# EU ETS

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# Climate dimension of EEP

The energy sector, which includes extraction, transport, combustion, and distribution, significantly harms the environment.

- Climate change – measures to reduce GHG emissions:
  - EU ETS, GHGs outside of the EU ETS, RES, energy efficiency, and 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 connected processes:

- International regime of climate change mitigation (with the EU playing 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 for MS in non-EU ETS sectors (housing, agriculture, transport, waste).
- CCS.

Measures to transform the energy sectors:

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

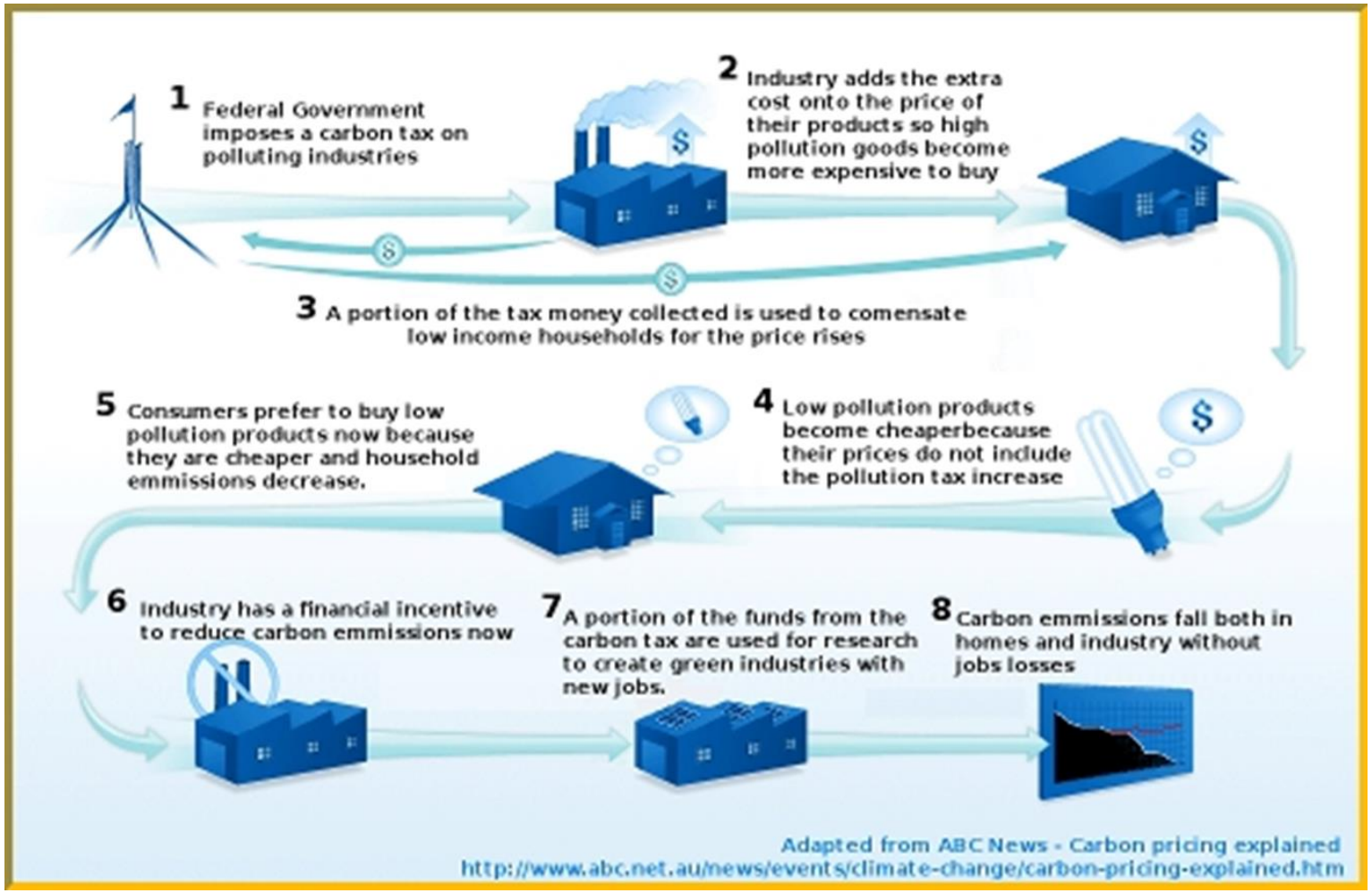
# 2009 Energy and climate package (2020 targets)

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

# 2030 Climate and Energy Policy Framework (2014)

- A minimum 40% reduction in greenhouse gas emissions (from 1990 levels) – binding EU target.
- RED II (2018/2001/EU) - At least 32% 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% improvement in energy efficiency. Non-binding target, indicative national targets.
- Reform of the EU ETS
- Interconnection of isolated energy markets of the Baltic states, Spain, Portugal.

# Carbon tax


1 Federal Government imposes a carbon tax on polluting industries
2 Industry adds the extra cost onto the price of their products so high pollution goods become more expensive to buy
3 A portion of the tax money collected is used to comensate low income households for the price rises
4 Low pollution products become cheaperbecause their prices do not include the pollution tax increase
5 Consumers prefer to buy low pollution products now because they are cheaper and household emmissions decrease.
6 Industry has a financial incentive to reduce carbon emmissions now
7 A portion of the funds from the carbon tax are used for research to create green industries with new jobs.
8 Carbon emmissions fall both in homes and industry without jobs losses
Adapted from ABC News - Carbon pricing explained
http://www.abc.net.au/news/events/climate-change/carbon-pricing-explained.htm

# Mechanism of emission trading

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

- The buyer is paying a charge for pollution, which encourages the investments in cleaner technologies.
- Used in situations where emission can be accurately measured, reported, and verified.

# Kyoto protocol (COP3)

- To reduce GHG concentration in the atmosphere to a level that prevents dangerous interference with the climate system.
- Annex I.  parties (37 industrialized countries + EU15), Non-Annex I. parties.
- Reduction of GHG emissions by 5,2 % for the period of 2008-2012. (4,2 % after the withdrawal of the U.S.), using the base year of 1990.
- Flexible mechanisms – Emission trading, CDM, JI.
- Article 4 – the burden-sharing agreement of the European Community.
- First commitment period expired 2012.

- Principle of common but differenciated responsibility.

# Main principles

- It creates a dynamic monetary incentive, allowing companies to sell their allowances to other producers and make profit.
- This 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 will not 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 overal 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 $CO_2$ from power generators and energy intensive industries.
- Almost all allowances for free, penalty at EUR40/t $CO_2$.
- MS responsible for cap setting. (NAPs submitted to EC for approval) - historic verified emissions data absent, 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:

- Propensity for cheating.
- Changing level of industrial production.
- Changes in energy prices.
- Increasing deployment of RES (cannibalism of targets).
- Permit stockpiling.
- Weather.
- Among other factors.

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 $CO_2$.
- 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 $CO_2$ price declined from around €20 Mt $CO_2$ to around €8 Mt $CO_2$.

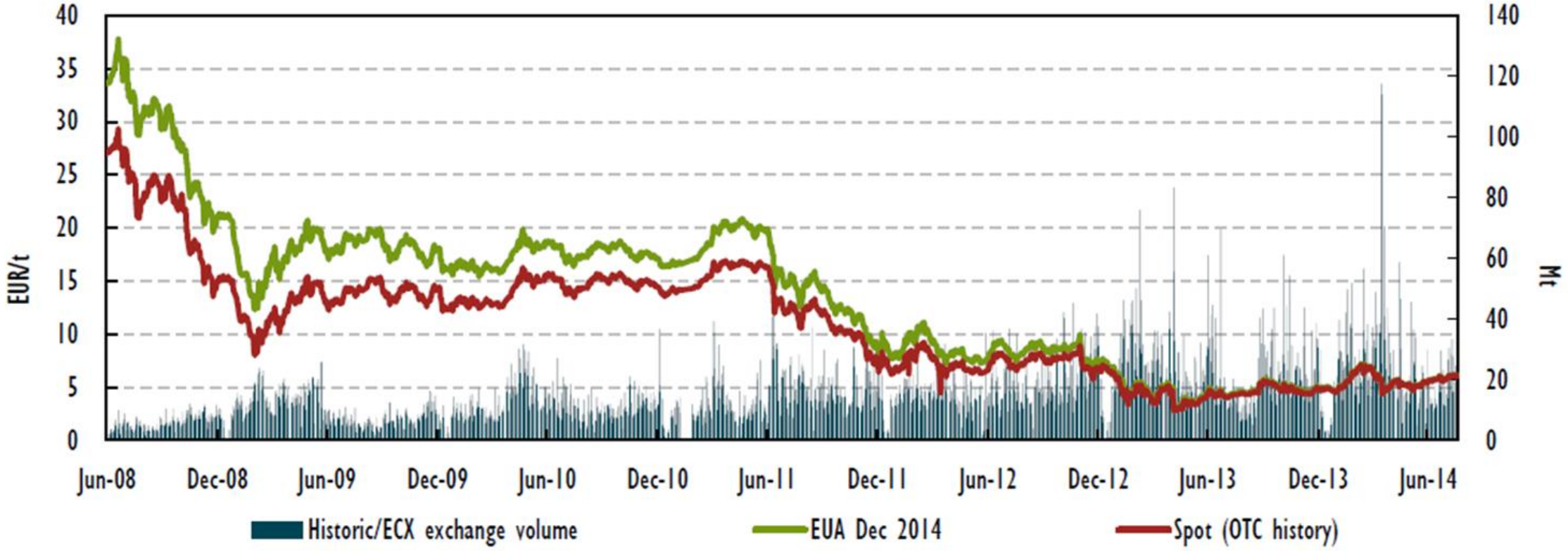
- The reduction of energy demand due to 2008 financial crisis.
- Inflow of international credits (Certified Emission Reduction CER of CDM).
- Impact of other EU policies such as RES and energy efficiency policy.
- Rising prices of fuels.

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 million EUAs.

Pressure to overhaul the whole system.

# EUA prices


EUR/t
Mt
40
35
30
25
20
15
10
5
0
140
120
100
80
60
40
20
0
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Jun-12
Dec-12
Jun-13
Dec-13
Jun-14
Historic/ECX exchange volume
EUA Dec 2014
Spot (OTC history)

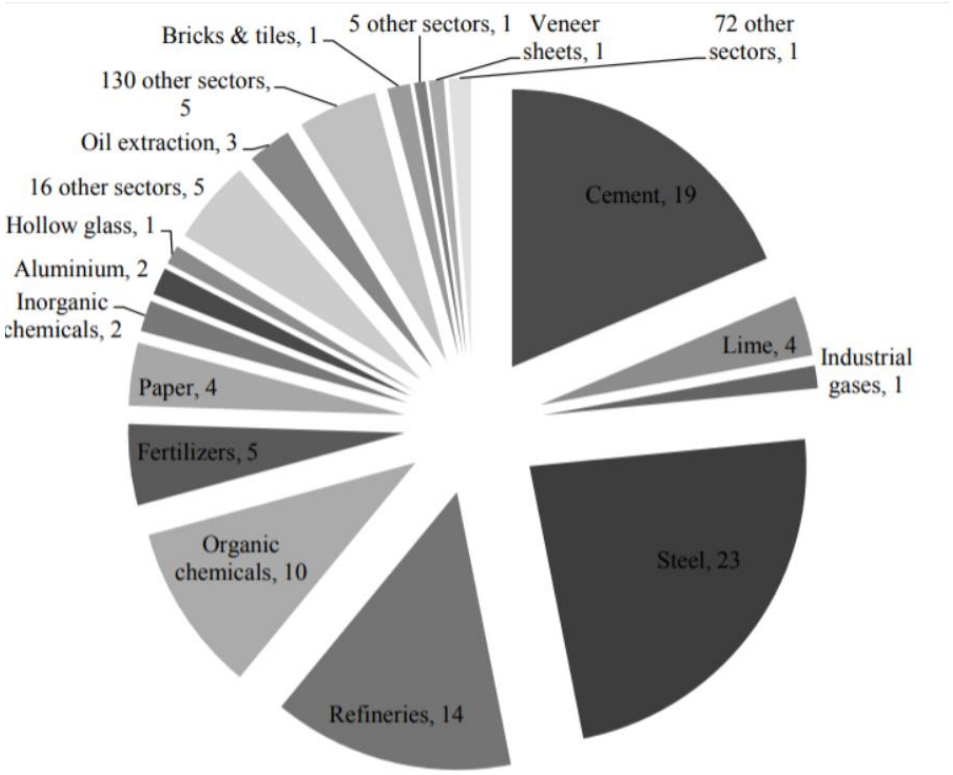
# The third phase (2013 - 2020)

- 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. included.
- 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 million 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 (MSR, 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 (2021)

- Tightened targets (in the EU ETS 62% reduction by 2030 in comparison with 2005).
- One-off reduction of allowances and steeper annual reduction factor of 4.3 – 4.4% (instead of current 2.2%).
- Carbon border adjustment mechanism (CBAM).
- Full auctioning for aviation.
- Maritime activities gradually included.
- Emission trading system for fuels in road transports and building created (from 2026).
- Increase in the size of the Inovation Fund and the Modernization Fund. Plus Social Climate Fund (25% revenues from new areas).

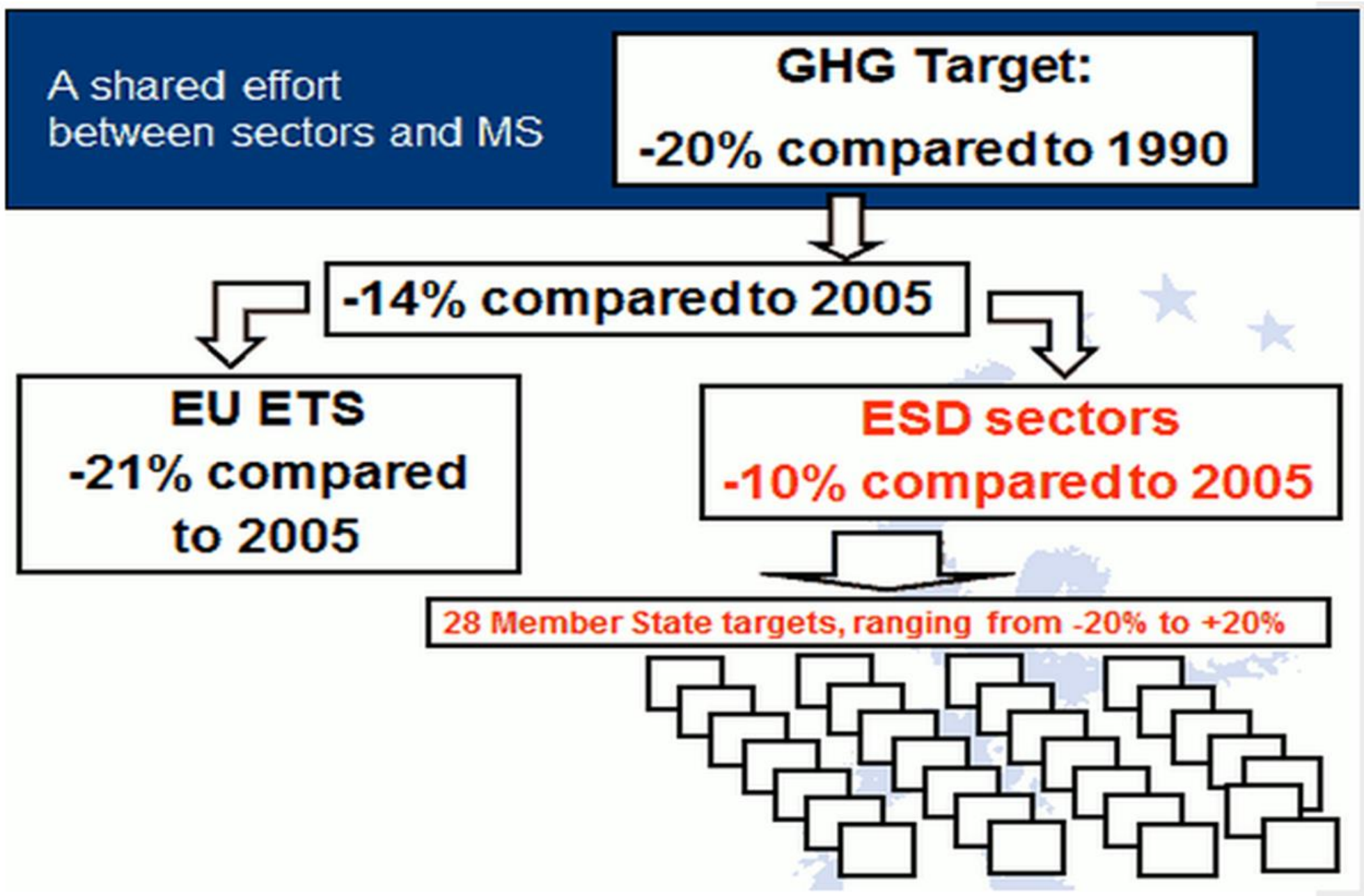
# Assessment

- 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 decresed by around 26% (2019).
- It generates some revenue to promote climate change objectives.

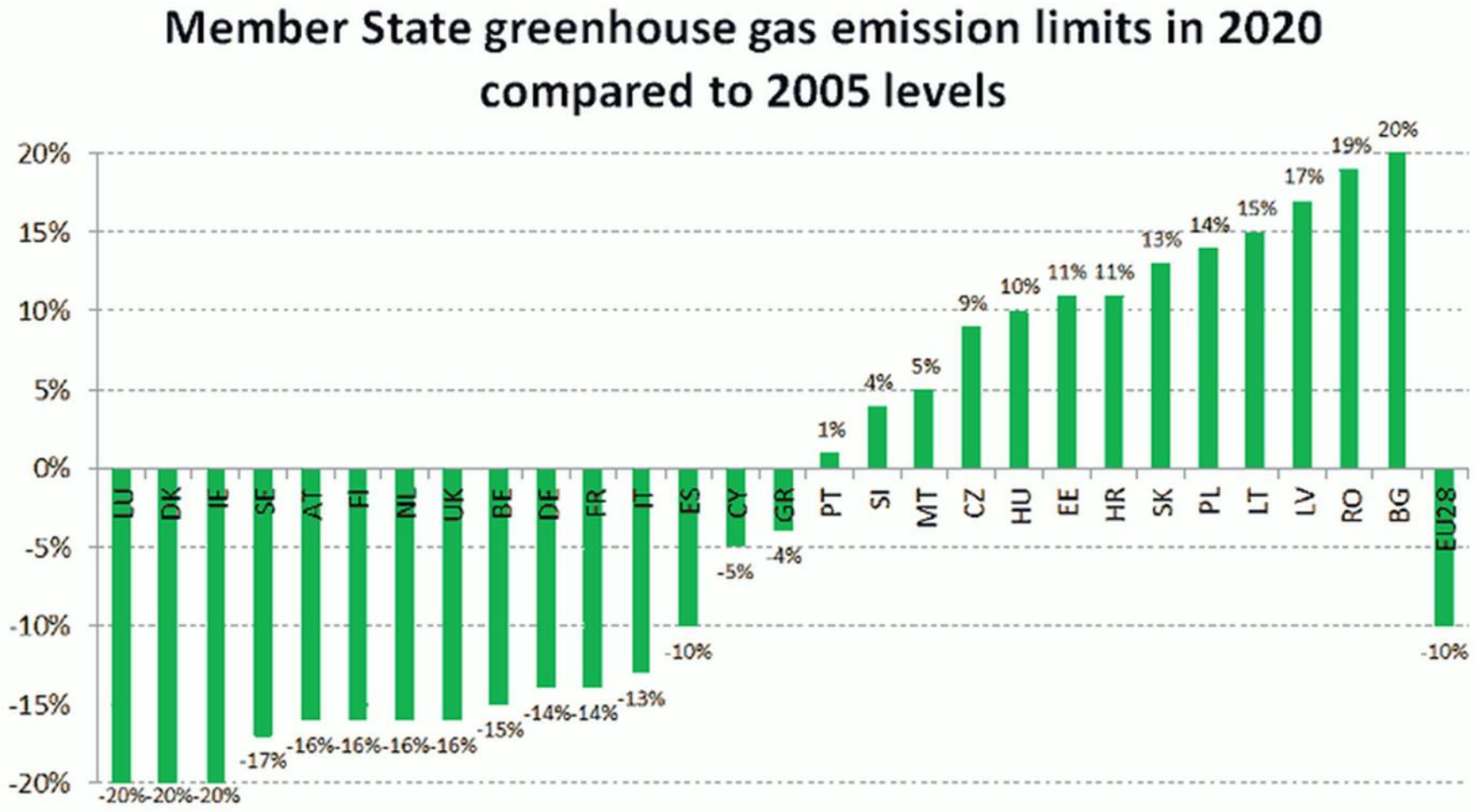
# Assessment

- 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



# 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 MS 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.

# Increase in targets due to the Fit for 55 Package