Trading CO_2 Certificates
Joint Energy Community – EFET Training

15 December 2020

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European Federation of Energy Traders (EFET)

We promote competition, transparency and open access in the European energy sector.
We **build trust in power and gas markets across Europe**, so that they may underpin a sustainable and secure energy supply and **enable the transition to a carbon neutral economy**.

Since our establishment in 1999, EFET has been playing a prominent role in facilitating the development of **open, competitive, liquid and transparent electricity and gas markets**, actively contributing to the development of the EU energy market design.

- Improving the **functionality and design of European gas, electricity and associated markets** for the benefit of the overall economy, society and especially end consumers.
- **Developing and maintaining standard wholesale supply contracts** and standardising related transaction and business processes (e.g. the EFET Master Agreement and the EFET standard CPPA).
- **Facilitating debate** amongst TSOs, regulators, policy makers, traders and others in the value chain about the **future of the European energy market**.

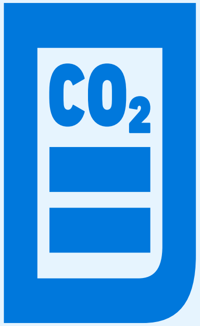
EFET

Agenda

- Scope and coverage of the EU ETS
- Allocation
- Market Dynamics
- Market Oversight
- Compliance and Risks
- Overlapping Policies

The EU Emissions Trading System is the cornerstone to drive compliance with Europe‘s climate goals

- Cap and Trade system, that limits the overall volume of greenhouse gases that can be emitted each year
- Installed in 2005 to comply with commitments of Kyoto Treaty
- Limits greenhouse gas emissions from more than 11.000 installations in energy and industry
- Covers ~45% of EU‘s greenhouse gas emissions
- Covers mainly CO_2, but also N_2O and PFCs from large emitters
- Participation is in principle mandatory, but thresholds for small emitters exists



Carbon

EU ETS scope: main GHG gases of power generation, industry and aviation in EU+EFTA

Greenhouse gases in scope

Emission of greenhouse gases[1)] (GHG), measured in tCO_2e

CO_2	N_2O	PFC[1)]

Geographical scope

EU  +  + EFTA[2)] 

Activities in scope

Stationary installations

Power & heat

Thermal input > 20MW

Industry processes

Oil refining; coke production; metals; cement; lime; glass; ceramics; pulp; paper; chemicals

Aviation

Flights inside ETS area

1) Officially covered greenhouse gases are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorcarbons (HFCs), perfluorcarbons (PFCs) and sulphur hexafluorides (SF6). Only three gases are emitted by currently listed activities (CO2, N2O, PFCs)
2) EFTA: European Free Trade Association

EU ETS was established 15 years ago

Trading Period 1 2005-2007	Trading Period 2 2008-2012	Trading Period 3 2013-2020	Trading Period 4 2021-2030

Test Phase

- Covered only CO2 from power generators and large industries
- Low penalties for non-compliance
- Price turns zero at the end of 2007 as banking was not allowed

Mandatory Participation

- Constant cap (6.5% below 2007)
- Mainly free allocation of certificates based on grandfathering rules
- International credits allowed (~1.4 bn transferred)
- Aviation brought into the system per 1.1.2012

Shift towards auctioning

- Full auctioning for the power sector
- Gradual increase of auctioning for manufacturing sector
- 1.74% reduction of cap every year
- But high surplus from TP2 puts pressure on prices

Meaningful carbon price?

- Increased yearly reduction of 2.2% p.a. (LRF)
- Set-aside certificates as reserve to reduce surplus
- Cancellation of certificates in 2024
- Stricter rules for free allocation to industry

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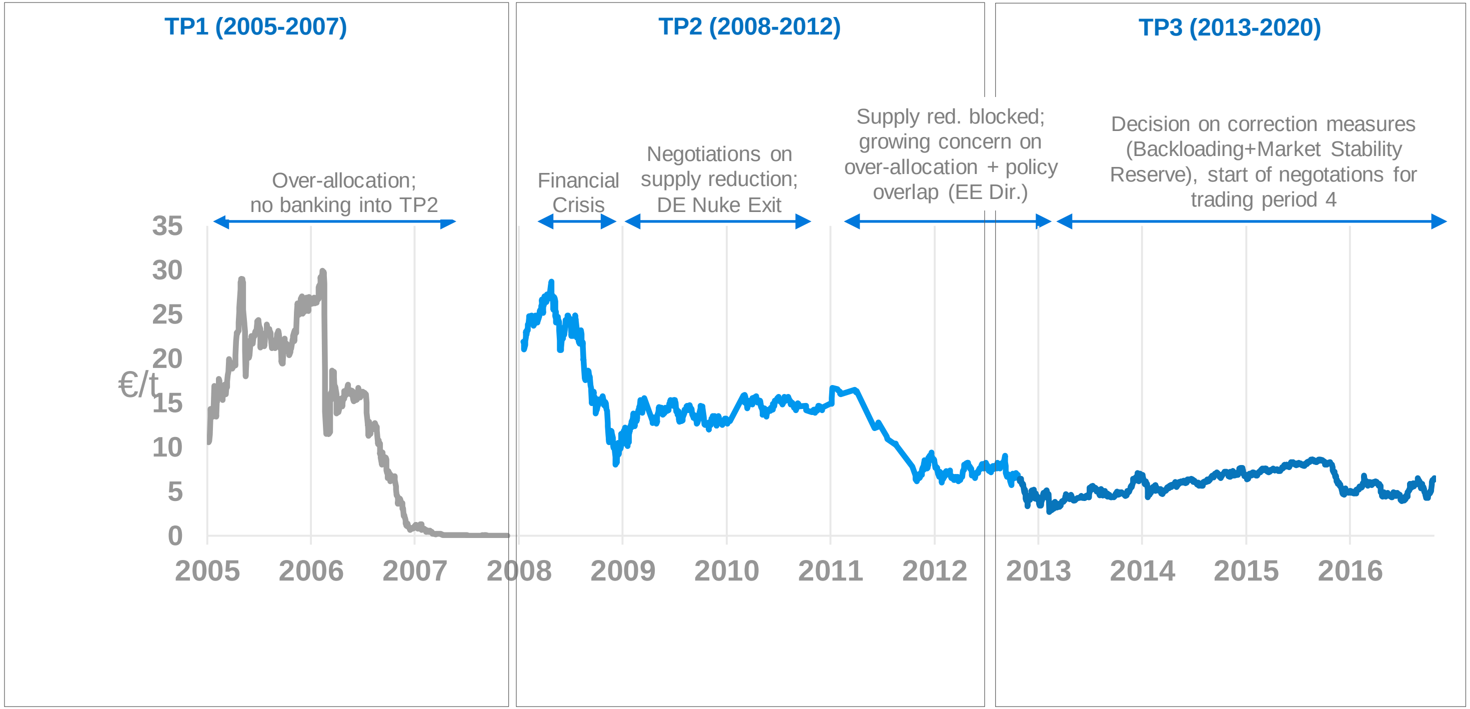
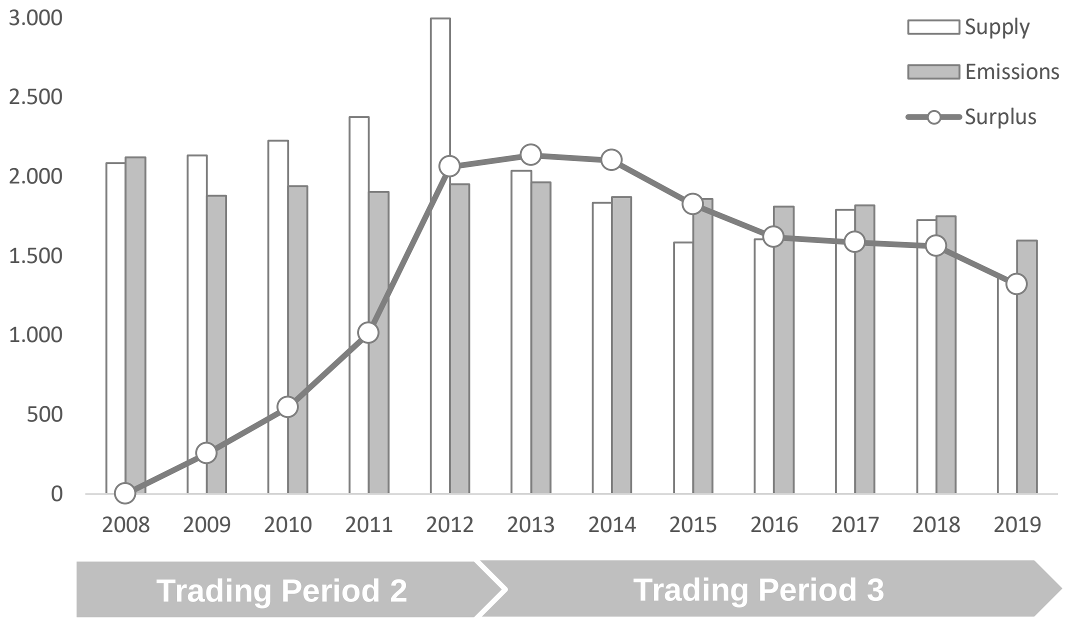
Price development until 2017: Excess supply pulled down the carbon prices



Excess supply was mainly accumulated in Phase 2



- … but decision to backload 900m certificates helped to stabilize the market
  - 2014: - 400mt
  - 2015: - 300mt
  - 2016: - 200mt
- And these certificates from backloading have been transferred into the Market Stability Reserve

Source: EU COM

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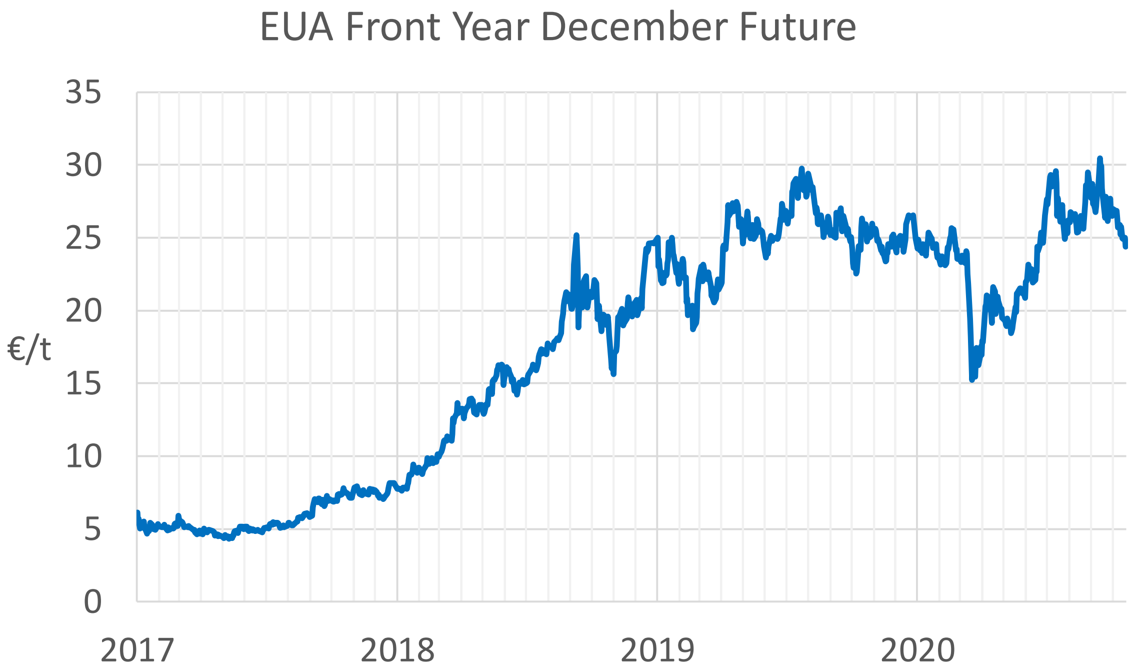
Reform of the EU ETS setting rules for Phase 4 (2021-2030) substantially supported price development



- Commission proposal adopted on 15 July 2015
- Trilogues from April to 8 November 2017
- Entry into force on 8 April 2018

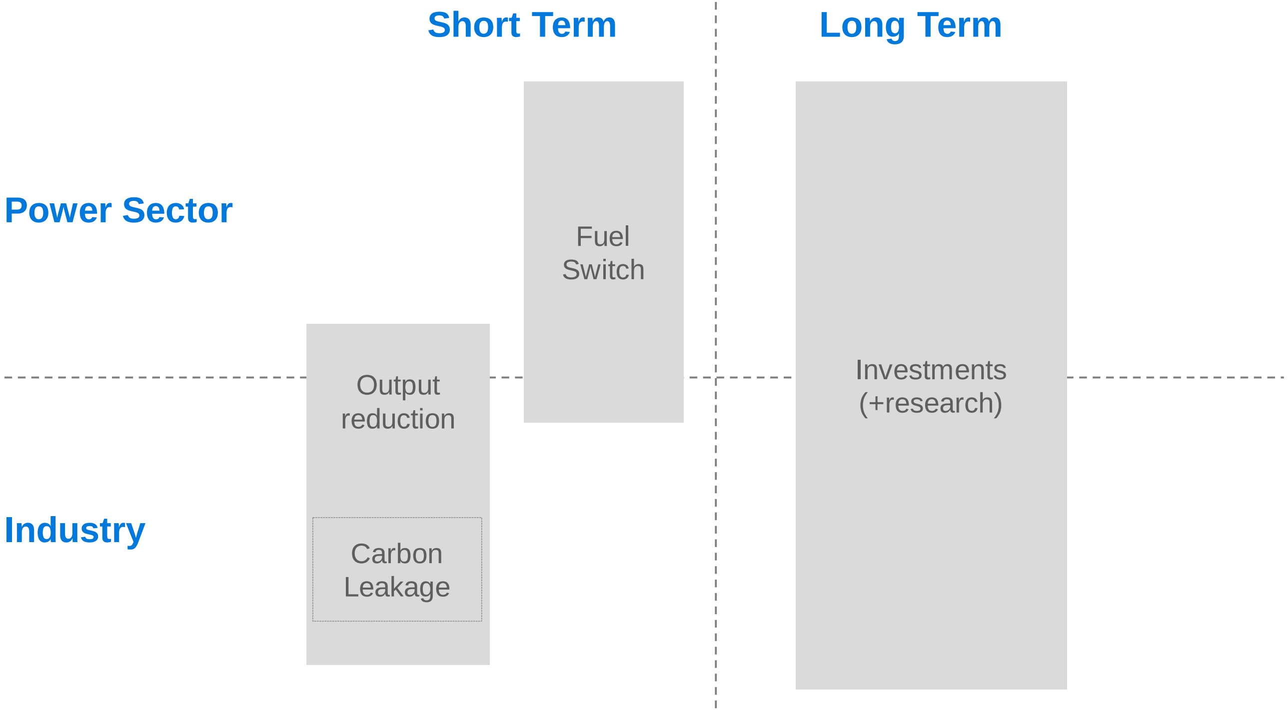
CO_2 emissions have become a key driver of variable costs of fossil power generation

Plant Type	Lignite	Hard Coal	Natural Gas
Carbon Intensity [t/MWh thermal input]	0.40	0.33	0.20
Exemplary Plant Efficiency [%]	35%	39%	55%
Emissions per Unit Output [t/MWh]	1.14	0.85	0.36
Emission-related costs at ETS allowance price of 25 €/t [€/MWh]	28.50	21.25	9.00

Fuel Switching due to rising carbon prices

Source: Agora Energiewende

Emission reduction mainly works by fuel-switch, output reduction and investments



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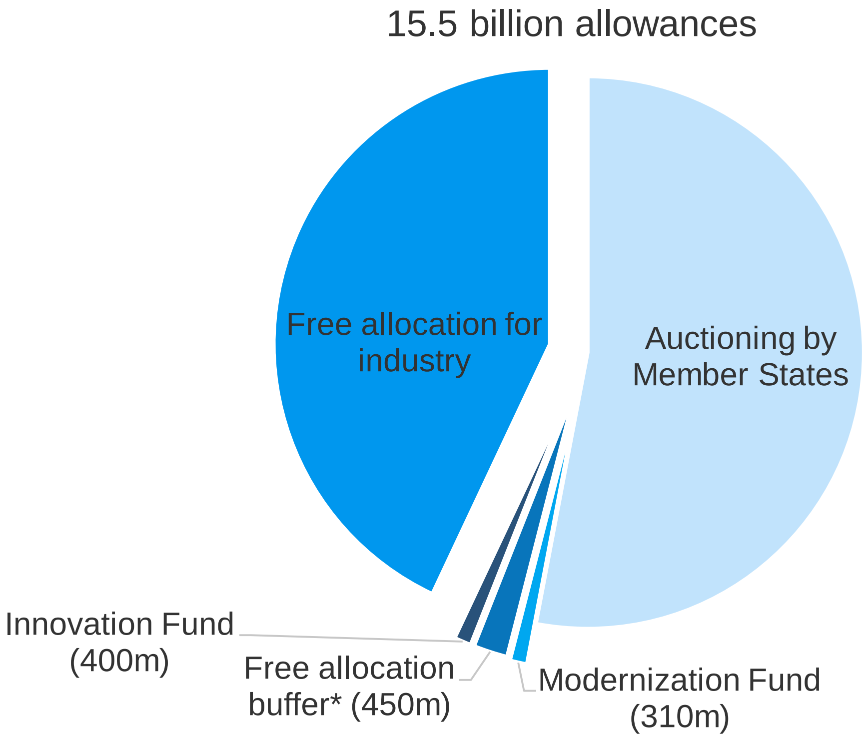
Structure of the EU ETS in Phase 4 (2021-2030)

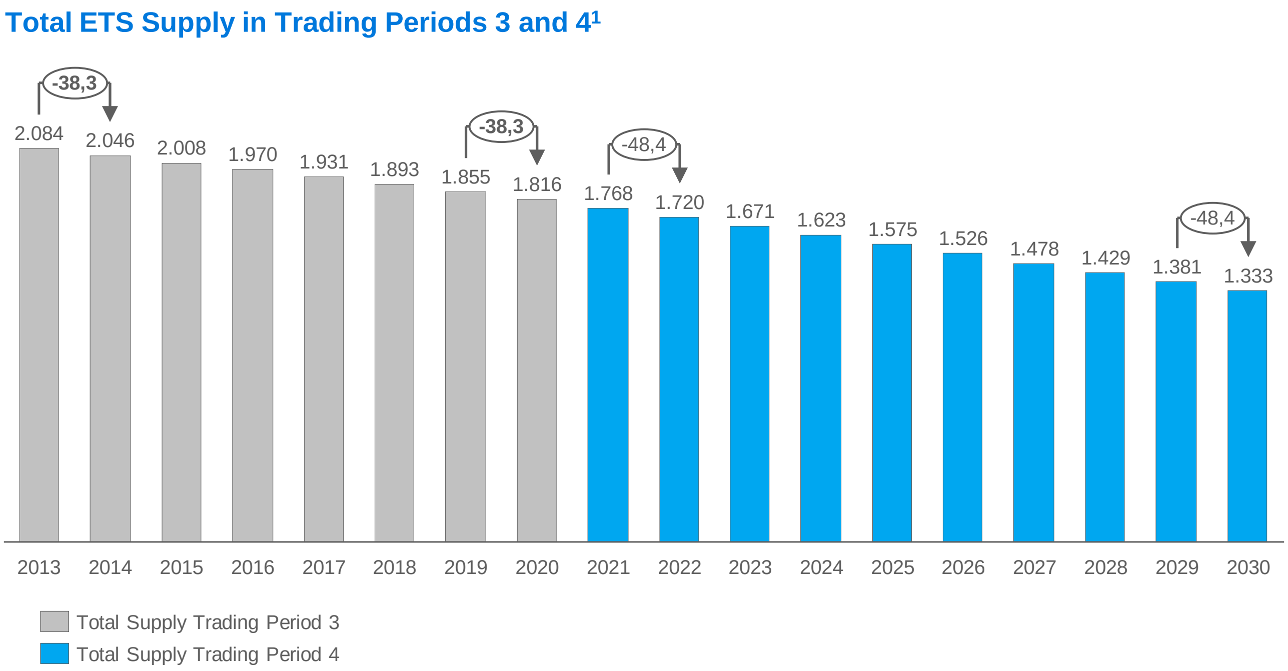


Strengthening of the EU ETS

- **Market stability reserve (MSR):** Withdrawal rate of 24% for 2019-2023
- **Invalidation of allowances:** As from 2023 allowances held in the reserve above the total number of allowances auctioned during the previous year should no longer be valid
- **Linear Reduction Factor:** Annual cap reduction of 2.2% per year (currently: 1.74%)
- **Voluntary cancellation of allowances to account for national measures:** Member States can cancel allowances to account for domestic policy measures (e.g. coal phase-out).

* Allowances dedicated for auctioning that may be converted

Linear Reduction Factor increases from 38m tonnes to 48m tonnes per year

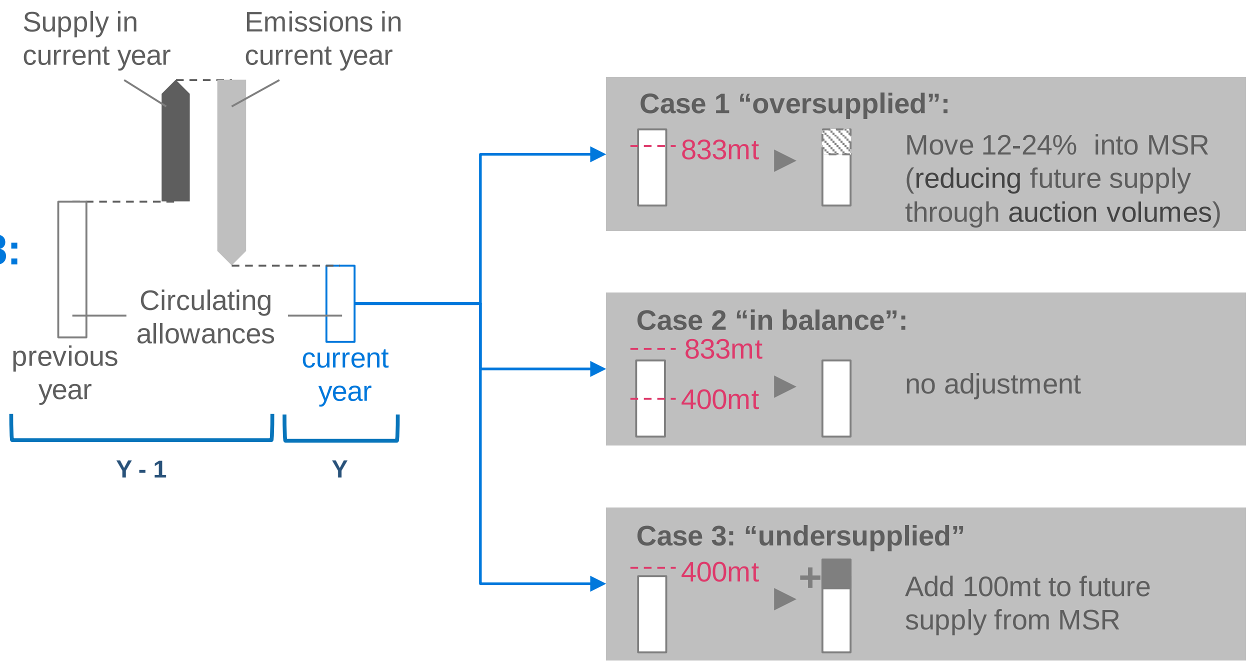


[1]Effective supply volumes in single year may differ due to shifts etc.

Market stability reserve aims to balance excess supply at a „healthy“ level

From 2019 onwards: adjustment of no of “circulating allowances” at end of each year

→ **TNAC 2018: 1.655 mt**



→ **TNAC 2019: 1.386 mt**

For the energy industry auctioning rules are key

- The EU Auctioning Regulation ensures that all participants have harmonized, non-discriminatory and cost-efficient access to the European primary market for emission allowances.
- All over the EU, auctions take place only on regulated trading platforms (EEX (and ICE for UK).
- High predictability due to publication of detailed auctioning calendar

Week 48	Call Trading Period	Product Code	Trading Period	Volume		Auction Name
Monday 23-Nov-20	09.00 am - 11.00 am	T3PA	3rd Period	3.951.500		Spot Market - EU Primary Auction CAP2 - EUA
Tuesday 24-Nov-20	09.00 am - 11.00 am	T3PA	3rd Period	3.951.500		Spot Market - EU Primary Auction CAP2 - EUA
Wednesday 25-Nov-20						
Thursday 26-Nov-20	09.00 am - 11.00 am	T3PA	3rd Period	3.951.500		Spot Market - EU Primary Auction CAP2 - EUA
Friday 27-Nov-20	09.00 am - 11.00 am	T3PA	3rd Period	2.593.000		Spot Market - German Primary Auction - EUA

Free allocation has to mirror increased ambition

Free allocation for sectors at genuine risk of carbon leakage	Free allocation adjusted to activity level	Cross-sectoral correction factor (CSCF)	New Entrants Reserve (NER)
• Product of emission intensity * trade intensity with 3rd countries >0.2: 100% free allocation of benchmark value • >0.15: Qualitative assessment • If less exposed: Decrease from 30% after 2026 to reach 0% in 2030 • Free allocation to district heating adjusted by LRF	• In response to overallocation in phase 3, free allocation will become more dynamic and linked to production levels • Free allocation to an installation adjusted, when operations change by more than 15% using a two-year rolling average • Two benchmark phases (2021-25 / 2026-30)	• Uniform application, if demand for free allocation exceeds supply • To prevent CSCF, allowances have been set aside. If not utilized, these allowances will be used for the Innovation Fund and the Modernization Fund.	• NER with starting value of approximately 350m allowances • Adaptation of the level of free allocation due to production increase or increase shall be carried out with allowances taken from or added to the NER.

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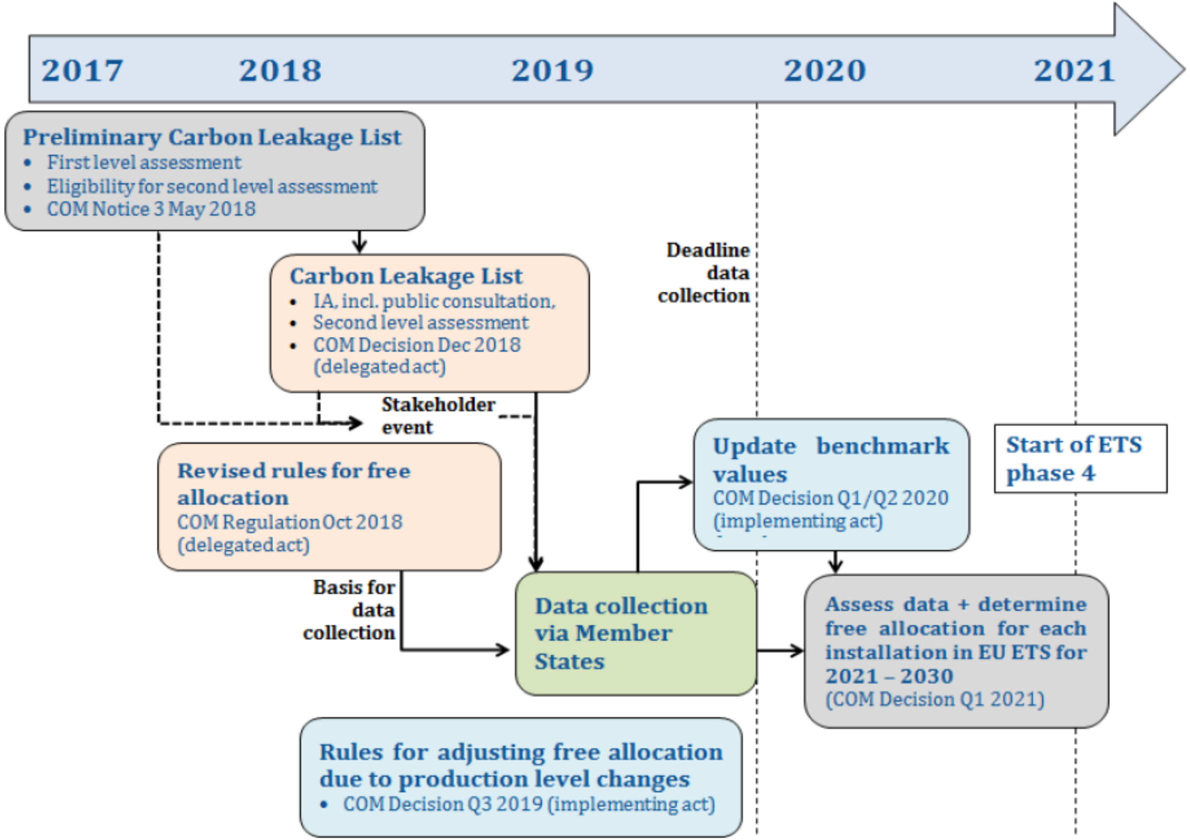
Free allocation based on most recent data sets



Source: EU COM

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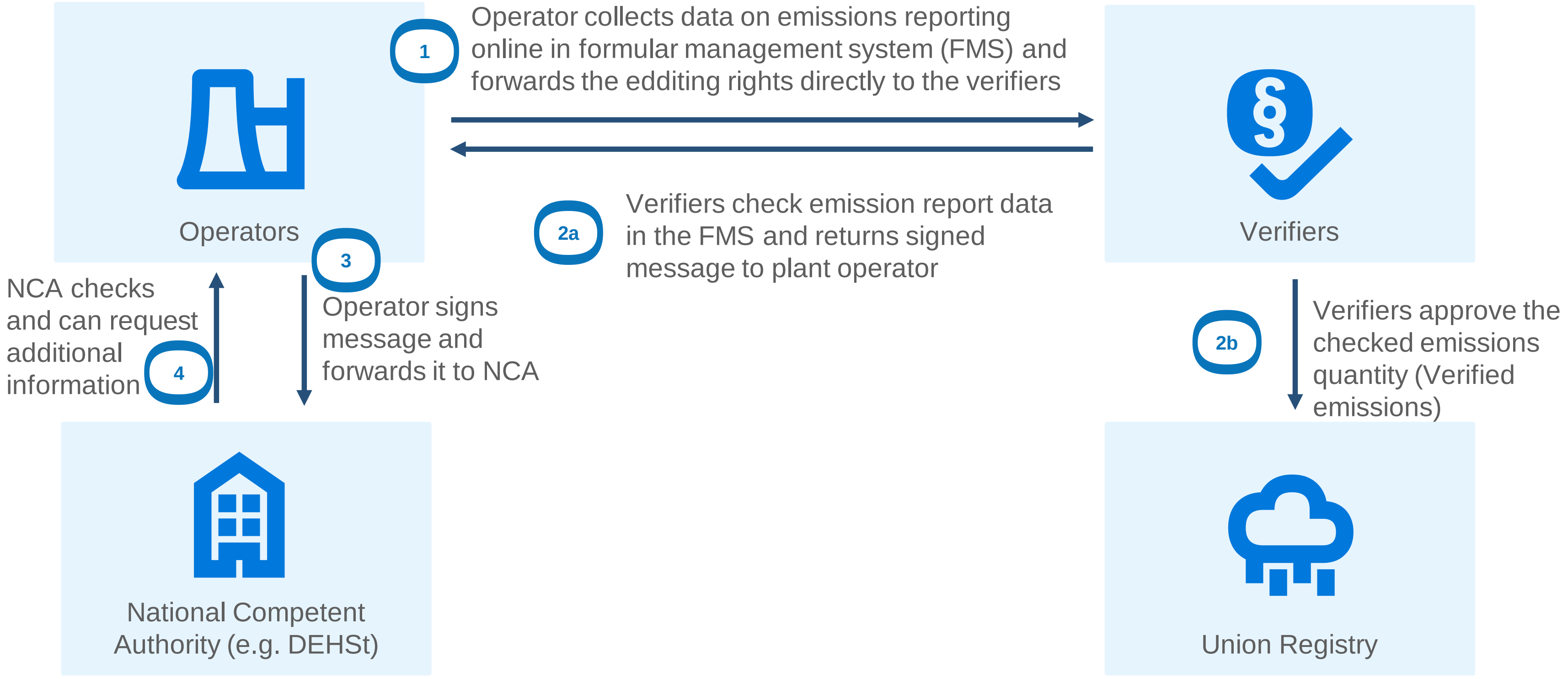
National ETS authorities surpervise the process



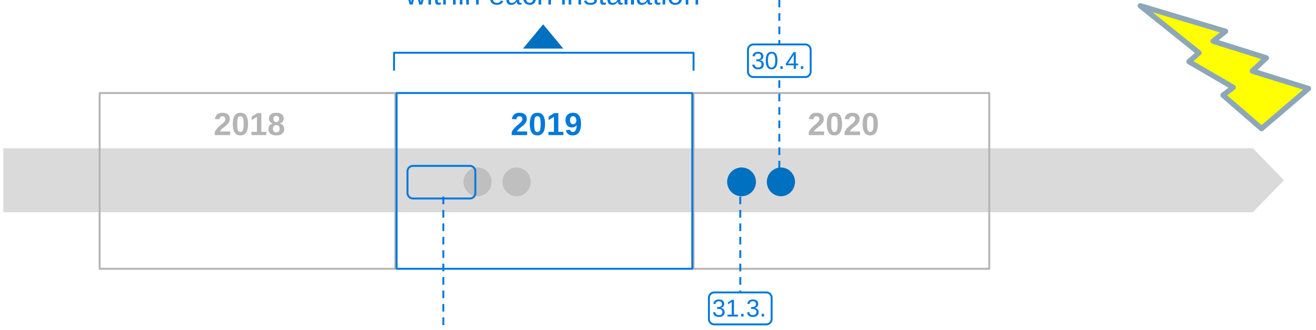
Source: DEHSt

Annual emissions must be reported and “paid” with certificates in spring of the following year

ETS cycle for example year 2019

2019 Emissions are measured between 1st Jan and 31st Dec 2019 within each installation

Corresponding number of allowances must be held in account by April 30th and are deleted by central operator



Panelty of € 100/t for non-compliance (+compliance)

Free allocation is usually being handed out Jan-Apr

2019 Emissions must be reported until 31st March of the following year to the national ETS authorities

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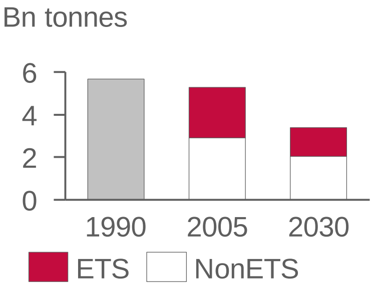
ETS is the flagship instrument, but policies overlap

Emissions

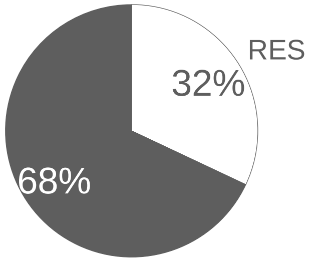
40% **Reduction of GHG emissions vs. 1990**[1]



- Overall (EU-28) Target is **40% GHG emission reduction in 2030** vs. 1990
- This is to be reached by **43% reduction in ETS** Sector and **30% in Non-ETS** Sector (measured **vs. 2005**)
- Cap to be reviewed in 2023 and 2028, MSR to be reviewed in 2021 and 2026

Renewable Share

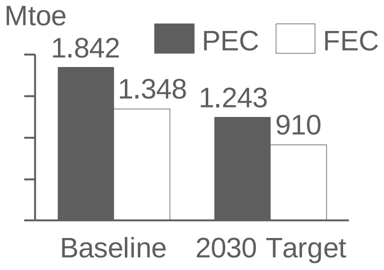
32% **Renewable energy share in final energy consumption**



- Renewable Energy must comprise at **least 32% across of final energy consumption** (across all sectors)
- **Implementation uncertain,** as no targets set on national level
- Directive includes upward revision clause by 2023

Energy Efficiency

32.5% **Less energy consumption than in Base Case**

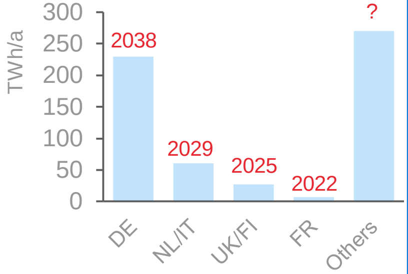


- Target is to be reached either in terms of **Primary Energy Consumption (PEC) or Final Energy Consumption (FEC)** (vs. baseline scenario)
- Directive includes upward revision clause by 2023

Coal Exit

600 TWh **Today's EU coal-fired generation**

In red: planned exit year



- Some MS already agreed to exit from coal-fired generation. These commitments cover **>50% of EU's coal-fired generation**

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"European Green Deal" to increase climate ambition

- Proposing the first European Climate Law, enshrining the 2050 climate-neutrality target into legislation
- Increasing the EU's 2030 greenhouse gas emission reduction target from the current 40% **to at least 55%** (to be decided in Trilogue discussions)
- Adopting various changes to many EU Directives in light of increased emission reduction targets:
  - ETS Directive to be proposed in July 2021
  - Expectation that EU ETS will be extended to more sectors

Summary

- Operates in 31 countries and regulates emissions from 11,000+ installations and all intra-EU aviation. It represents 45% of all EU emissions
- Market value of ~130 bn in 2020 (20-30 mn allowances traded daily at €25/t)
- Installations at risk of carbon leakage are allocated allowances for free
- EU ETS is comprehensive and highly efficient instrument to reach EU’s climate goals in the energy and industrial sector
- EU ETS could become even more important under the “European Green Deal”