO₂ from power generators and energy intensive industries.
- Almost all allowances for free, penalty at EUR40/t CO₂.
- MS responsible for cap setting. (NAPs submitted to EC for approval) - absent historic verified emissions data, most MS distributed allowances on the basis of estimated emissions.
- Overestimations of emissions – with the exemption of Germany and Slovenia (4% surplus).
- Drop in the prices of allowances + very limited impact on emissions of greenhouse gases.
- Banking not allowed, oversupply of 150 million of EUAs.

Figure 2: EU ETS emissions allowance prices: April 2005 - December 2009



The first phase (2005 – 2007)

Difficult calculations due to:

- Proneness to cheating.
- Changing level of industrial production.
- Changes in energy prices.
- Increasing deployment of RES (cannibalism of targets).
- Permit stockpiling.
- Weather.
- And others.

Not only GHG decrease is desirable, but also the stability of the price of EUAs!

The second phase (2008 – 2012)

- Cap lowered by 6,5% in comparison with 2005 production.
- Iceland, Liechtenstein, and Norway joined the EU ETS.
- Aviation added, but only for EU flights.
- Nitrous oxide emissions from the production of nitric acid were included by several member states.
- The proportion of free allocation fell to around 90%, with several countries auctioning the remaining 10%.
- The penalty of €100/t CO₂.
- Banking allowances from phase II to phase III was allowed.
- More stringent approach of EC – cuts of NAP (litigation at ECJ), but still decentralized cap-setting.

The second phase (2008 – 2012)

Between 2008 – 2012 the CO₂ price declined from around €20 Mt CO₂ to around €8 Mt CO₂.

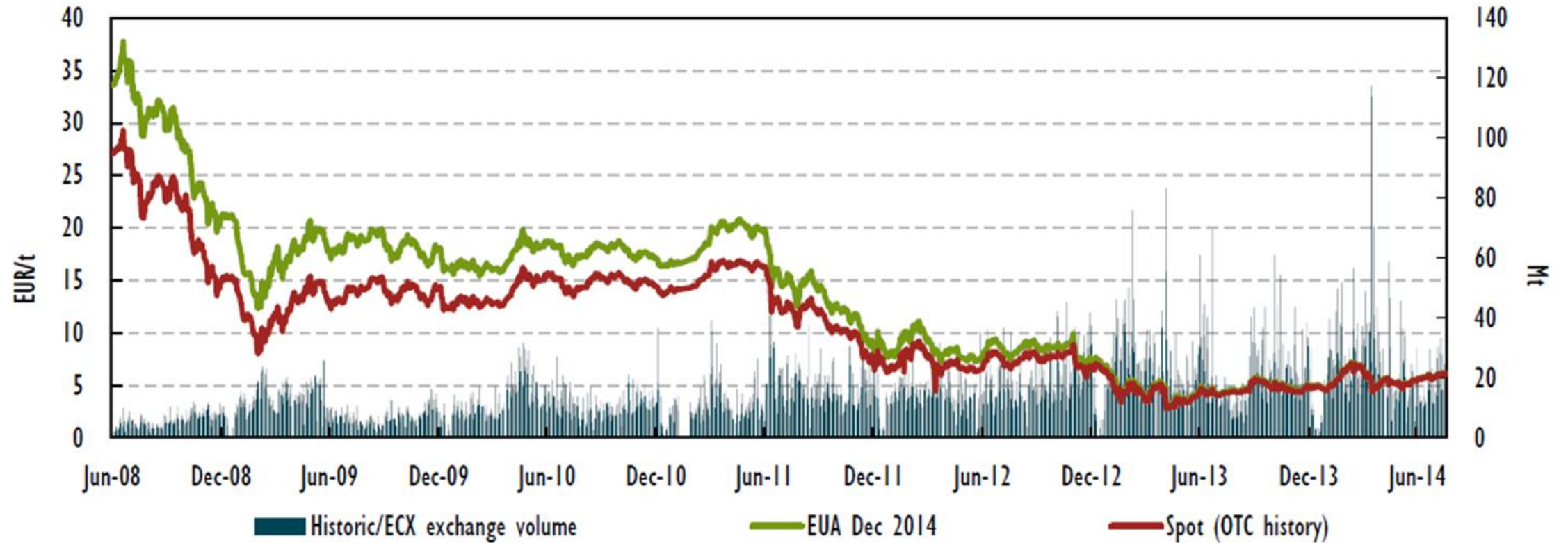
- The reduction of energy demand due to 2008.
- Inflow of international credits (Certified Emission Reduction CER of CDM).
- Impact of other EU policies such as RES and energy efficiency policy.
- Rising prices of fuels.

= The design of the EU ETS doesn't allow the adjustment of supply of EUA in reaction to the changes in demand.

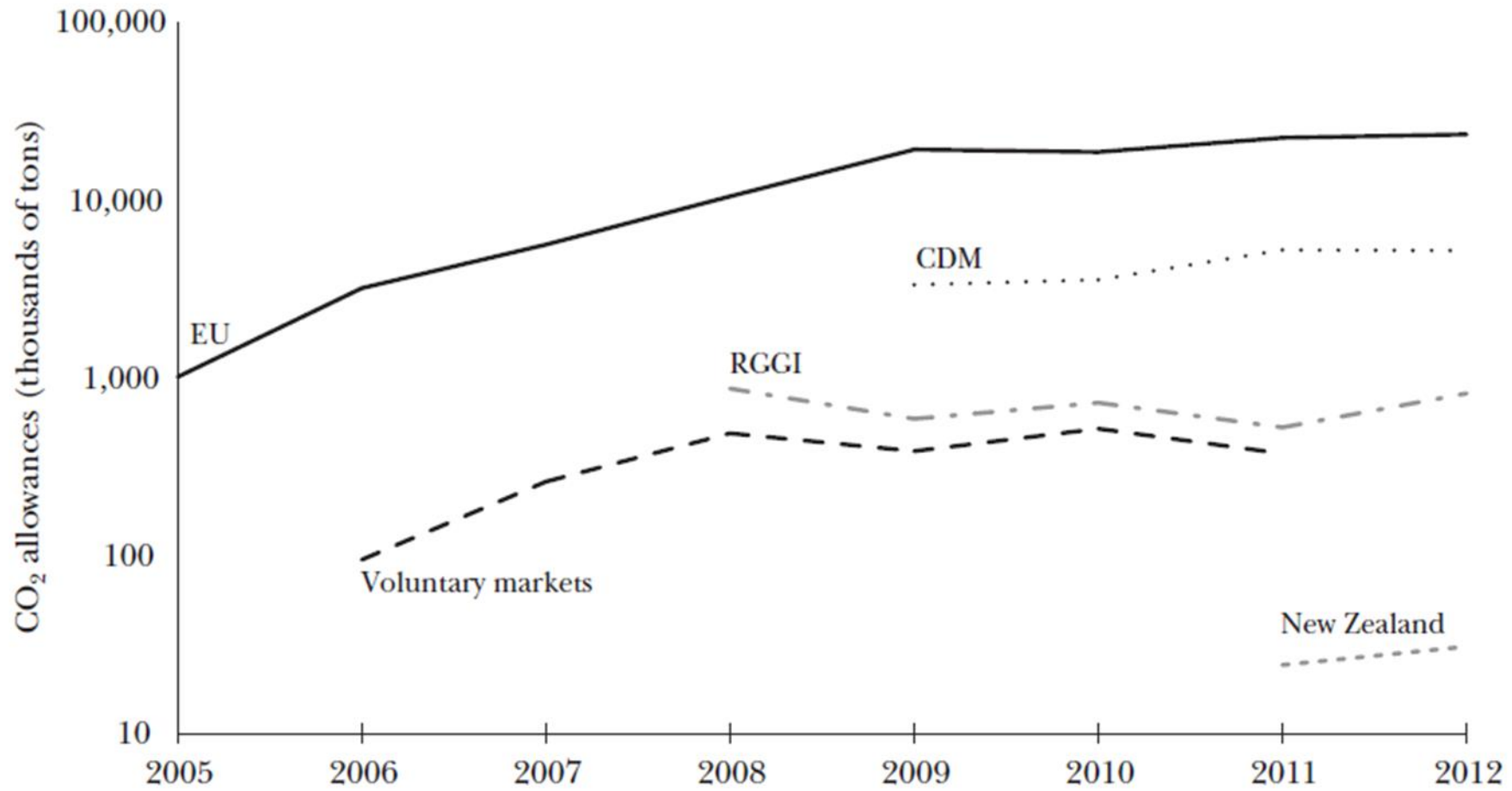
Since the banking is allowed between the second and third trading period = surplus of 900 mill. EUAs.

Pressure to change the whole system.

EUA prices



Volume of CO₂ Allowance Trades (daily average)



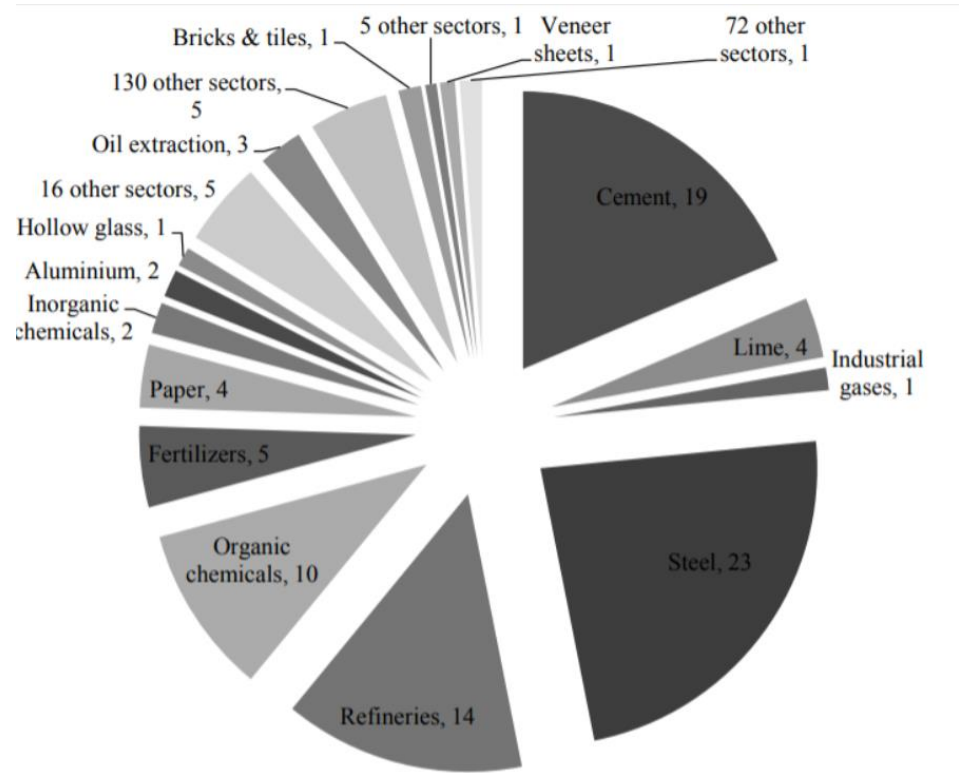
The third phase (2013 - 2020)

- Changes introduced by 2009 Energy and climate package.
- EU-wide emission cap to replace NAPs. A linear reduction factor of -1,74 %/y applied.
- Auctioning of permits as a default method. More than 40 % of EUAs to be auctioned in the first year of 3rd period with progressively rising shares each year.
 - End of free permits to the power sector. In other sector progressive transition to the auctioning.
- 300 million EUA in the New Entrants Reserve to fund innovative RES technologies and CCS.
- An expanded list of restrictions on the use of credits from the CDM.

The third phase (2013 - 2020)

- EU-wide harmonized rules and performance benchmarks for the free allocation of allowances.
- CCS installations, production of petrochemicals, ammonia, non-ferrous and ferrous metals, gypsum, aluminum, etc. added.
- International aviation – requirements for extra-EU flights operating from or to non-EU countries suspended temporarily.
- Distribution of auction revenues (88% to MS, 10 to MS with low per capita income and 2% to MS that had achieved a 20% emission reduction in their Kyoto protocol base by 2005).
- At least half of these revenues to combat climate change.

Share of free allocation (%) based on carbon leakage list 2015 - 2020



Surplus of allowances

At the end of 2nd period surplus of 900 mil. EUAs.

+ selling of the left-over allowances in national phase 2.

+ new entrant reserves.

+ early auctioning to meet sector hedging demand.

+ the forward selling of phase 3 allowances to generate funds for the NER300 program.

- In the third period surplus increased to (estimated) 2 – 2,2bn.
- Backloading: delaying the auctioning of allowances from 2014-2016 until 2019-2020 (now directly to MSR).
- Market Stability Reserve (from 2019) – to address the surplus of EUAs (more than 822 million of EUAs in circulation) by automatically adjusting the supply of EUAs to be auctioned.

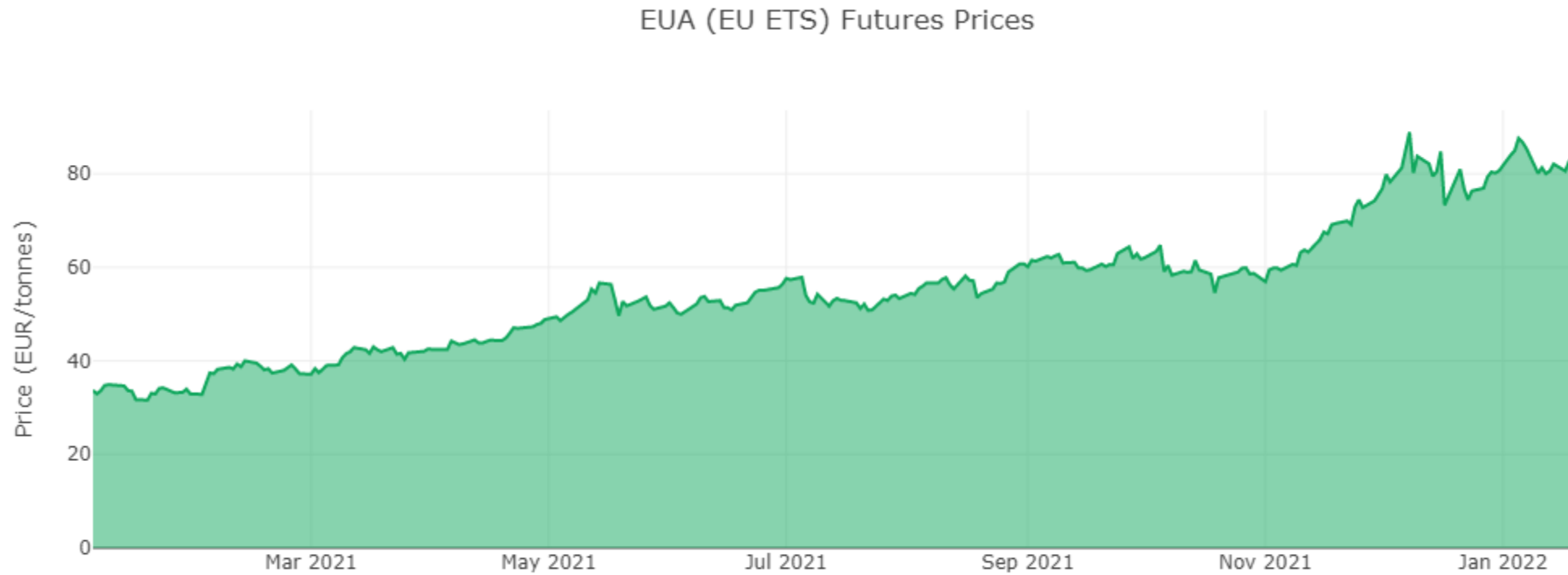
Revisions for the phase 4 (2021 – 2030)

- Reflects the EU's 2030 Climate and Energy Policy Framework from 2014 – 2016.
- The overall number of EUAs to decline at an annual rate of 2,2% from 2021 (inst. of 1.74% now). 43% compared to 2005 levels.
- Market stability reserve reinforced.
- Better targeted allocation of free allowances:
 - Update of benchmarks to reflect the technological progress.
 - More targeted carbon leakage classification (less exposed sectors without free EUAs by 2030).
- Innovation fund – support for innovative technologies.
- Modernization fund – to boost energy efficiency of power sector in 10 lower income MS (free allowances still available in these countries).

Fit for 55 proposals (2021)

- Tightened targets (in the EU ETS 61% reduction by 2030 in comparison with 2005).
- One-off reduction of allowances and steeper annual reduction factor of 4.2% (instead of current 2.2%).
- Carbon border adjustment mechanism (CBAM).
- Full auctioning for aviation.
- Maritime activities included (from 2026).
- Emission trading system for fuels in road transports and building created (from 2026).
- Increase in the size of the Innovation Fund and the Modernization Fund. Plus Social Climate Fund (25% revenues from new areas).

Fit for 55 proposals



Assessment

- It works at a technical level. It is the first and the largest international scheme for trading allowances. 30 countries (EU27 + Iceland, Liechtenstein, Norway). Central pillar of the EU's climate change policy. More than 11 000 installations, 45% of the EU's GHG emissions.
- It has a modest effect on carbon emissions – since 2005 emissions within the EU ETS decreased by around 26% (2019). It generates some revenue to promote climate change objectives.

Assessment

- Tensions with other instruments.
- Perception of competitiveness problems.
- Lack of credibility.

= high price is necessary for profitability of low carbon technologies (CCS, nuclear, renewables).

A shared effort
between sectors and MS

GHG Target:
-20% compared to 1990

-14% compared to 2005

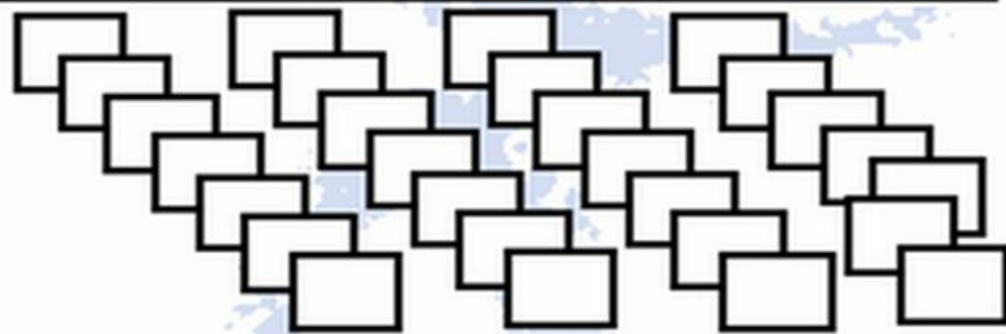
EU ETS

**-21% compared
to 2005**

ESD sectors

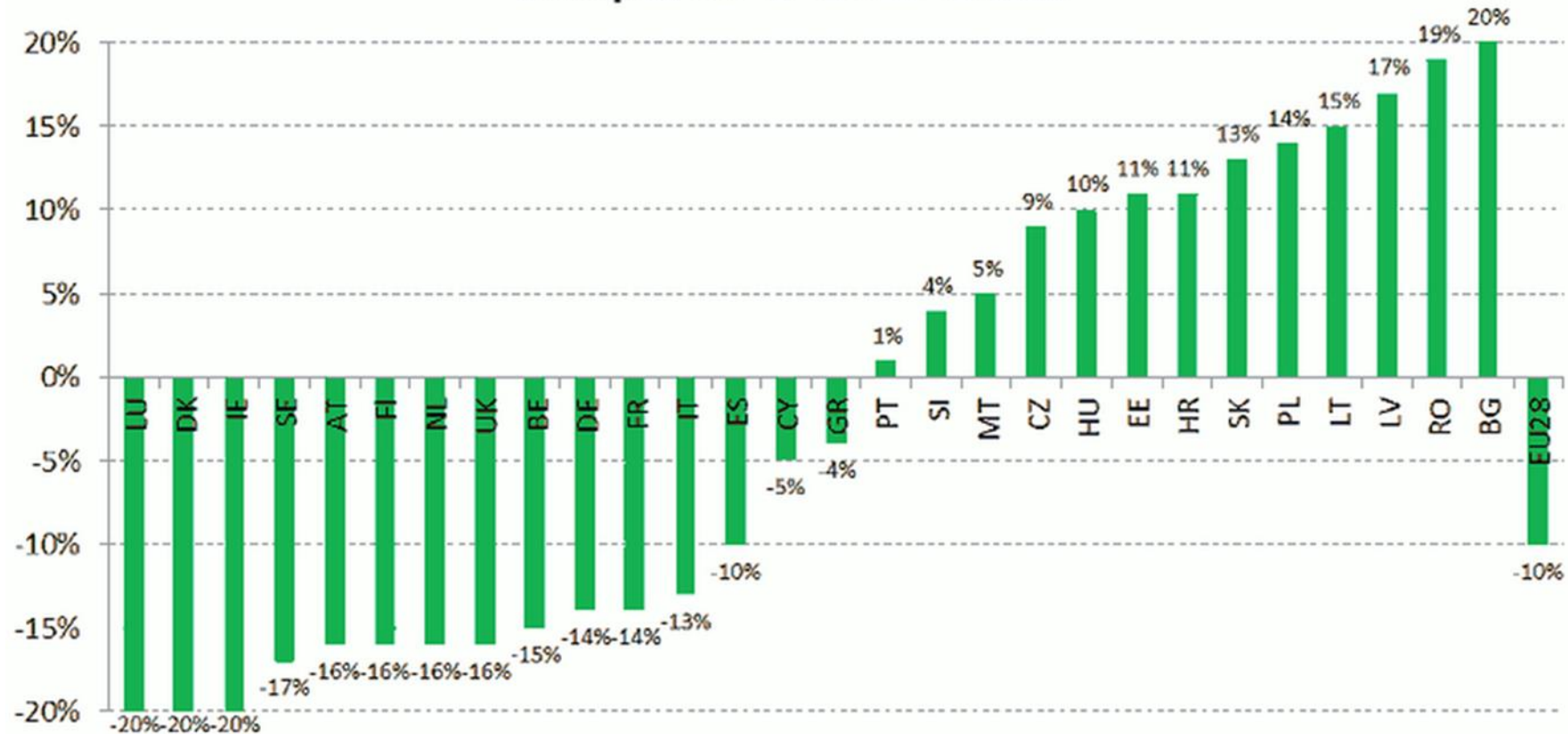
-10% compared to 2005

28 Member State targets, ranging from -20% to +20%



Individual MS' targets

Member State greenhouse gas emission limits in 2020 compared to 2005 levels



Effort Sharing Decision (by 2020)

- 20% target is divided between a) a 21% target compared to 2005 for EU ETS emissions and b) a 10% target compared to 2005 for the non-ETS emissions.
- Based on MSs relative wealth (GDP per capita).
- Kyoto gases covered (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆) + NF₃.
- The later goal is split into national sub-targets.
 - Reduction of transport needs, public transport, low-GHG transport, biofuels, urban planning, improved energy performance standards for public building, labeling system, eco design, more climate-friendly farming practices...
- To support it some measures at the EU level – emission standards for vehicles, fuel quality directive, eco-design for energy related products...
- Flexibilities between states (banking, borrowing, buying between MS).

Effort Sharing Regulation (for 2021 – 2030)

- Non-EU ETS sector 30% reduction by 2030 compared to 2005.
- 0% to - 40% compared to 2005 levels. Based on GDP per capita, adjusted for cost-effectiveness.
- Includes Iceland and Norway.

Fit for 55 proposals

- More ambitious national targets (40% by 2030 compared to 2005) based on more ambitious EU-wide emission reduction target.
- Stricter rules about flexibility mechanisms in achieving the national targets.

40% target suggestion of 2021 (Fit for 55 package)

