

# EMISSIONS TRADING AND THE IMPACT FOR INDUSTRY

*TAIEX RIPAP Regional Technical Workshop on  
the EU Emission Trading Scheme*

*Skopje – 4 July 2018*

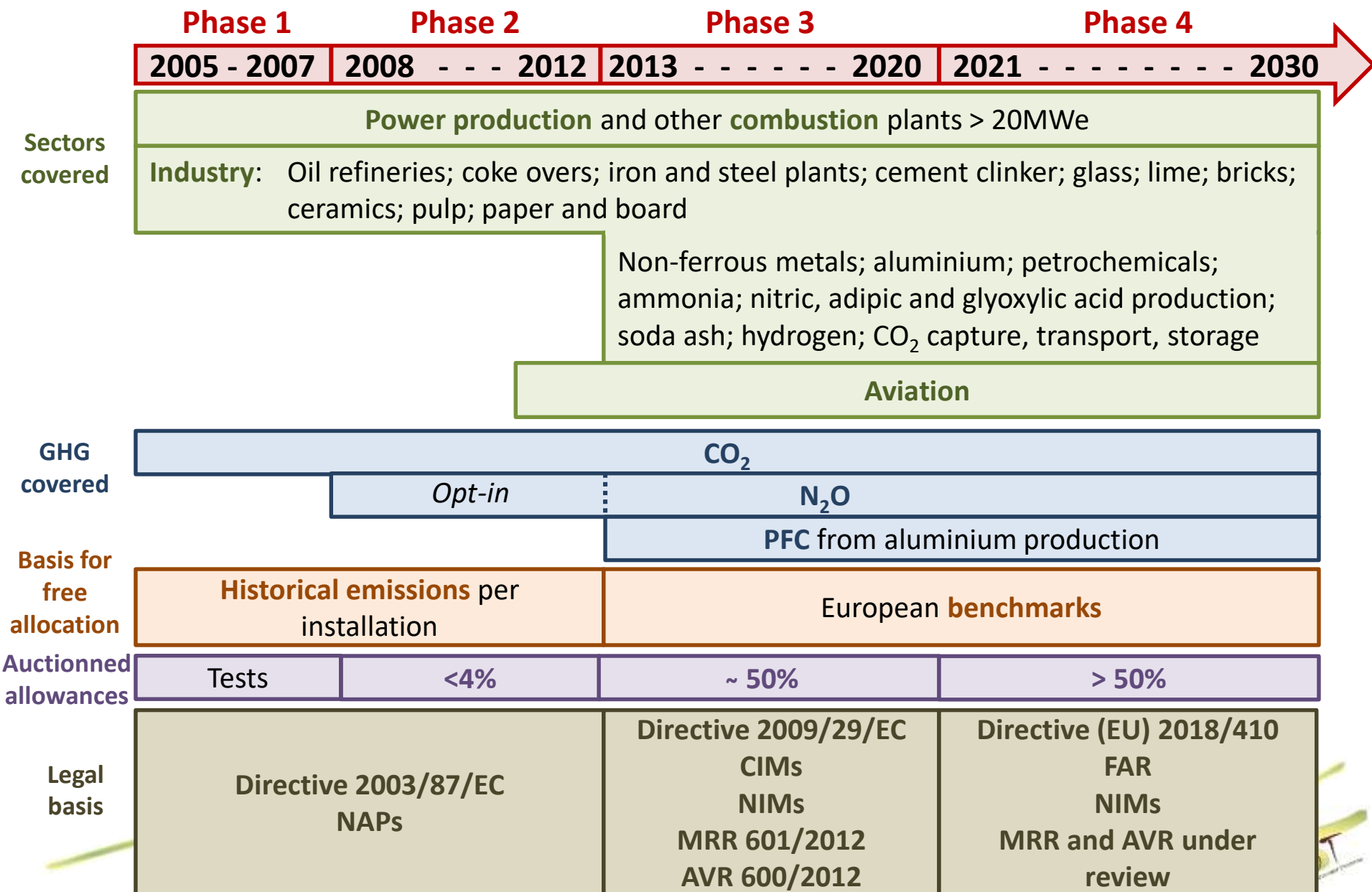
# EMISSIONS TRADING AND THE IMPACT FOR INDUSTRY

- I. Evolution of the EU-ETS
- II. The Compliance cycle
- III. Carbon Trading
- IV. CO<sub>2</sub> impacts

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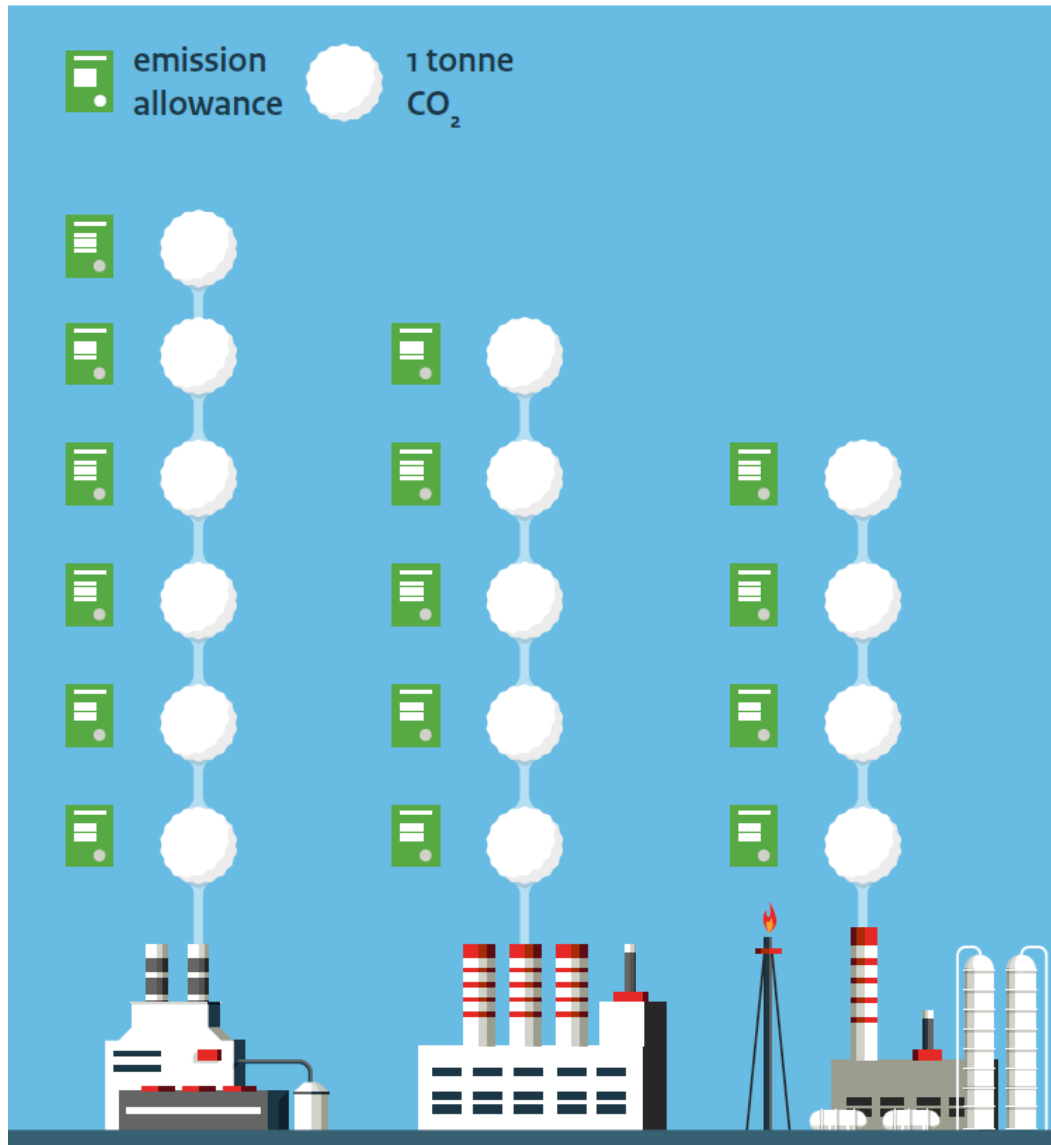
# EVOLUTION OF THE EU-ETS



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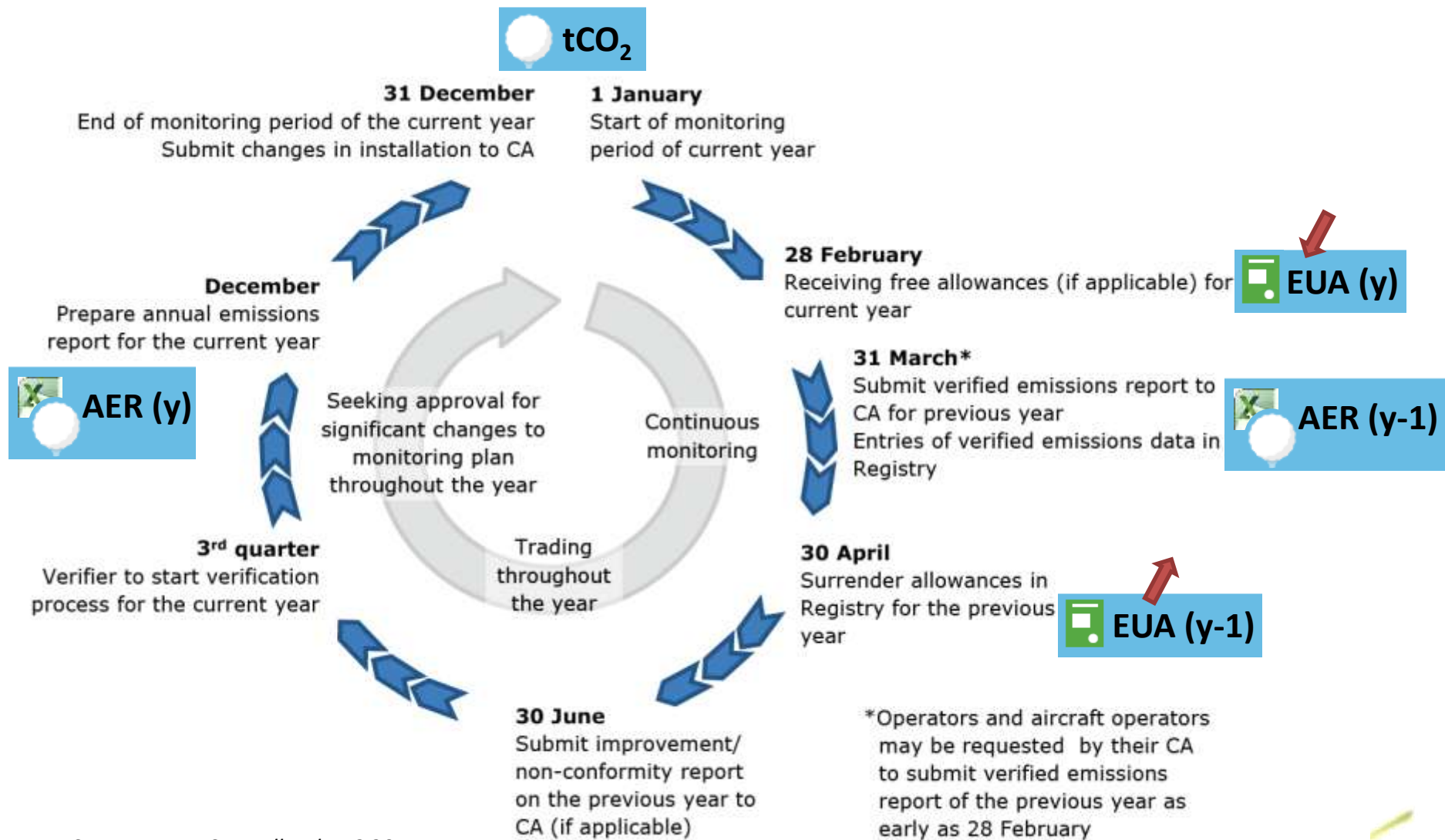
# EMISSION ALLOWANCES



- 1 emission allowance (**EUA**) gives the right to emit 1 tCO<sub>2</sub>
- EU-ETS installations must surrender 1 EUA for each emitted ton of CO<sub>2</sub>

Source: Dutch Emissions Authority / Schwandt Infographics

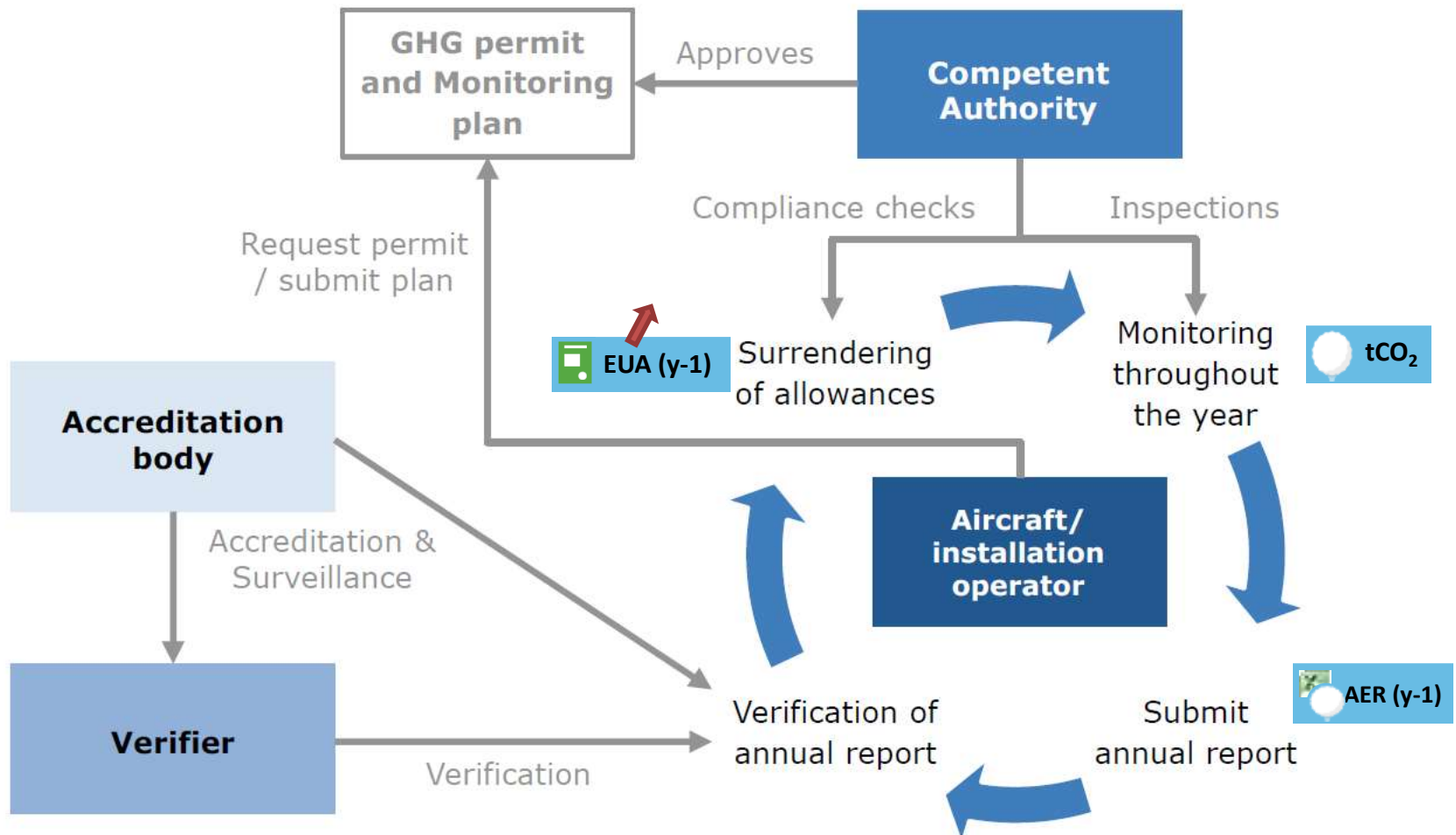
# COMPLIANCE CYCLE



Source: EU ETS Handbook, EC 2015

AER: Annual Emissions Report

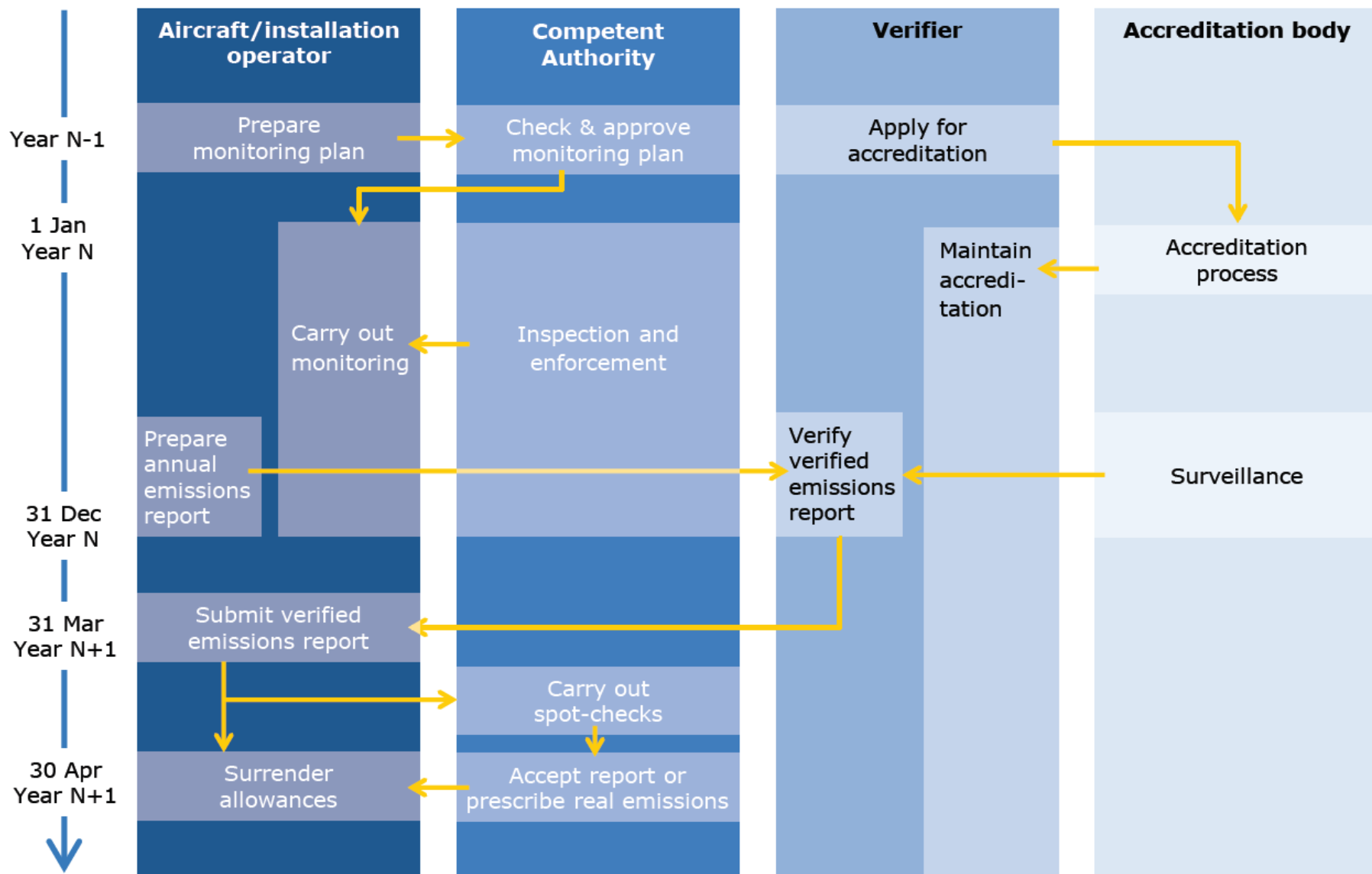
# DIFFERENT ROLES IN THE COMPLIANCE CYCLE



Source: EU ETS Handbook, EC 2015 [Adapted from European Commission EU ETS « Monitoring and Reporting Regulation » GD1]



# SUMMARY OF ROLES AND RESPONSIBILITIES IN EU ETS MRV



Source: EU ETS Handbook, EC 2015 [Adapted from European Commission EU ETS « Monitoring and Reporting Regulation » GD1]

# MONITORING PLANS

- Each EU ETS installation must submit a MP to CA before the start of operation for approval
- Contents must include at least:
  - Description of installation and all activities to be monitored
  - Responsibilities for M&R within installation
  - List of GHG emission sources and source streams
  - Monitoring methodology
  - Measurement systems
  - Data management and control procedures
- If relevant, should be accompanied by risk and uncertainty assessments
- MPs follow the principle of continuous improvement (updated when changes occur)
- Electronic templates and guidance documents developed by the Commission

CA: Competent Authority

GHG: greenhouse gas

MP: Monitoring Plan

M&R: Monitoring and Reporting

# ANNUAL EMISSIONS REPORT

- For annual reporting of direct GHG emissions
- Needs to be verified before submission by independent accredited verifier
- Contents of AER:
  - Installation description
  - Source streams
  - Annual activity data (e.g. fuel consumption, raw material consumption)
  - Calculation values (e.g. net calorific heat, emission factors)
  - Data gaps identified during the reporting year

Summary of Annual Report on Greenhouse Gas Emissions Pursuant to Directive 2003/87/EC					
Reporting Year:					
Operator Name:					
Installation name:					
Unique ID of the installation:					
Annex I Activity		Total Activity Capacity	Capacity units	GHG emitted	
A1					
A2					
A3					
A4					
A5					
		Emissions (fossil) t CO <sub>2</sub> e	Energy content (fossil) TJ	Memo-Items Emissions (biomass) t CO <sub>2</sub>	Energy content (biomass) TJ
Source Streams					
Combustion					
Process Emissions					
Mass balance					
PFC Emissions					
Measurement					
CO <sub>2</sub>					
N <sub>2</sub> O					
CO <sub>2</sub> transfer					
Fall-back					
Sum					
Total emissions from the installation:				0 t CO <sub>2</sub> e	
This is the amount of allowances to be surrendered by the operator.					
Memo-Item: Total (sustainable) biomass emissions				0 t CO <sub>2</sub> e	
Memo-Item: Total non-sustainable biomass emissions				0 t CO <sub>2</sub> e	
Memo-Item: CO <sub>2</sub> transfer					
Installations transferred CO <sub>2</sub> is imported from					
Installation ID		Installation name		Operator name	
E_Fall-backApproach		F_PFC		G_DataGaps	
H_AdditionalInformation		I_Summary		J_Accounting	

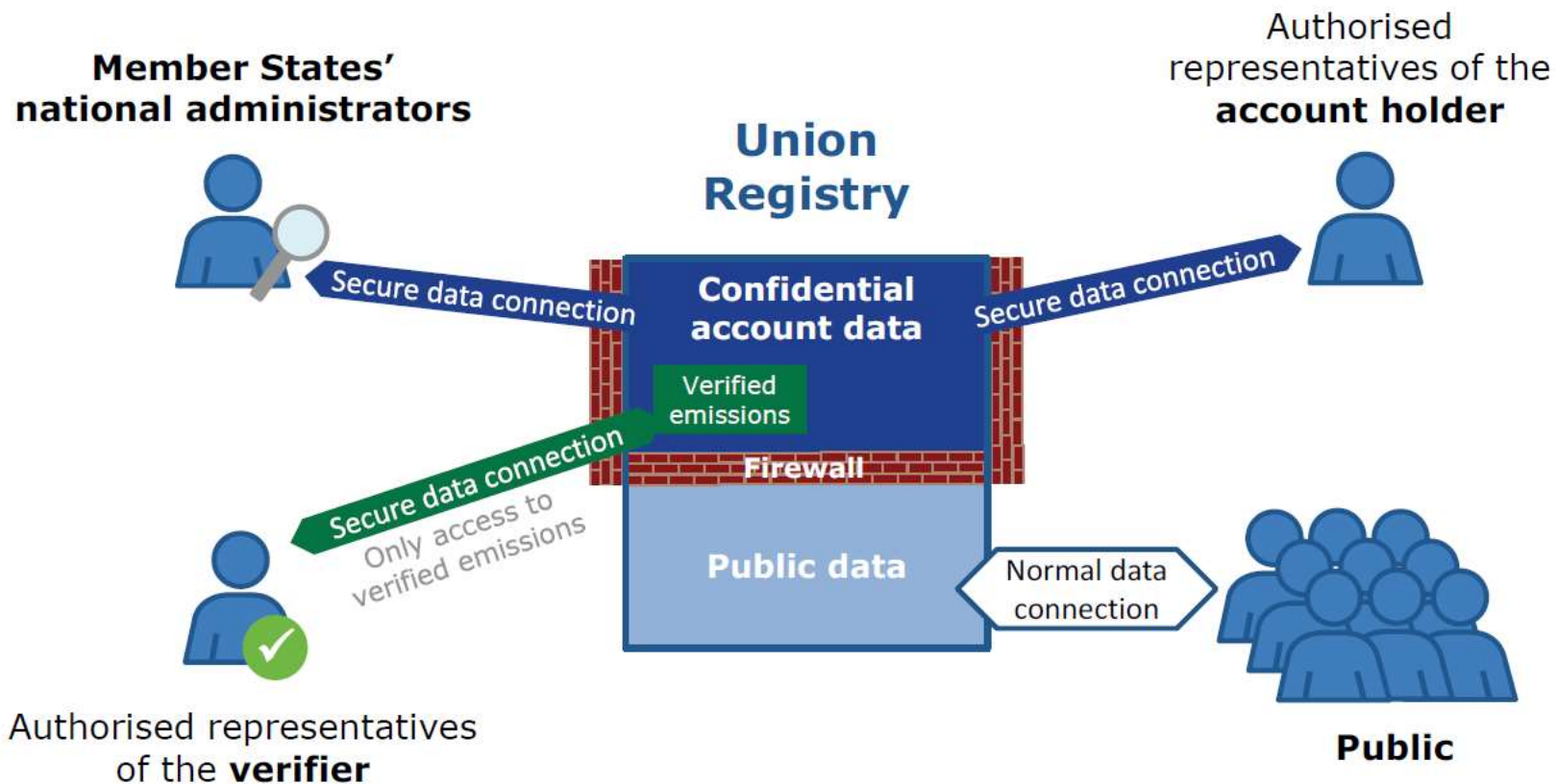
AER: Annual Emissions Report

GHG: greenhouse gas

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# UNION REGISTRY



Source: EU ETS Handbook, EC 2015

# EUTL – EUROPEAN UNION TRANSACTION LOG

CLIMATE ACTION  
European Union Transaction Log

Operator Holding Account - Search Results

National Administrator: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia

Main Activity Type: 20

Compliance Status: A

Search Export

Operator Holding Account - Search Result

National Administrator	Account Type	Account Holder Name	Installation ID	Installation Name/Aircraft Operator Code	Company Registration No.	Current ETS ID	Registration Date	Main Activity Type	Latest Compliance Code	Options
Austria	Aircraft Operator Account	Austrian Flightline GmbH	200035	27302	FN 26001g	BBFLW - LW 13.2.004 - 04/2009	2013-05-01	Aircraft operator activities	C	Details Current Status Details of Status Details of Status
Austria	Aircraft Operator Account	Black GmbH	200036	164	TNA41426	BBFLW - LW 13.2.004 - 04/2009	2013-05-01	Aircraft operator activities	A	Details Current Status Details of Status Details of Status

CLIMATE ACTION  
European Union Transaction Log

Operator Holding Account Information

General Information

National Administrator	Account Type	Account Holder Name	Installation ID	Company Registration No.	Account Status
Austria	10000000000000000000	AGROMA Status GmbH	47	FN 252477 g	open

Details on Contact Information

Type	Name	Main Address Line	Secondary Address Line	Postal Code	City	Country
Account Holder	AGROMA Status GmbH	Frederick Wilhelms Hofstrasse Platz 1		5020	Wien	Austria

Installation Information

General Information

Installation ID	Installation Name	Permit ID	Permit Entry Date	Permit Expiry/Revocation Date	Subsidiary Company	Parent Company	E-PRTR Identification
47	AGROMA GmbH	13-186	2005-01-26				

Address Information

Main Address Line	Secondary Address Line	Postal Code	City	Country	Latitude	Longitude	Main Activity
Corinthstrasse 7		1060	Graz	AT			20-Combustion of fuels

Contact Information

Name	Main Address Line	Secondary Address Line	Postal Code	City	Country

Compliance Information

EU ETS Phase	Year	Allowances in Allocation	Verified Emissions	Units Surrendered	Calculative Surrendered Units**	Calculative Verified Emissions***	Compliance Code	Options
2013-2020	2013	20705	34983	34983	34983	34983	A	History
2013-2020	2014	21505	34983	34983	34983	34983	A	History
2013-2020	2015	21296	36812	36812	36812	36812	A	History
2013-2020	2016	20279	37508	37508	37508	37508	A	History
2013-2020	2017	25336	38262	38262	38262	38262	A	History
2013-2020	2018	24794						History
2013-2020	2019	23458						History
2013-2020	2020	22541						History

\*\* Verified Emissions entered/updated after deadline of EU ETS Phase Year

\*\*\* In current EU ETS Phase before 30 April of Phase Year

\*\*\*\* Allowances for Operators under Article 10c of ETS Directive

\*\*\*\*\* Allowances for Operators from New Emission Reserve (NER)

Verified Emissions for 2013 of aircraft operators are not taken into account while calculating the Compliance Status for 2013 as of 1st of May 2014.

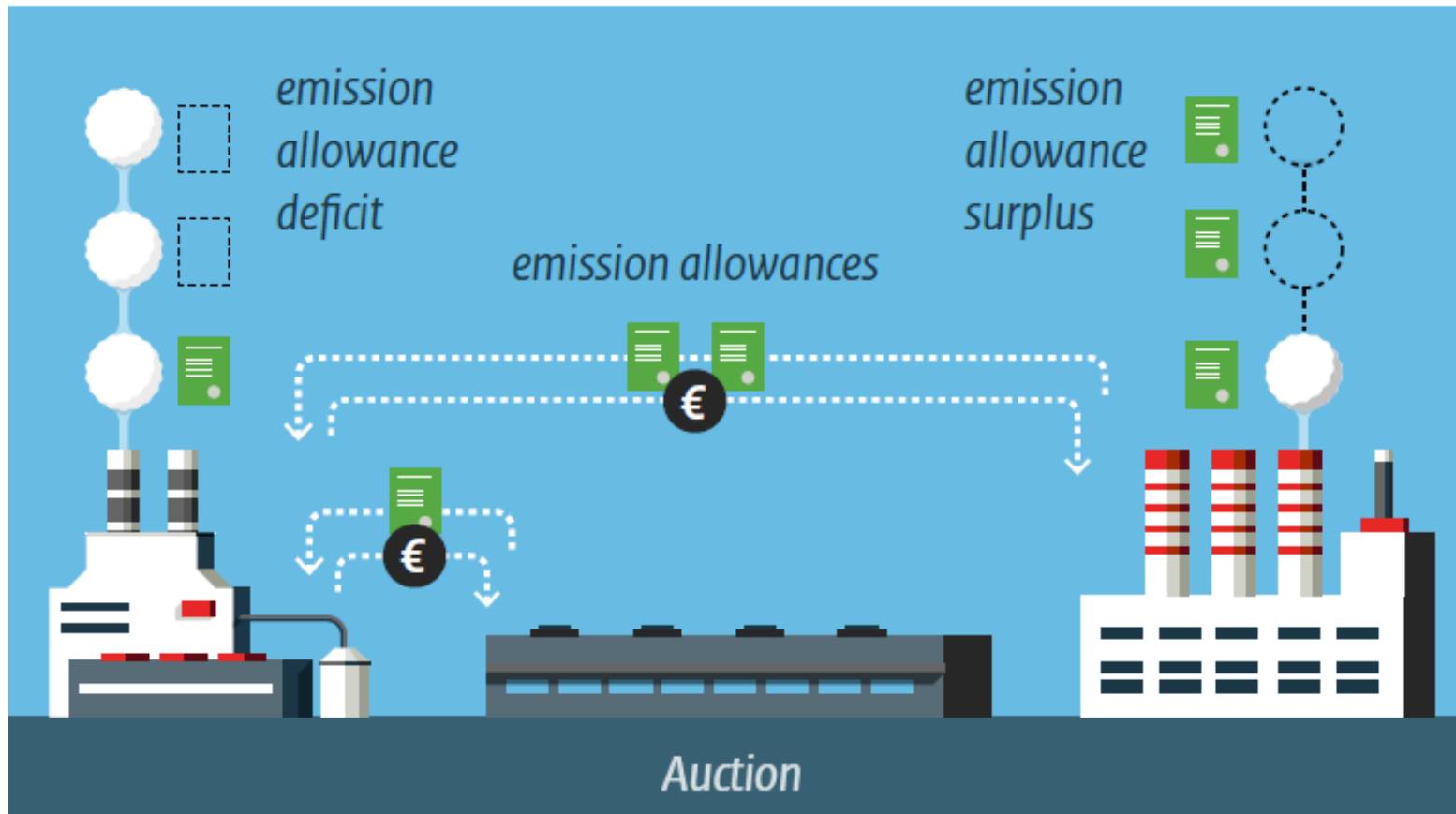
Compliance Code Explanation

Compliance Code	Compliance Code Explanation
A	The number of allowances and EUs/1.2-15 surrendered by 30 April is greater than or equal to verified emissions.
B	The number of allowances and EUs/1.2-15 surrendered by 30 April is lower than verified emissions.
C	Verified emissions were not entered until 30 April.
D	Verified emissions were corrected by competent authority after 30 April of year X. The competent authority of the Member State decided that the installation is not in compliance for year X+1.
E	Verified emissions were corrected by competent authority after 30 April of year X. The competent authority of the Member State decided that the installation is in compliance for year X+1.
X	Entering verified emissions and/or surrendering was impossible until 30 April due to the allowance surrender process and/or verified emissions update process being suspended for the Member State's registry.

Different types of accounts

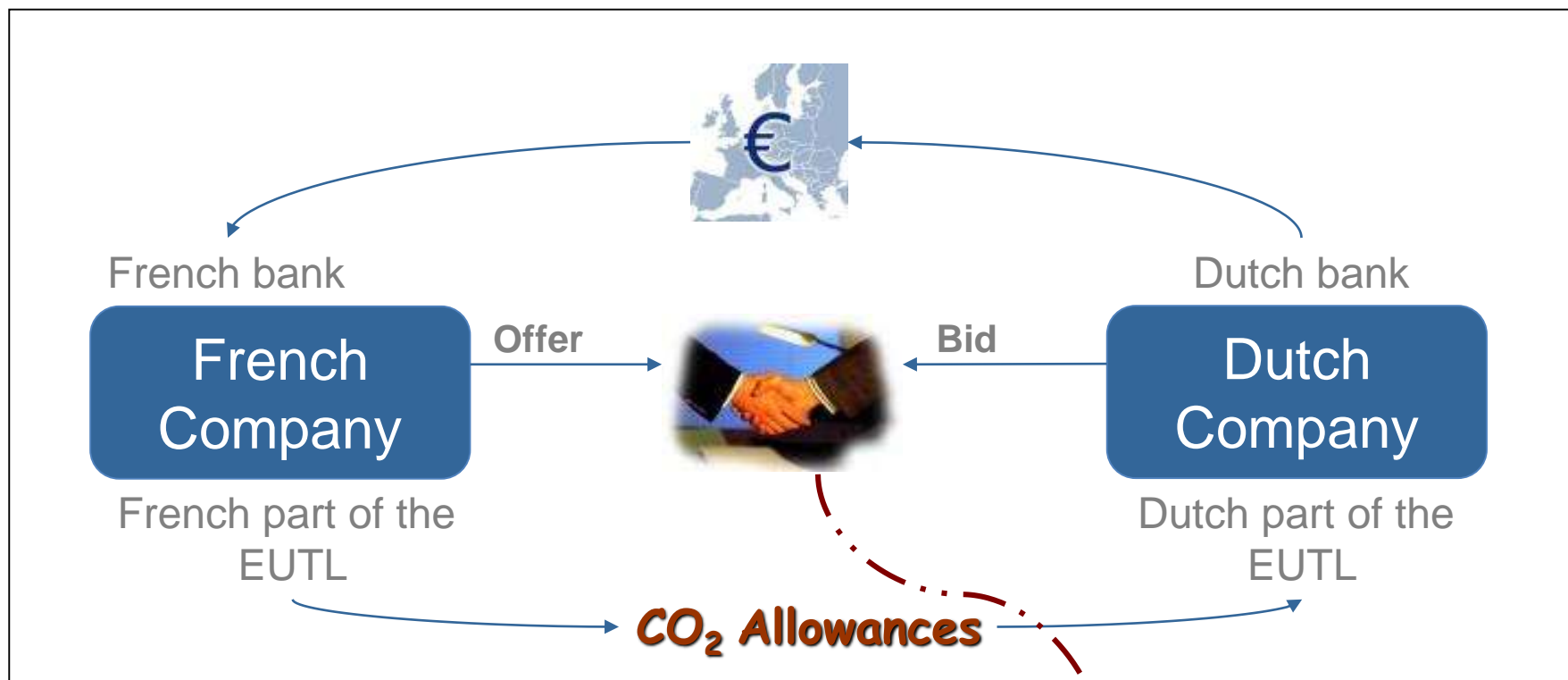
- Operator holding accounts
- Aviation operator holding accounts
- Verifier accounts
- Person holding accounts
- Trading accounts
- National accounts

# EMISSION TRADING



Source: Dutch Emissions Authority / Schwandt Infographics

# WHAT IS A TRANSACTION?



**ISDA – “bank contract”**

*(International Swaps and Derivatives Association)*

**EFET – “power companies contract”**

*(European Federation of Energy Traders)*

**IETA – specific to allowance trading**

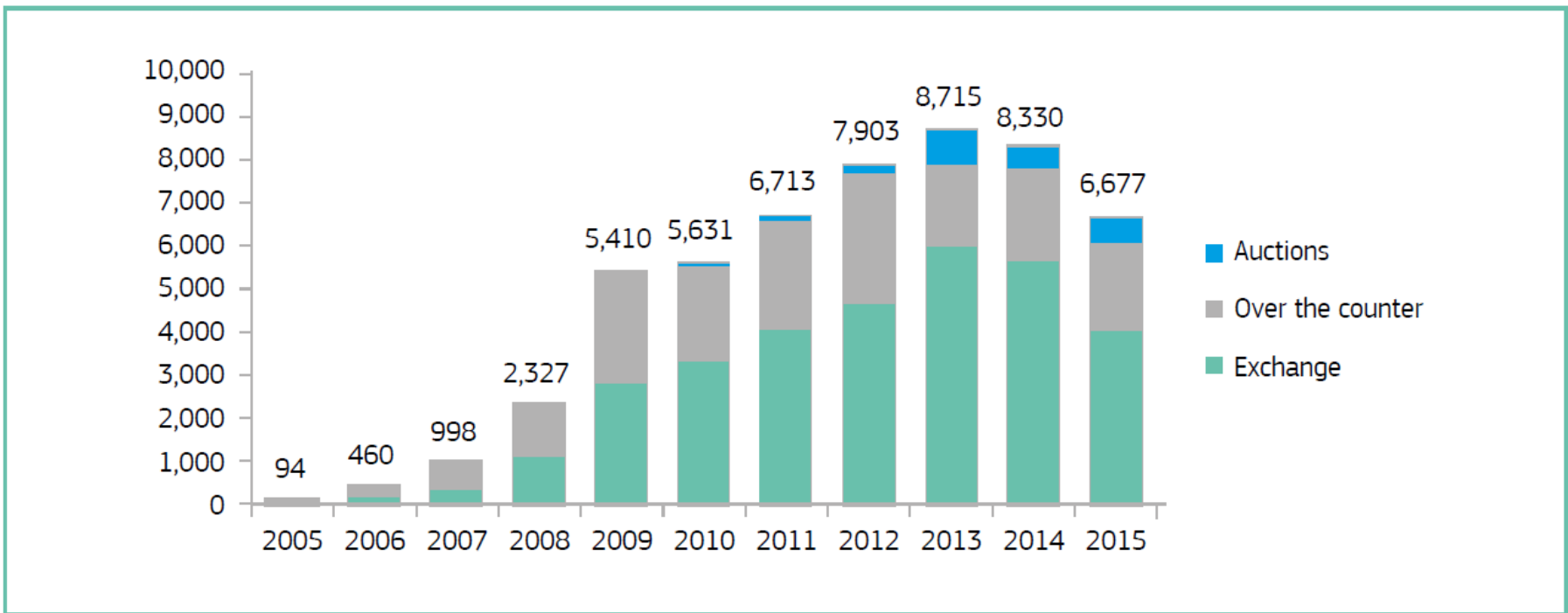
*(International Emissions Trading Association)*



# TRADING VOLUMES

- Anyone with an account in EUTL can buy/sell EUAs
- In 2015, 26 million EUAs or their derivatives were traded per trading day, adding up to over 6.6 billion EUAs or derivatives, with a total value of € 49 billion

Yearly volumes in millions of tonnes of EUAs



Source: The EU Emissions Trading System, EC 2016

[ Source: Bloomberg LP, ICE, EEX, NYMEX, Bluenext, CCX, Greenmarket, Nordpool, UNFCC. Also using Bloomberg New Energy Finance estimations. ]

# EUA MAIN PRICE DRIVERS

Demand

Economic growth

Fuel prices

Weather

**EUA  
price**

Supply

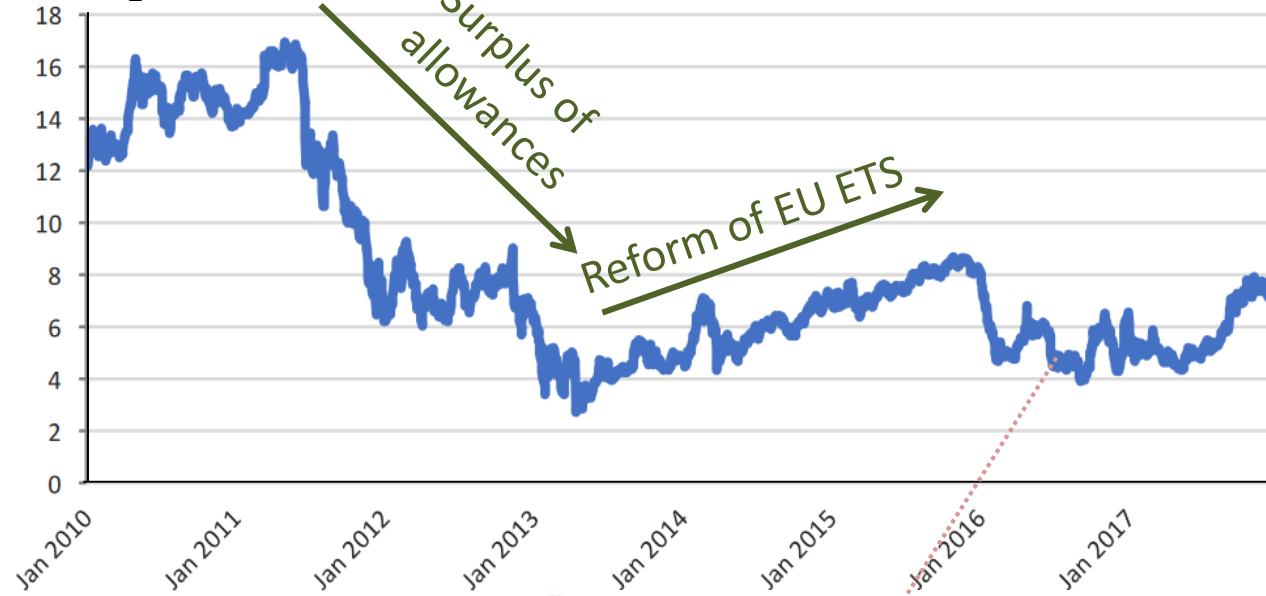
Free  
allocation

Auctioning

International  
carbon credits

# CARBON PRICE

€/tCO<sub>2</sub>



Source: ICE closing prices,  
December delivery of the  
same year

€/tCO<sub>2</sub>



# MEASURES TO REDUCE ALLOWANCE SURPLUS

- Backloading
  - EUAs reduced on a one-off basis
  - 900 million EUAs intended for auctioning were postponed from 2014-2016 to 2019-2020
- Market Stability Reserve (MSR)
  - Structural measure
  - Aim is to neutralise negative impacts of existing EUA surplus, and improve system's resilience to future shocks
  - In 2019: the 900 million back-loaded EUAs will be transferred to reserve rather than auctioned
  - In Phase 4, « automatic » adjustment of auction volumes:
    - If surplus > 833 million EUAs: 12% of surplus will be withheld from auctions
    - If surplus < 400 million EUAs, up to 100 million EUAs returned to auctions
    - EUA price may also influence MSR

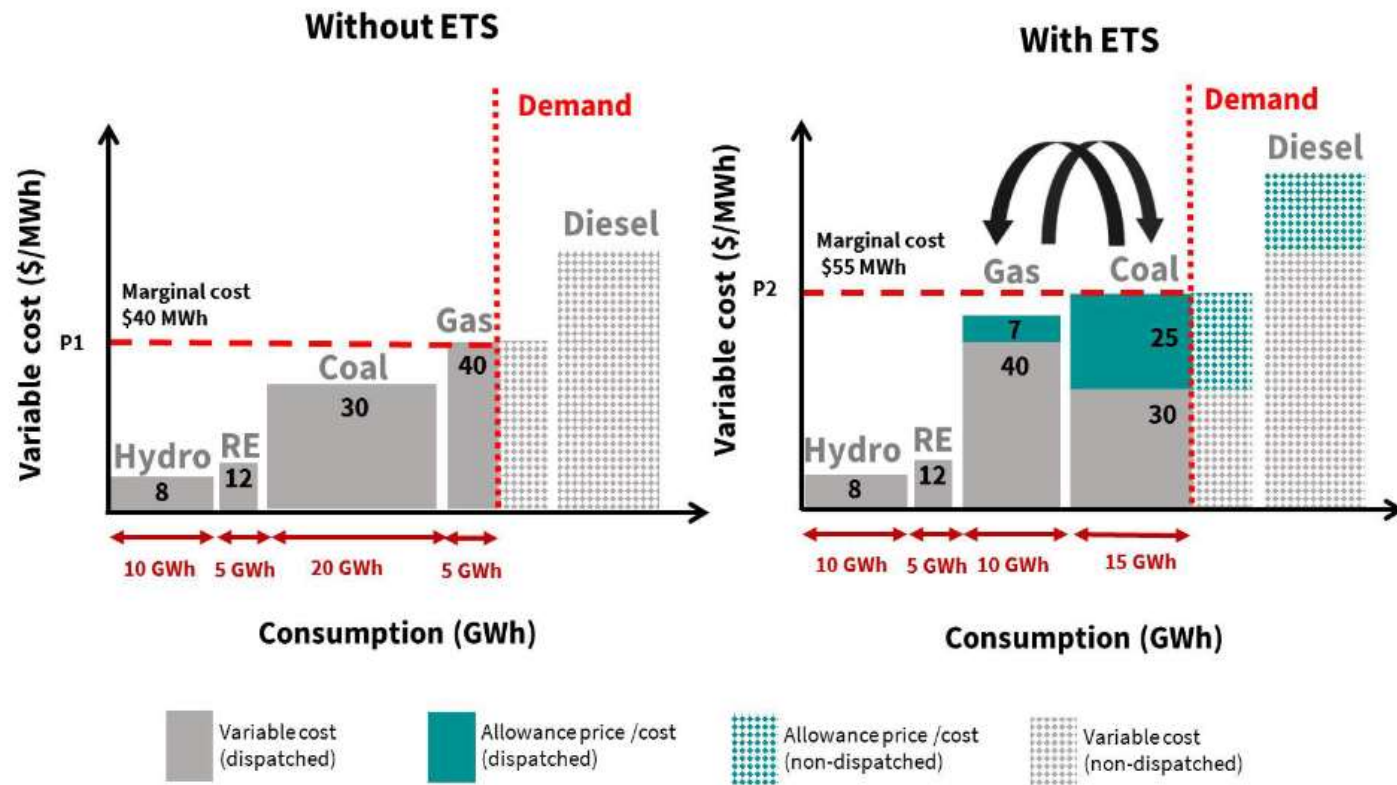
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# THEORETICAL IMPACT OF EU ETS ON MERIT ORDER

Effects of CO<sub>2</sub> price on dispatch:

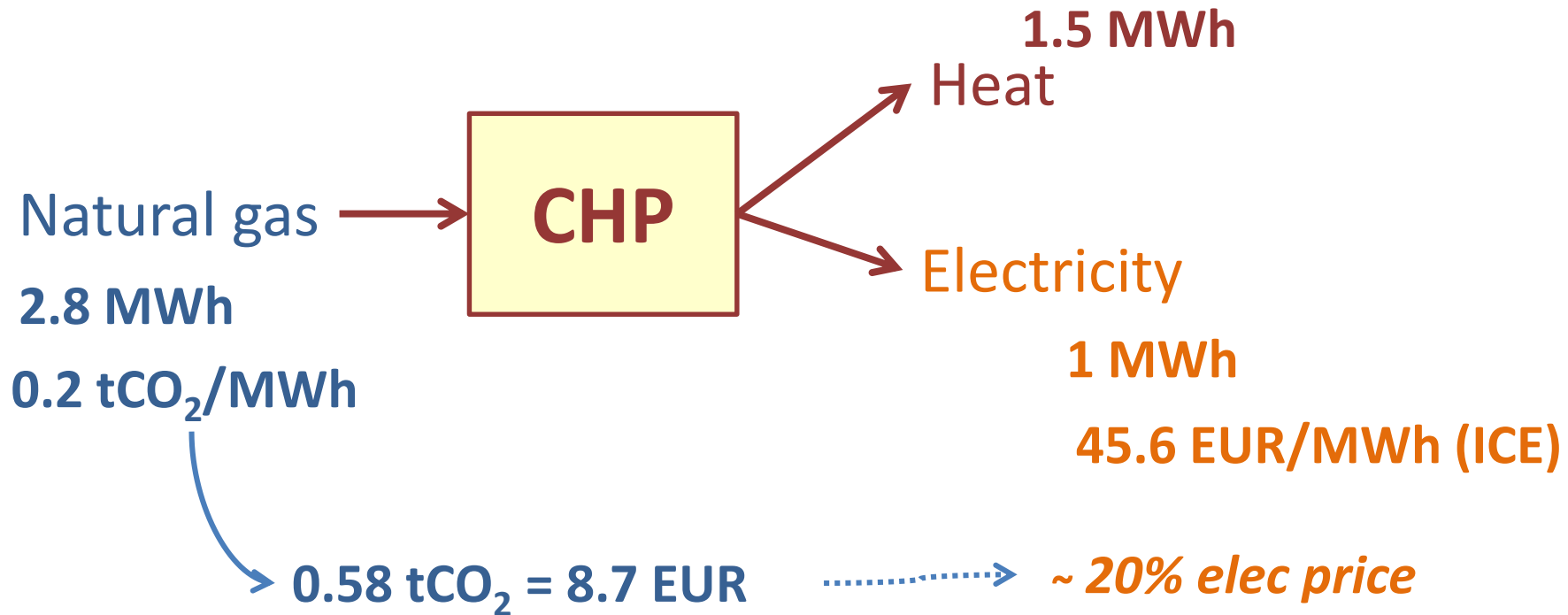
- Increase of variable generation costs of carbon intensive plants
- Increase of marginal electricity price
- Shift of merit order



Source: Emissions Trading and Electricity Sector Regulation, ICAP, April 2018 [Based on RTE France, 2016]

# IMPACT OF CO<sub>2</sub> ON ENERGY PRICES

EUA Dec 2018 = 15.03 €/t on 28/06/2018 (ICE)



CHP: Combined Heat and Power (cogeneration plant)

# SUMMARY OF MAIN IMPACTS OF EU ETS FOR INDUSTRY

- Define carbon strategy at installation or multi-site/multi-country company level
- Prepare for compliance of each EU ETS installation
  - Apply for GHG permit
  - Draft Monitoring Plan (*and update it when relevant*)
  - Appoint verifier
  - Ensure Monitoring of emissions
  - Open Operator Holding Account in EUTL
  - Submit verified Annual Emissions Reports
- Ensure sufficient supply of EUAs
  - Reduce emissions / trade EUAs / buy EUAs at auctions
  - Surrender EUAs
- Take CO<sub>2</sub> price into account as a new parameter impacting
  - New investments
  - Energy prices



# THANK YOU FOR YOUR ATTENTION



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## ADDITIONAL SLIDES

# KEY FACTS ABOUT THE EU-ETS

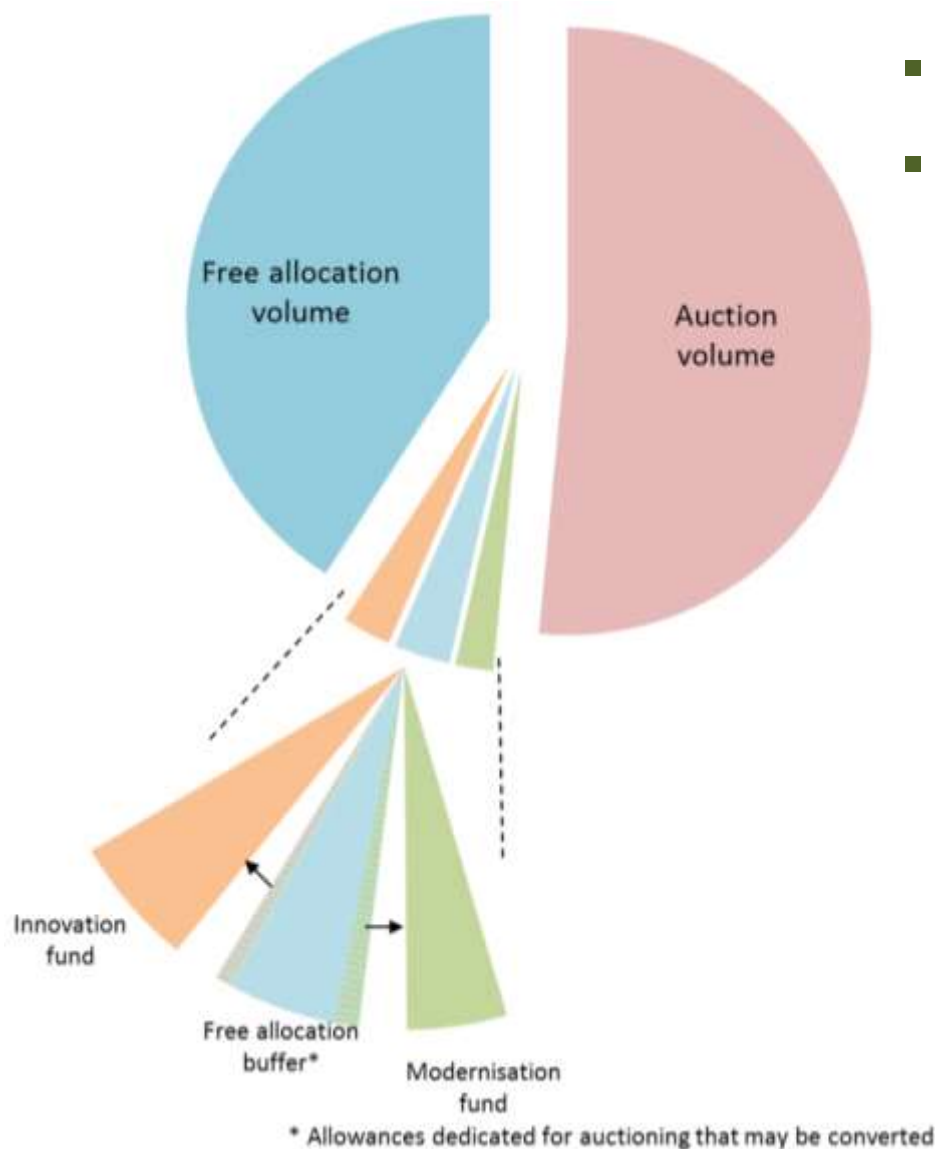
- Covers about 45% of European GHG emissions
- Operates in EU-28 + Iceland, Liechtenstein, Norway
- Limits GHG emissions from:
  - Approximately 11,000 installations
  - Operators of flights to and from the 31 countries
- Aims at reducing GHG emissions from the covered sectors by
  - 21% by 2020 (compared to 2005)
  - 43% by 2030 (compared to 2005)

GHG: Greenhouse gas

# INCLUSION OF AVIATION IN EU-ETS

- Includes flights within EEA since January 2012, international aviation is to be included as of 2021
- Allowances issued for aviation compliance (EUAAAs) cannot be used for compliance by stationary installations
- Total cap based on 'historical emissions' (average annual 2004-2006 emissions): 97% in 2012, 95% in 2013-2020
- In Phase 3: 15% of allowances auctioned, 82% distributed for free, 3% in special reserve (for new entrants and fast-growing airlines)
- Benchmark for free allocation of 0.6422 allowances per 1000 tonne-km, allocated to ~500 aircraft operators

# EU ETS PHASE 4 ALLOWANCES SHARE



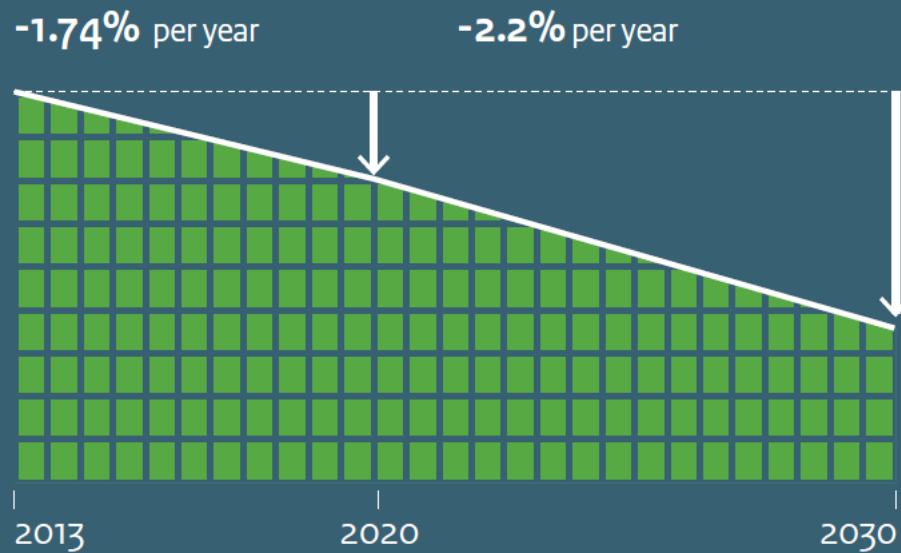
- Total of 15.5 billion allowances
- Support mechanisms to help transition to low-carbon economy:
  - **Innovation Fund**: extending existing support for demonstration of innovative technologies to breakthrough innovation in industry
  - **Modernisation Fund**: Facilitating investments in modernising power sector and energy systems and boosting energy efficiency in 10 lower-income Member States

# FREE ALLOCATION BENCHMARKS

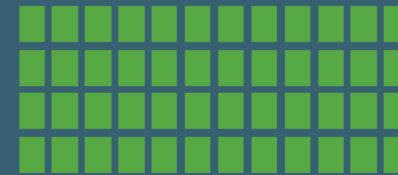
# DEFINING THE CAP

Within the EU ETS, a maximum number of emission allowances is available; this amount equals the total allowable volume of CO<sub>2</sub> emissions, or cap.

CO<sub>2</sub> emissions are reduced by lowering the cap.



Allowances below the cap for the period 2013-2020 can be broken down as follows:



**48%**  
are sold by means  
of auctions



**47%** are allocated to  
businesses free of  
charge

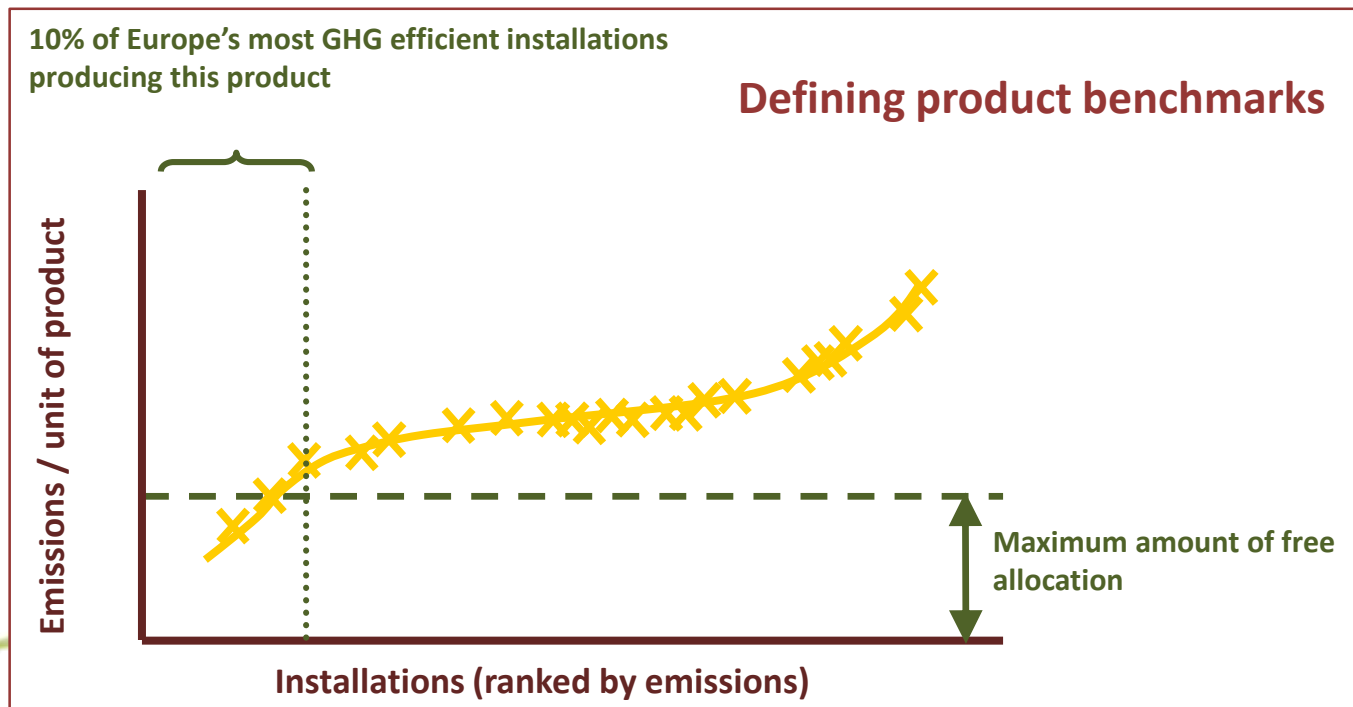


**5%** are reserved for  
new facilities or expan-  
sions of existing ones.

Source: Dutch Emissions Authority / Schwandt Infographics

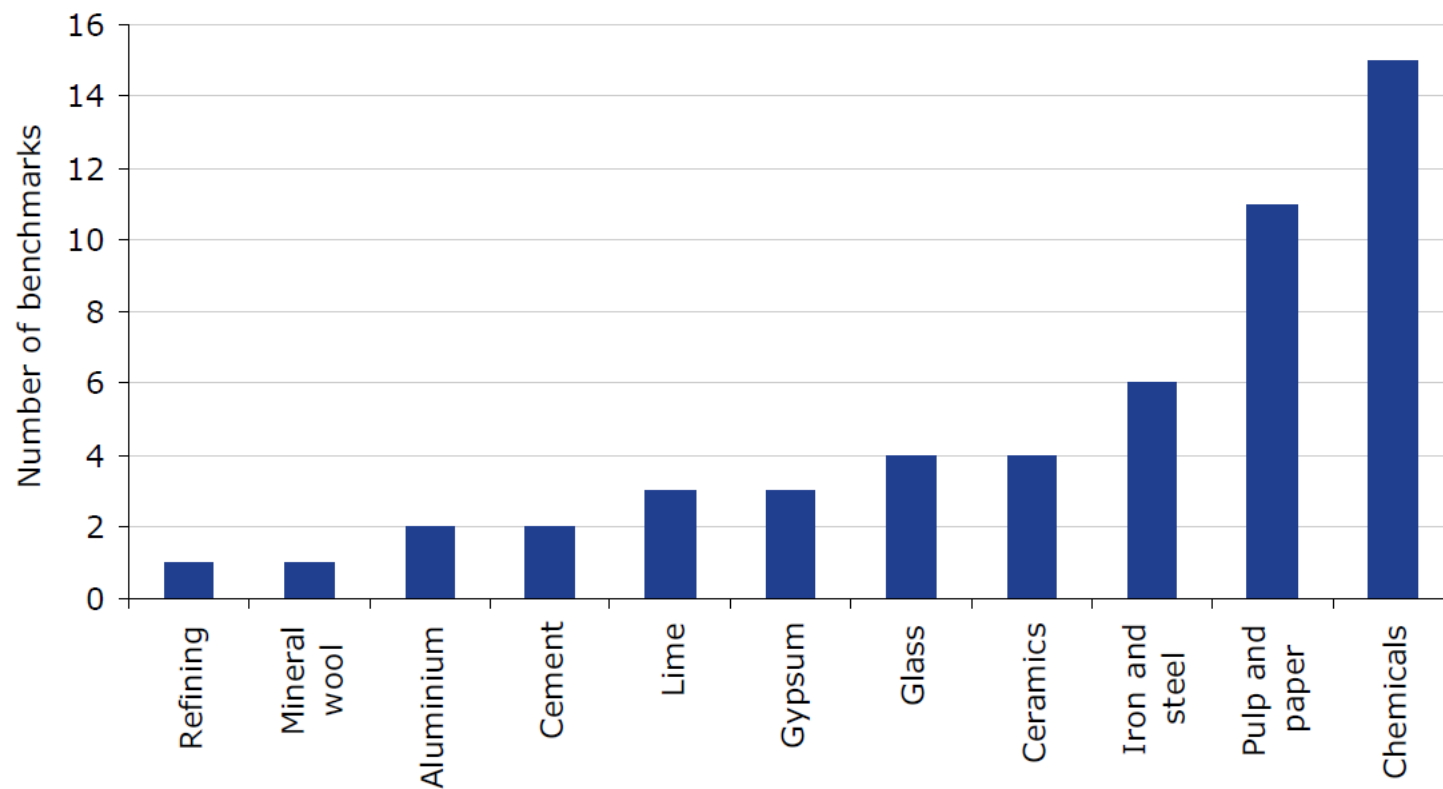
# BENCHMARKS FOR FREE ALLOCATION

- Basis: « 1 product = 1 benchmark »
  - Whatever the technology, the age of the installation, the type of fuel used, or regional specificities
- 52 product benchmarks (75% of industrial emissions)
- When no product benchmark, 3 fall-back approaches: heat benchmark, fuel benchmark, and process emissions





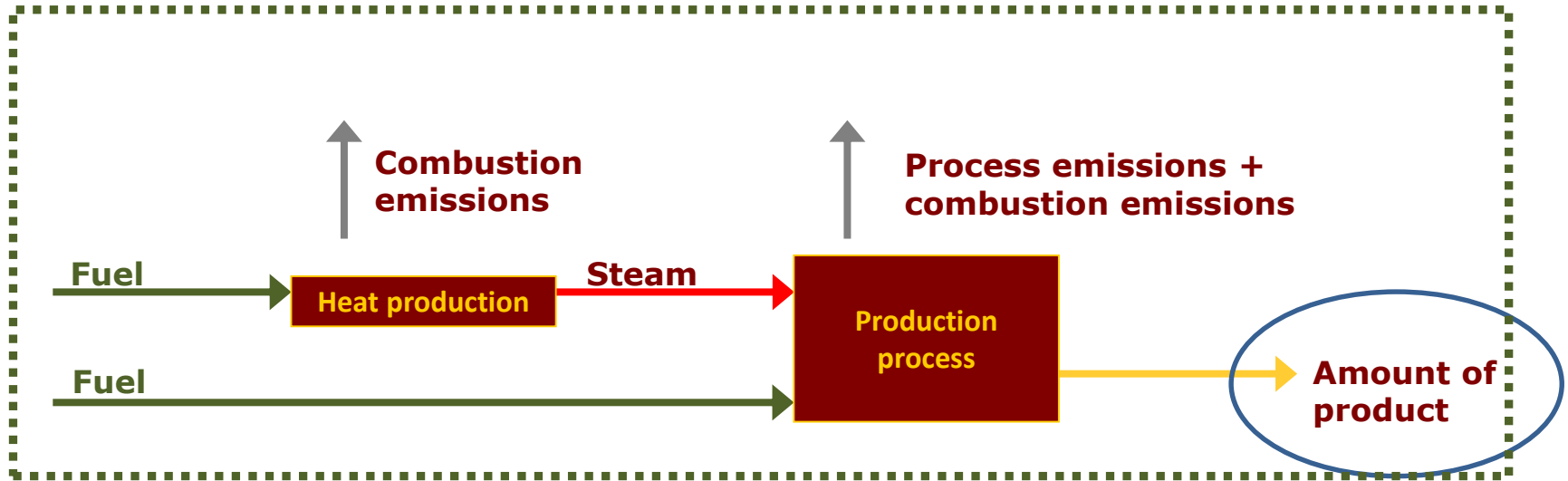
# OVERVIEW OF BENCHMARKS PER SECTOR



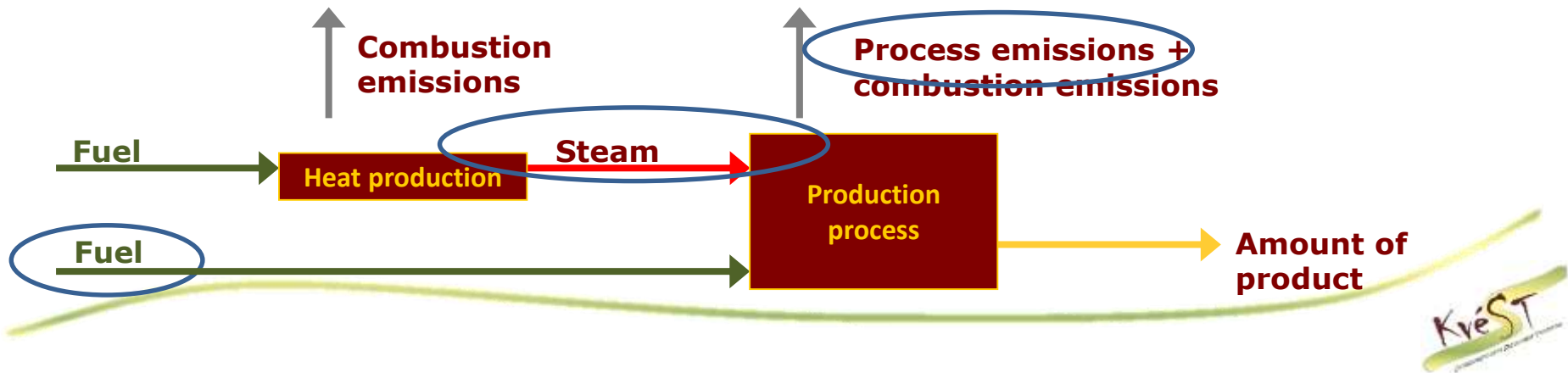
Source: EU ETS Handbook, EC 2015

# PRODUCT BENCHMARKS VS FALLBACK APPROACHES

## Perimeter of the product benchmark



## If no product benchmark:



# CARBON LEAKAGE

- **“Carbon Leakage”** is the risk to see GHG industrial emissions rise outside EU-ETS, in countries where industry has less carbon constraints
- For Phase 3, a list of products ‘deemed to be exposed to a significant risk of CL’ was defined, for which free allocation is higher
- For non-CL sectors, free allocation is reduced based on a CL factor:
  - In Phase 3, the CL factor reduces from 80% in 2013 to 30% in 2020
  - In Phase 4, the CL factor is expected to decrease from 30% to 0 in 2030
- The Carbon Leakage List was regularly revised during Phase 3. A new version is currently being finalized, applicable for Phase 4.

CL: Carbon Leakage

GHG: greenhouse gas

Non-CL sectors: sectors not deemed to be exposed to a significant risk of CL