January – March 2019

Workshops for Competent Authorities on Allocation Rules for Phase 4

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Disclaimer

- This workshop is conducted in the framework of a project for DG Climate Action. However the contents of these slides are not binding to the European Commission.

- The content of these slides is based on the state of discussions in January 2019 and can be subject to change.

Introduction

Scope of the workshop

- This workshop is about free allocation rules and data collection
- The following topics will not be addressed in this workshop
    - Auctioning
    - Aviation
    - Exclusion of small installations
    - Transitional free allocation for modernisation of electricity generation (Art. 10c)

Contents

- General overview
- Allocation rules
- BM updates
- MRVA requirements
- Case studies
- Data collection tools
- Q&A

General overview

General overview

Main steps and timeline – Phase 4, 1st period

19 December 2018	Free Allocation Rules (FAR) adopted
30 May 2019	Deadline for submission of applications for free allocation by operators*
30 June 2019	Date separating “incumbents” from “new entrants”
30 September 2019	Deadline for submission of National Implementation Measures (NIMs) by MS
1 January 2021	Start of Phase 4
28 February 2021	Issuance of first Phase 4 free allowances

**MS can choose a different deadline within 1 month before/after this date*

General overview

Process, roles and responsibilites

- Operators apply for free allocation *(30/05/19)* by providing
  - Baseline data report (NIMs and BM update)
  - Monitoring Methodology Plan
  - Verification report
- CA submit NIMs *(30/09/2019)* without allocation
- Commission calculates updated BM values
- CA calculate preliminary allocation based on new BM values
- CA submit NIMs list with preliminary allocations
- Commission calculates Cross-Sectoral Correction Factor *(if applicable)*
- CA calculate final allocation using CSCF and LRF when applicable
- CA submit final NIMs list with final allocations

Tools to be used

- Baseline data report template *(submission of data from operator for the NIMs and for the BM update)*
- Monitoring Methodology Plan template
- Verification report template

Installations in NIMs

- Installations which **must be included in NIMs**
  - All incumbent installations, i.e. installations that
    - Are part of sectors included in EU ETS Phase 4 *(cf. GD on interpretation of Annex I of the Directive)*
    - Received a GHG permit latest on 30 June 2019 *(resp. 2024)*
  - Electricity generators*
  - Installations not applying for free allocation*
  - Small emitters* *(Art. 27/27a)*
  - (Sub-)installations starting after 1 January 2018 *(resp. 2023)***
- Installations **not** included in NIMs
  - New entrants *(i.e. starting after 30 June 2019, resp. 2024)*

**No obligation to fill in template for installations not applying for free allocation*

***These installations are listed with no allocation as it will be calculated at a later stage*

Who receives free allocation?

- Installations included in NIMs are in principle eligible for free allocation, **except**:
  - Installations that only produce electricity
  - Installations operated for the capture, transport and storage of CO_2
- Installations applying for free allocation need to submit an application *(cf. Baseline data report template)*
- Operators may choose to renounce their free allocation
- Incumbents that do not apply for free allocation by 30 May 2019 *(or relevant MS deadline)* cannot be granted free allocation

Available Guidance Documents

- Guidance on the interpretation of Annex I of the Directive
- GD1: General Guidance to allocation methodology
- GD2: Allocation methodology at installation level
- GD3: Data collection
- GD4: Verification
- GD5: Monitoring and Reporting *[new numbering]*
- GD6: Cross-boundary heat flows
- *GD7: New entrants and closures (to be drafted)*
- GD8: Waste gases
- GD9: Sector specific guidance
- *GD10: Mergers and splits (to be drafted)*

Type of data to be collected

Two types of data to be collected:

- Data used for calculation of each (sub-)installation's **allocation**
- Data used for the update of the **benchmark values**

Allocation rules

Allocation rules

Changes in Phase 4 compared to Phase 3

- 10 year trading period, split into 2 sub-periods of 5 years each *(allocation in 2 rounds)*
- Cap reduced by 2.2% per year
- Allocation is **no longer based on capacity** *(no more calculation of capacity, RCUF etc)*
- Other changes are indicated with the following symbol throughout this presentation:

Allocation rules

What is a sub-installation?

- A **sub-installation** is **part of an installation** for which a **specific allocation methodology** can be applied
- Split into sub-installations is a **theoretical split**, often **NOT** linked to physical parts of the installation
- A sub-installation can be:
  1. A **benchmarked product**
  2. The **heat** flow(s) used in the production of a non-benchmarked product
  3. The heat flow(s) exported to a **district heating** installation
  4. The **fuels** combusted for the production of a non-benchmarked product
  5. **Process** emissions emitted outside of a benchmarked product
- There can be **no overlap** between emissions of sub-installations
- Emissions of all sub-installations should add up to **100% of eligible emissions** of the installation

Allocation rules

Carbon Leakage

- "**Carbon Leakage**" (CL)= risk to see industrial GHG emissions increase outside EU-ETS where industry would not be subject to comparable carbon constraints
- A sub-installation must **distinguish** products at risk of **Carbon Leakage** and not at risk of CL
- A list of sectors deemed to be exposed to CL *(based on PRODCOM or NACE)* can be found at [once adopted]
- Sectors not in list are deemed NOT exposed to CL
- The list is applicable for the whole Phase 4

Allocation rules

How many sub-installations in an installation?

- An installation can be split into a **maximum of n+7** sub-installations, where:
  - **n** is the number of **product benchmark** sub-installations
  - The other sub-installations, based on so-called "fall-back" approaches, may include up to:
    - **Two heat** benchmark sub-installations: one CL, one non-CL;
    - **One district heating** sub-installation;
    - **Two fuel** benchmark sub-installations: one CL, one non-CL;
    - **Two process emissions** sub-installations: one CL, one non-CL.

Allocation rules

Split of installation into sub-installations

1. Product benchmark
   - If one or more product benchmarks (out of the existing 52) are applicable
2. Heat benchmark
   - If measurable heat is consumed outside the boundaries of a product benchmark
   - And/or if measurable heat is exported to non-ETS
3. District heating
   - If measurable heat is exported to a district heating installation
4. Fuel benchmark
   - If fuel is combusted for the production of a non-benchmarked product other than electricity
5. Process emissions
   - If process emissions are emitted outside the boundaries of a product benchmark

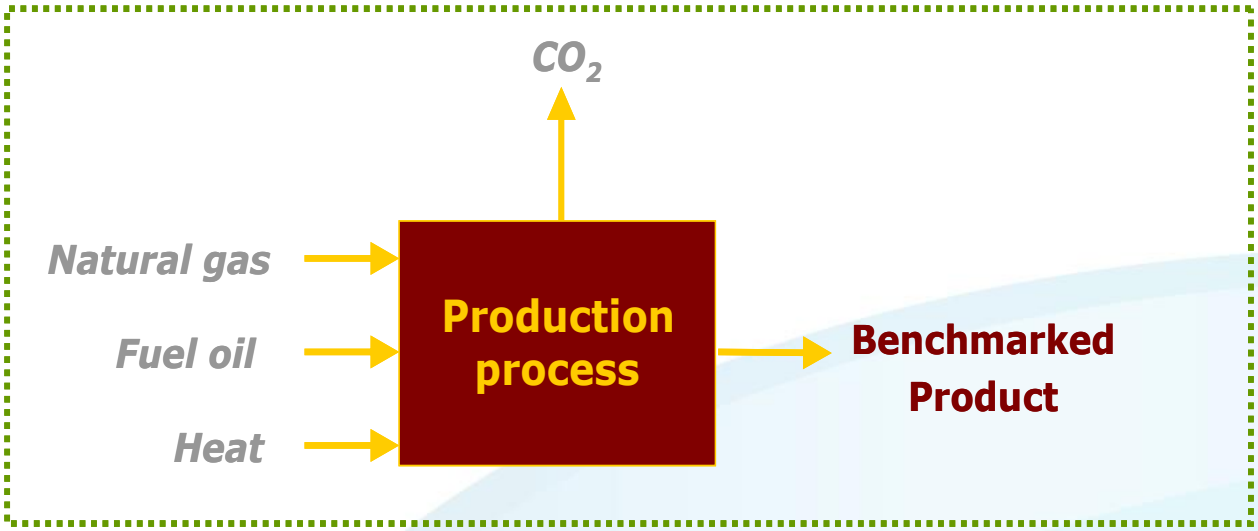
To be applied in this order

Allocation rules

Product benchmark sub-installations

Example with one product benchmark

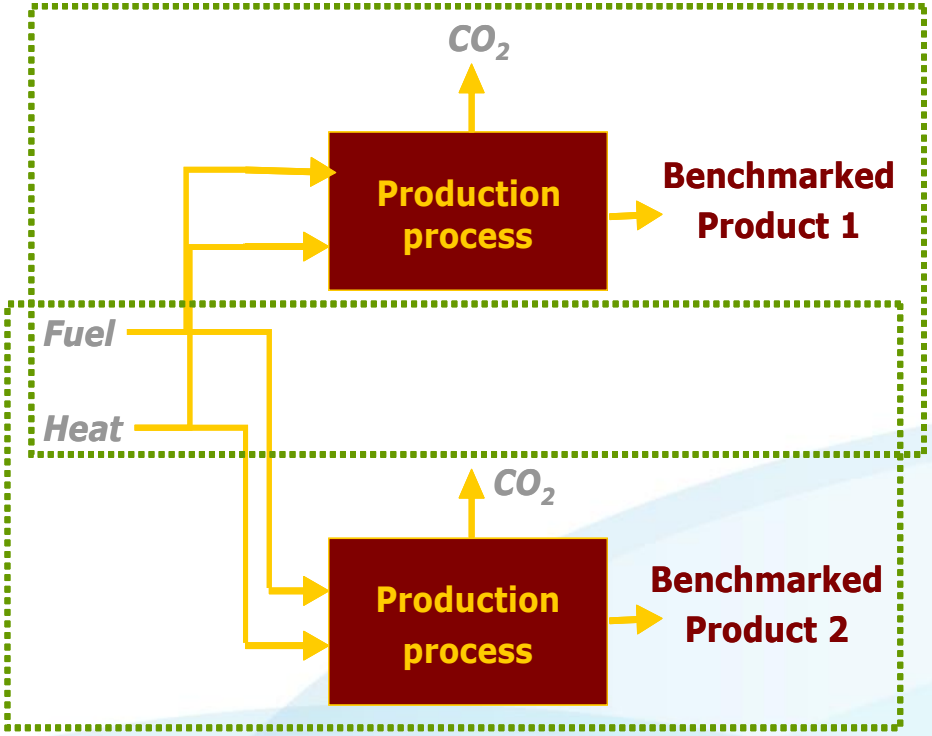
- Allocation is based on the production of the benchmarked product



Allocation rules

Product benchmark sub-installations

Example with two product benchmarks



Allocation rules

Heat benchmark sub-installations

Eligible heat

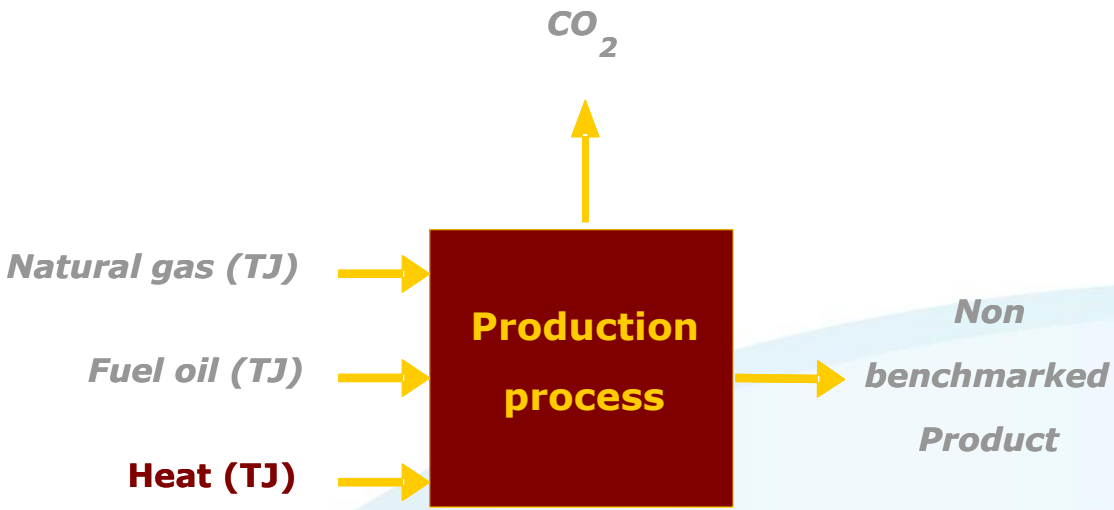
- Heat must **be measurable** = heat flow using heat transfer medium *(steam/hot air/water/oil/…)* which **can be** measured, *even if no measurement in place*
- Heat is used for a purpose *(production of products, mechanical energy, heating, cooling)*, but **NOT** for the production of electricity
- Heat is not produced within the boundaries of a nitric acid product benchmark, and is not consumed within the boundaries of any product benchmark
- Heat must be produced by an ETS installation
- **Net** heat is considered = heat content in the condensate or transfer medium returning to the heat supplier is subtracted *(100% return assumed)*

Allocation rules

Heat benchmark sub-installations

Example

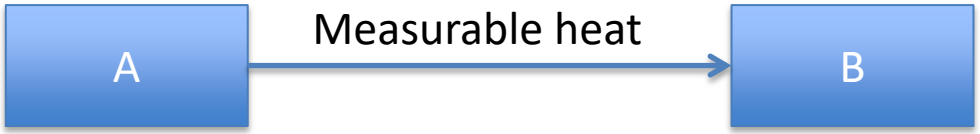
- Allocation is based on the heat consumed *(or exported to non-ETS)*



Allocation rules

Heat benchmark sub-installations

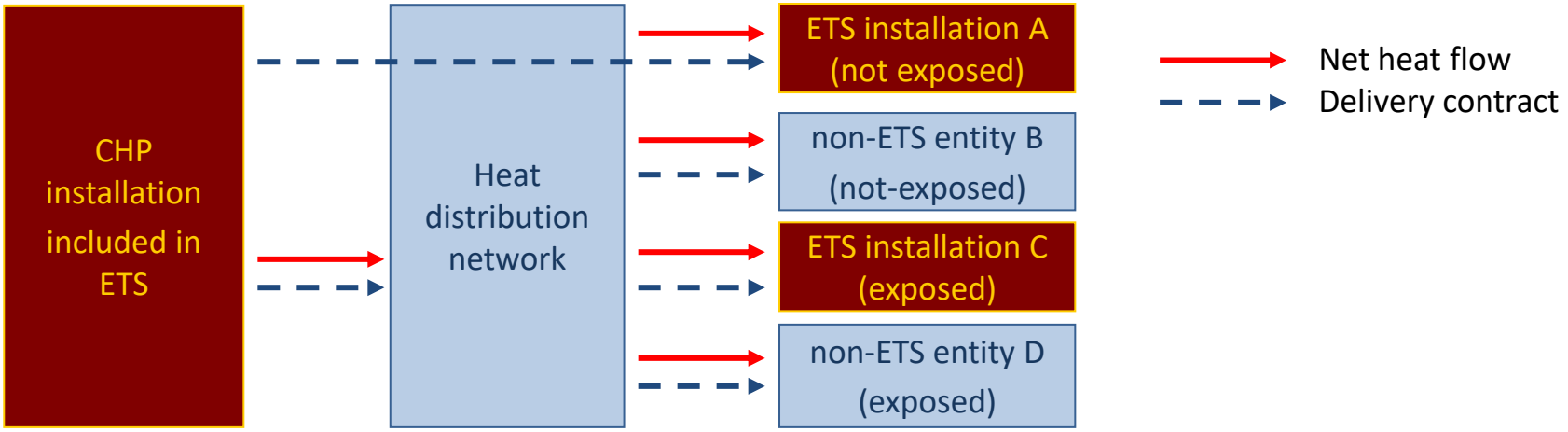
Cross-boundary heat flows



If A is a…	And B is a…	Then…
ETS installation	ETS installation	**B gets allocated** for the heat imported from ETS and **consumed**
ETS installation	**non-ETS** installation	**A gets allocated** for the heat **exported to non-ETS**
non-ETS installation	ETS installation	The heat is non eligible for free allocation, as it is produced by non-ETS

Allocation rules

Heat distributor networks



- A heat distribution network is **by default considered non-ETS**
- If CHP has no information of what happens behind the network, there will be only one non-CL heat sub-inst; otherwise:
  - If CHP has a **direct delivery contract with an ETS** end-user, it will be regarded as direct heat export, i.e. inst A will receive allocation for imported heat, as if imported from ETS
  - If CHP can provide **evidence on CL status of end-users and respective heat flows**, this will be considered (CHP will have CL heat sub-inst for heat exported to C and D; C will receive no free allocation)

Allocation rules

District heating sub-installation

Eligible heat

- Heat must be measurable; net heat is considered
- Heat must be produced by an ETS installation, but not within the boundaries of a nitric acid product benchmark
- Heat is **exported to district heating**

Definition of **District Heating**

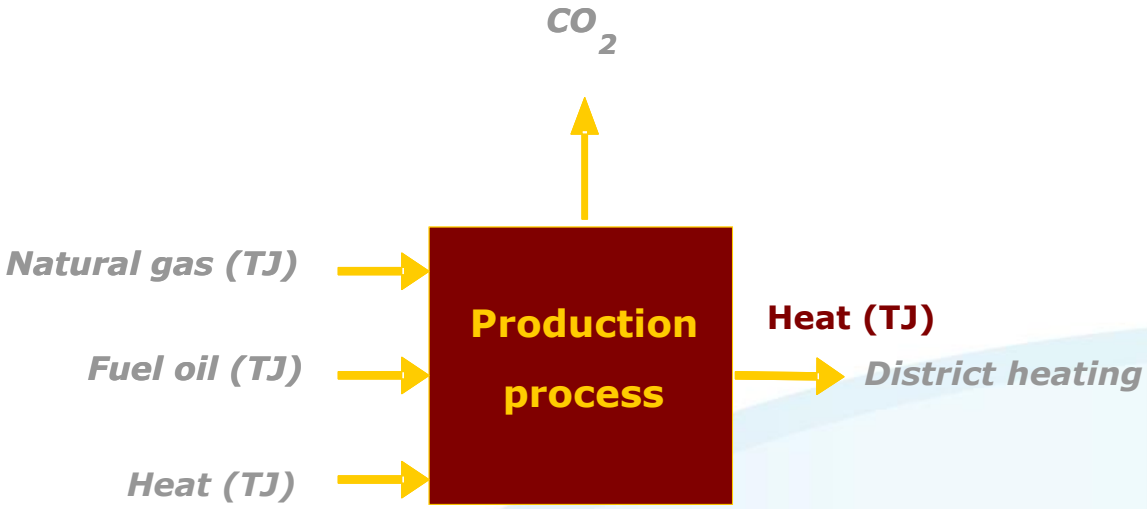
- Distribution of measurable heat through a network:
  - For the purpose of **heating or cooling of space** or production of **domestic hot water**, but NOT for the production of products or electricity
  - To **buildings or sites not covered by the EU ETS**

Allocation rules

District heating sub-installations

Example

- Allocation is based on the heat exported to district heating



Fuel benchmark sub-installation

Eligible fuel

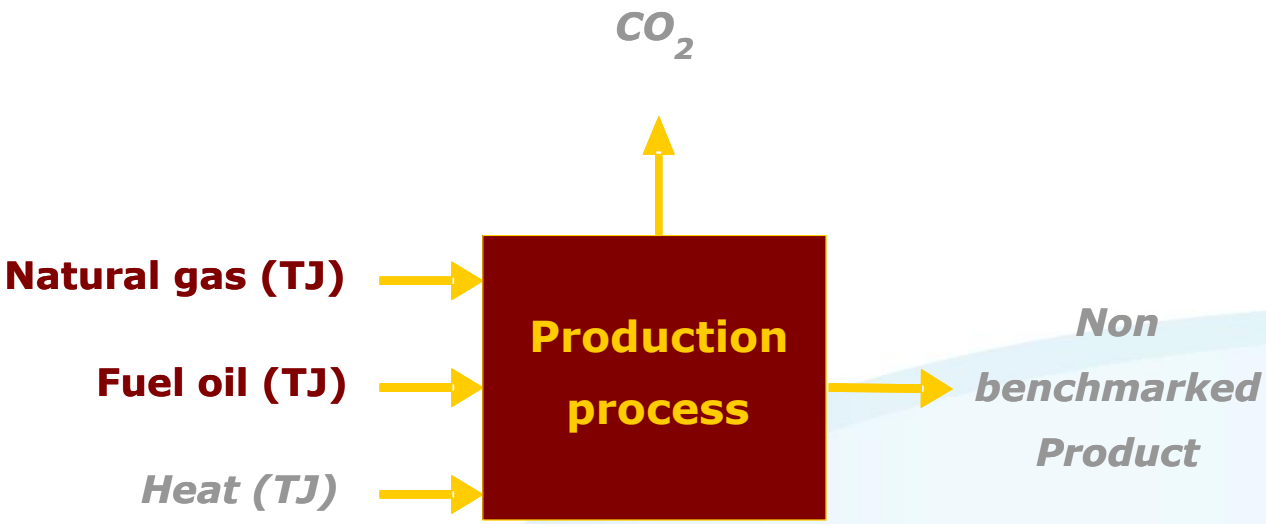
- Fuel is not consumed within the boundaries of a product benchmark sub-installation
- Fuel is not consumed within the boundaries of a heat benchmark sub-installation
- Fuel is not consumed for the production of electricity
- Fuel is not flared, except in the case of safety flaring
- Fuel is combusted for one of the following reasons:
  - Direct heating or cooling *(heat cannot be measured)*
  - Mechanical energy *(not used to produce electricity)*
  - Production of products

Allocation rules

Fuel benchmark sub-installations

Example

- Allocation is based on the fuel consumed



Allocation rules

Process emissions sub-installation

Definition of process emissions

- "Type a": **non-CO_2** greenhouse gas emissions *(e.g. N_2O)*
- "Type b": CO_2 emissions from any of the activities (a) to (f) listed in Art.2(10) of FAR
- "Type c": emissions from the combustion of **waste gases** for the production of measurable heat, non-measurable heat or electricity – only emissions higher than those resulting from combustion of natural gas are considered

Allocation rules

Process emissions sub-installation

Definition of waste gases

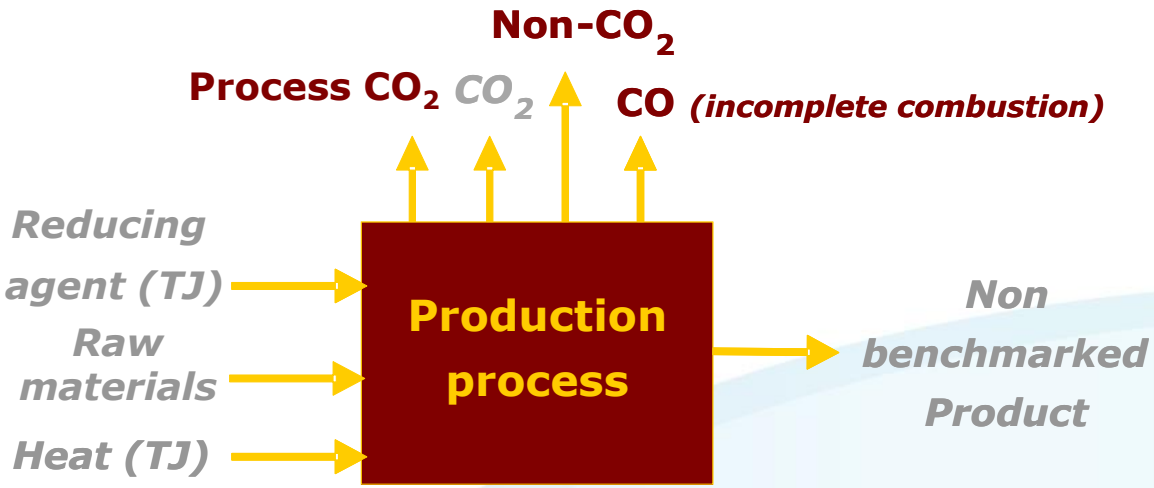
- Contain incompletely oxidised carbon
- Are in a gaseous state under standard conditions
- Occur as a result of one of the activities (a) to (f) listed in Art.2(10) of FAR

Allocation rules

Process emissions sub-installations

Example

- Allocation is based on the emitted process emissions



Allocation rules

Calculation of allocation

Preliminary allocation at sub-installation level

$$F_i(k) = BM_i \times HAL_i \times CLEF_i(k)$$

$F_i(k)$ = *Annual preliminary allocation for sub-installation i in yeark k(allowances/year)*
BM_i = *Applicable benchmark value for sub-installation i (allowances/unit of activity)*
HAL_i = *Historical Acitivity Level of sub-installation i (unit of activity/year)*
$CLEF_i(k)$ = *Applicable Carbon Leakage Exposure Factor for sub-installation i in year k (unitless)*

$$F_i(k) = \boldsymbol{BM_i} \times HAL_i \times CLEF_i(k)$$

Allocation rules

Calculation of allocation

Benchmarks (BM)

- 52 product BM, based on production of products *(average of 10% most GHG efficient installations)*
- 1 heat BM, based on amount of measurable heat consumed or exported to non-ETS *(applies to heat benchmark sub-installations and to district heating sub-installations)*
- 1 fuel BM, based on amount of fuel consumed
- 1 process emissions approach, allocation based on 97% of historical emissions

$$F_i(k) = BM_i \times \boldsymbol{HAL_i} \times CLEF_i(k)$$

Allocation rules

Calculation of allocation

Historical Activity Level

$$HAL = Arithmetic\ Mean_{Baseline\ period}(Annual\ Activity\ Levels)$$

- Two baseline periods in Phase 4: 2014-2018 and 2019-2023
- All calendar years in which installation was operating at least 1 day are taken into account
- Mean ≡ Average

$$F_i(k) = BM_i \times HAL_i \times CLEF_i(k)$$

Allocation rules

Calculation of allocation

Historical Activity Level - example

	2014	2015	2016	2017	2018
A: Newsprint	800	0	400	500	0
B: Uncoated fine paper	0	600	0	300	400
C: Coated fine paper		200	400	0	400

- Assumptions: sub-installation B was operating before 2014; sub-installation C started operating in 2015
- $HAL_A = average(800, 0, 400, 500, 0) = 340$
- $HAL_B = average(0, 600, 0, 300, 400) = 260$
- $HAL_C = average(200, 400, 0, 400) = 250$

$$F_i(k) = BM_i \times \boldsymbol{HAL_i} \times CLEF_i(k)$$

Allocation rules

Focus on specific topics

« De-minimis » rule

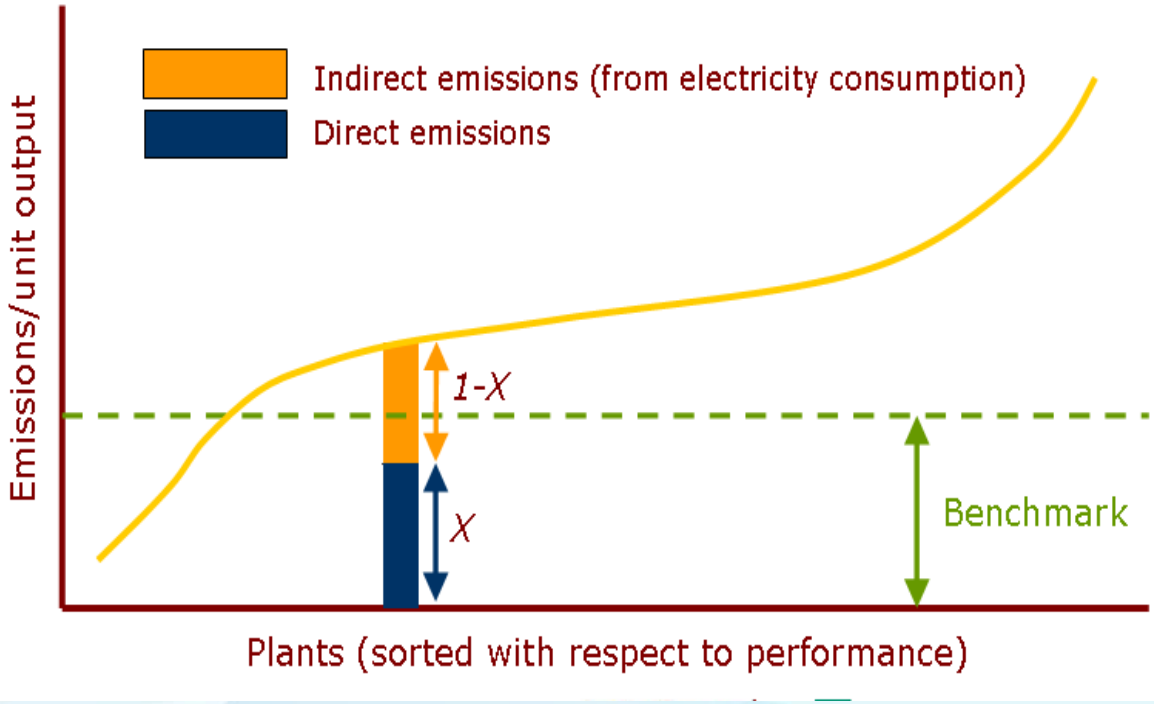
- If $AL_{heat\text{-}CL} \geq 95\%$ of the total heat BM sub-inst AL, then the operator may choose to have only one heat BM sub-installation, deemed exposed to CL (respectively only one heat BM sub-inst deemed non-CL if $AL_{heat\text{-}non\text{-}CL} \geq 95\%$)
- The same rule applies to the fuel BM sub-installations and to the process emissions sub-installations
- District Heating has also been included in this rule: if $AL_{heat} \geq 95\%$ of the total heat AL for either of the three heat benchmark sub-installations (CL, non-CL, DH) then the operator may attribute the remaining 5% to this sub-installation

Allocation rules

$$F_i(k) = BM_i \times HAL_i \times CLEF_i(k)$$

Focus on specific topics

Exchangeability of fuel and electricity



Allocation rules

$$F_i(k) = BM_i \times HAL_i \times CLEF_i(k)$$

Focus on specific topics

Exchangeability of fuel and electricity

- In equivalent processes where either fuel or electricity can be used to produce heat or mechanical energy (e.g. mineral wool), **indirect emissions** are taken into account in the benchmark value, but corrected for in the allocation

$$F_i(k) = \frac{Em_{dir} + Em_{NHI}}{Em_{dir} + Em_{NHI} + Em_{elec}} \times BM_i \times HAL_i \times CLEF_i(k)$$

The factor includes the total cumulative emissions over the baseline period relating to:

- Em_{dir} = *direct emissions within boundaries of the product BM sub-installation*
- Em_{NHI} = *net measurable heat import from other ETS installations and non-ETS entities*
- Em_{elec} = *indirect emissions from electricity consumption within boundaries of the product BM sub-installation*

$$F_i(k) = BM_i \times \boldsymbol{HAL_i} \times CLEF_i(k)$$

Allocation rules

Focus on specific topics

Rules for « special » sectors

FAR Annexes II and III

- Specific rules apply for some sectors for **calculation of HAL**. These include:
  - Refinery and Aromatics: CWT* approach to take into account the complexities and specificities of each installation
  - Lime and Dolime: correction for the calcium oxide and magnesium oxide content
  - Steam cracking: correction to include high value chemicals in supplemental feed
  - Ethylene glycols: conversion factor relative to ethylene oxide
  - Hydrogen and Syngas: hydrogen purity factor to ensure consistency with CWT approaches
- See Guidance Document 9 on sector specific guidance for details

**CO_2 weighted ton*

$$F_i(k) = BM_i \times HAL_i \times CLEF_i(k)$$

Allocation rules

Focus on specific topics

Pulp and paper installations *FAR Art.16(6)*

- For all pulp production except recovered paper pulp, free allocation is only granted to **pulp placed on the market** and not processed into paper in the same installation or a technically connected installation

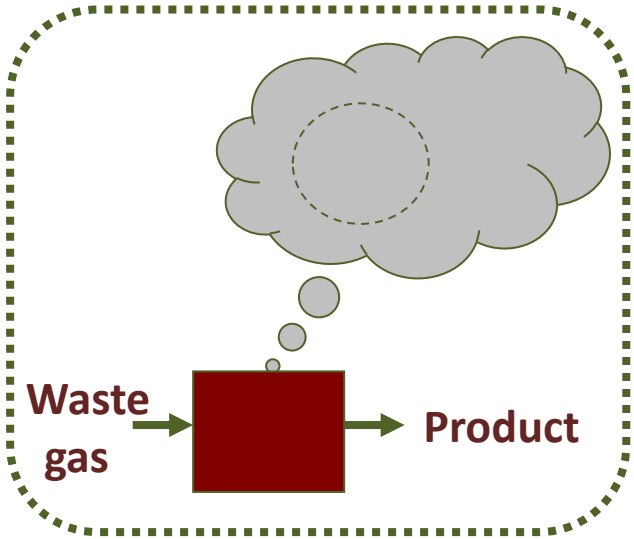
Nitric acid production *FAR Art.16(5)*

- Heat exported from a nitric acid product benchmark sub-installation is not eligible for free allocation

Allocation rules

Focus on specific topics

Waste Gases: distinguishing emissions from production and consumption



Total allocation relating to the combustion of the waste gas

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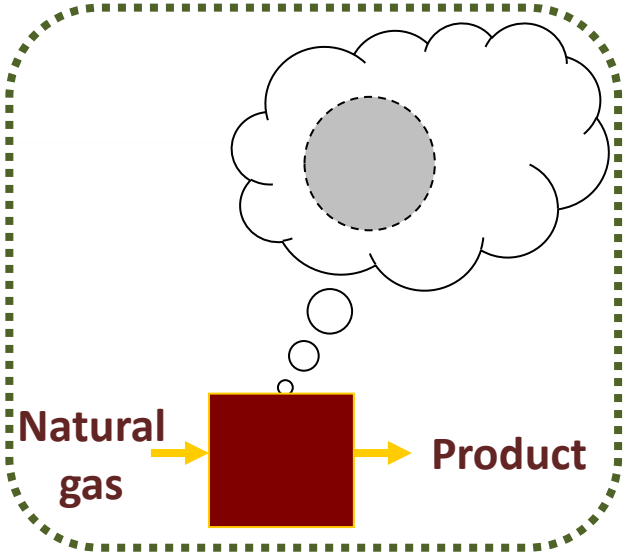

Part C: Allocation related to the consumption

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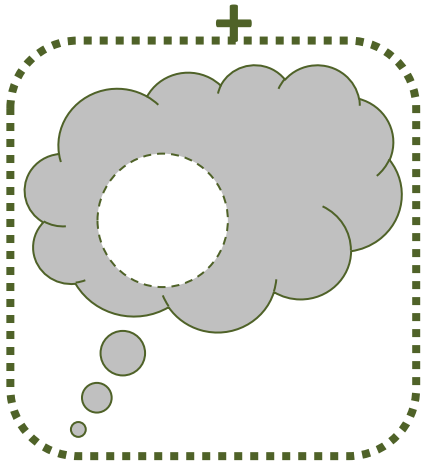
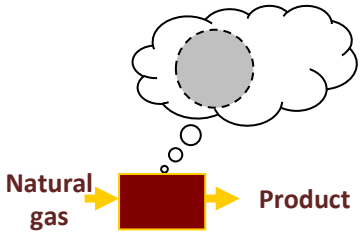


Part P: Allocation related to the production

Allocation rules

Focus on specific topics

Waste Gases: Allocation approach



- Part C: allocation related to the consumption
  - Regardless of where it is produced, treated as any other fuel *(no allocation if flared or producing electricity, allocation based on product BM, heat BM or fuel BM as applicable)* ➔ allocated to the **consumer**

- Part P: allocation related to the production
  - WG produced within perimeter of product BM: allocation **included** in product BM ➔ allocated to the **producer** (not always the emitter)
  - WG produced outside perimeter of product BM – see next slide

$$F_i(k) = BM_i \times \boldsymbol{HAL_i} \times CLEF_i(k)$$

Allocation rules

Focus on specific topics

Waste Gases: Allocation to part P outside product BM

- Part P: allocation related to the production, if WG produced outside the perimeter of a product BM ➔ allocated to the **consumer** *(who is also the emitter)*

$$HAL_{WasteGas} = Arithmetic\ mean_{BaselinePeriod}\ [V_{WG} \times NCV_{WG} \times (EF_{WG} - EF_{NG} \times Corr_{\eta})]$$

- $HAL_{WasteGas}$ = *Historical Activity Level of the sub-installation related to the production of waste gases not covered by a product benchmark (in tCO_2e)*
- V_{WG} = *volume of waste gas that is not flared (in Nm^3 or tonnes)*
- NCV_{WG} = *Net Calorific Value of the waste gas (in TJ/Nm^3 or TJ/t)*
- EF_{WG} = *emission factor of the waste gas (in tCO_2/TJ)*
- EF_{NG} = *emission factor of natural gas (56.1 tCO_2/TJ)*
- $Corr_{\eta}$ = *factor to accounts for difference in efficiencies between WG and natural gas (default = 0.667)*

$$F_i(k) = BM_i \times HAL_i \times CLEF_i(k)$$

Allocation rules

Process emissions sub-installation

Waste Gases: flaring provision

- If a waste gas produced within the boundaries of a product benchmark is ultimately flared (other than safety flaring), the allocation will be reduced accordingly as of 2026

  - 2021 to 2025: no correction for flared amounts

  - 2026 to 2030: allocation is corrected as follows:

$$F_{sub\_p} = BM_p \times HAL_p - Arithmetic\ mean_{BaselinePeriod}\ (V_{WGfl} \times NCV_{WG} \times EF_{WG})$$

- F_{sub_p} = *annual preliminary allocation for product p (in EUAs/yr)*
- BM_p = *product benchmark value for product p (in EUAs / unit of product)*
- HAL_p = *Historical Activity Level of product p*
- V_{WGfl} = *volume of WG flared for reasons other than safety flaring (in Nm^3 or tonnes)*
- NCV_{WG} = *Net Calorific Value of WG (in TJ/Nm^3 or TJ/t)*
- EF_{WG} = *emission factor of WG (in tCO_2/TJ)*

$$F_i(k) = BM_i \times \boldsymbol{HAL_i} \times CLEF_i(k)$$

Allocation rules

Focus on specific topics

(Sub-)installations not operating during whole baseline

- **Case 1:** Sub-installation operated < 2 calendar years in baseline
  - First start of normal operation > 01/01/2017 *(resp. 2022)*
  - HAL = **AL of first calendar year of operation** after start of normal operation of sub-installation

- **Case 2:** Sub-installation operated < 1 calendar year in baseline
  - First start of normal operation >01/01/2018 *(resp. 2023)*
  - HAL = AL of first calendar year of operation ater start of normal operation of sub-installation ➔ **determined once first AL report is submitted**

Allocation rules

Focus on specific topics

Definition of start of normal operation

- **Start of normal operation** is the "first day of operation",

  i.e. first day the activity level is higher than 0

$$F_i(k) = BM_i \times HAL_i \times \boldsymbol{CLEF_i(k)}$$

Allocation rules

Calculation of allocation

Carbon Leakage Exposure Factor

- CLEF is based on CL status (CL or non-CL)
- A specific CLEF applies for district heating sub-installations

CLEF value	2021 to 2026	2027	2028	2029	2030
CL sub-installation	1	1	1	1	1
Non-CL sub-installation	0.300	0.225	0.150	0.075	0
DH sub-installation	0.300	0.300	0.300	0.300	0.300

Allocation rules

Calculation of allocation

Preliminary allocation at installation level

$$F_{inst}(k) = \sum_i (F_i\,(k))$$

$F_{inst}(k)$ = *Preliminary total allocation for the installation in year k (allowances/year)*
$F_i(k)$ = *Preliminary allocation for sub-installation i in year k (allowances/unit of activity)*

Allocation rules

Calculation of allocation

Final allocation at installation level

- In years when the calculated free allocation exceeds the total available amount, a **Cross-Sectoral Correction Factor** is applied to all incumbent installations

$$F_{inst}^{final}(k) = F_{inst}(k) \times CSCF(k)$$

- In years **when no CSCF is needed**, free allocation to "electricity generators" will be reduced by the Linear Reduction Factor

$$F_{inst}^{final}(k) = F_{inst}(k) \times LRF(k)$$

$F_{inst}^{final}(k)$ = *Final total allocation for the installation in year k (allowances/year)*
$F_{inst}(k)$ = *Preliminary total allocation for the installation in year k (allowances/year)*
$CSCF(k)$ = *Cross-Sectoral Correction Factor in year k (unitless), if necessary*
$LRF(k)$ = *Linear Reduction Factor in year k (2.2%/year, with 2021 as reference)*

Allocation rules

Focus on specific topics

Allocation changes

- Detailed rules relating to Allocation Level Changes under discussion
- General principles:
  - Adjustment of allocation based on two-year rolling average
  - Threshold = 15% of HAL, upwards or downwards

New entrants

- Installations that receive GHG permit after 30/06/2019 *(resp. 2024)*
- Same approach for allocation as incumbents *(BMxHALxapplicable factors)*
- First 2 years of operation, allocation based on actual AL

Thank you for your attention

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