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UKETS11 FAR - Determining allocation at the installation level

April 2025

This document is intended to provide guidance for operators of installations. If there is any inconsistency between the guidance and legislation, the legislation prevails.

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Contents

1 Overview

This document provides guidance to operators of installations under the UK Emissions Trading Scheme (UK ETS) and is intended to explain how the allocation methodology is applied at the installation level, including the impact of the provisions designed to address the exposure to a significant risk of carbon leakage. It describes the different type of sub-installations defined in the methodology for that purpose, as well as the approach to determine the allocation for each type of sub-installation.

Important note

The UK ETS Authority has announced that the start of the second allocation period has been moved from 2026 to 2027 for free allocation (FA) purposes. This follows recognition of stakeholder views and concerns over the potential misalignment of industrial decarbonisation and carbon leakage policy. This change also enables us to align the implementation of the Free Allocation Review with the introduction of the UK CBAM, ensuring a holistic policy approach to carbon leakage, and providing additional time for policy development in what is a complex and challenging area. These are important decisions which will impact the future of business and industry, and we want to get them right.

Following this announcement, any changes to FA policy following the Free Allocation Review will take effect from 2027. The Free Allocation Review consultation sought views on some changes to FA rules, such as changes to the carbon leakage list and application of the carbon leakage exposure factor, which, if implemented, could change eligibility for FA. Depending on the outcome of the Free Allocation Review, some installations' eligibility to FA could change after the baseline data collection exercise has concluded. In addition, the indicative FA values produced by the BDR template may be subject to revision following the publication of any changes to the FA rules resulting from the Free Allocation Review.

The benchmark values included in this document are therefore from the first allocation period (2021 – 2026). The benchmark values will be updated following conclusion of the baseline data exercise and the Free Allocation Review and are therefore subject to change. This guidance note will be updated to include any revised benchmark values in due course.

The relevant legislation in this area is:

- **The Greenhouse Gas Emissions Trading Scheme Order 2020** (The Order) as amended from time to time https://www.legislation.gov.uk/uksi/2020/1265/contents
- **The Free Allocation Regulation (FAR)** (https://www.legislation.gov.uk/eur/2019/331/contents) as it forms part of domestic law and as amended by the Order

- **The Activity Level Changes Regulation** (**ALCR**) (https://www.legislation.gov.uk/eur/2019/1842/contents) as it forms part of domestic law and as amended by The Order
- **The Monitoring and Reporting Regulation (MRR)** (Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018) on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council (disregarding any amendments adopted after 11 November 2020) as given effect for the purpose of the UK ETS by Article 24 of the Order, subject to the modifications made for that purpose from time to time
- **The Verification Regulation (VR)** (Commission Implementing Regulation (EU) 2018/2067 of 19 December 2018 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council (disregarding any amendments adopted after 11 November 2020), as given effect for the purpose of the UK ETS by Article 25 of the Order, subject to the modifications made for that purpose from time to time

2 Overview of allocation approaches

This chapter explains the different approaches to calculate the allocation at the sub- installation level for different types of installations, and the conditions under which each of them is to be applied. Section 2.2 explains how an installation's carbon leakage status influences its allocation.

2.1 When to apply which installation-level allocation approach?

The free allocation of allowances is based as far as possible on European Union Emissions Trading System (EU ETS) ex-ante product benchmarks. However, product benchmarks cannot be defined in all cases e.g. due to a too diverse or changing product mix. In such cases, the so-called 'fall-back' approaches using the heat benchmark, the fuel benchmark, or the process emissions approach are used.

In general, the allocation to individual installations is established according to the following steps:

- the installation is split into sub-installations to which the different types of benchmarks apply and whether their products are deemed to be exposed to a significant risk of carbon leakage.
- the allocation at sub-installation level is determined by multiplying the sub-installation's historical activity level (HAL) with the applicable benchmark value and the relevant correction factors, including the carbon leakage exposure factor (CLEF).
- the respective sub-installation allocations are summed to the installation level. This amount is referred to as the 'preliminary free allocation'. To arrive at the final allocation, a cross-sectoral correction factor (CSCF) can be applied in case the sum of the preliminary free allocations exceeds the number of free allowances available. For electricity generators that are eligible for free allocation, such as Good Quality combined heat and power (CHP) and district heating, the linear reduction factor (LRF) is applied in the years that no CSCF is applied.

Four approaches are used to calculate the allocation of free allowances to the different sub-installations. The approaches have the following strict order of applicability, as required by Article 10(2) of the FAR:

1. the product benchmark approach
2. the heat benchmark approach
3. the fuel benchmark approach

4. the process emissions approach.

Table 1 on page 8 provides an overview of the conditions relating to each approach.

Please note that the heat benchmark approach mentioned above is applied to 2 different types of sub-installation, the heat benchmark sub-installation and the district heating sub-installation. Please see the box below for an explanation of district heating-related concepts and definitions (and the relevant sections in chapters 3 and 4) as well as a definition of measurable heat.

District heating concepts and measurable heat in UK ETS

District heating is referred to in different ways in the UK ETS and its free allocation rules. A distinction can be made between:

- district heating as an activity - defined in Article 2(4) of the FAR as:

  "the distribution of measurable heat for the purpose of heating or cooling of space or of production of domestic hot water, through a network, to buildings or sites not covered by EU ETS or UK ETS with the exception of measurable heat used for the production of products and related activities or the production of electricity"

- a district heating installation - the installation producing heat for district heating, which can be a UK ETS installation or a non-UK ETS installation, depending on the type and capacity of the installation

- a district heating distributor - distributing the heat through a district heating network, which can either be produced by the distributor itself or purchased from third parties

- a district heating network - the grid of pipelines and equipment used to distribute the heat for the purpose of district heating

- a district heating sub-installation - a sub-installation defined in a UK ETS installation to determine the allocation related to measurable heat exported for the purpose of district heating, as defined in Article 2(5) of the FAR

- district heating purpose - to distinguish exported heat eligible for free allocation ('measurable heat exported for the purpose of district heating') from non-eligible exported heat (for other purposes, such as for electricity production).

Measurable heat flows possess all four of the following characteristics:

- they are net - meaning that the heat content in the condensate or transfer medium returning to the heat supplier is subtracted[1] (to determine measurable heat data see 'UKETS12 FAR - Data collection guidance').
- the heat flows are transported through identifiable pipelines or ducts
- the heat flows are transported using a heat transfer medium, e.g. steam, hot air, water, oil, liquid metals or salts
- the heat flows are or could be measured by a heat meter[2] (where a heat meter is any device that can measure the amount of energy produced based upon flow volumes and temperatures)

[1] Even if not all condensate is returned to the supplier, net measurable heat should be calculated assuming 100% return of the condensate to ensure the calculation is conservative.
[2] Article 2(8) of the FAR defines a heat meter to mean "*a thermal energy meter (MI-004) within the meaning of Annex VI of Directive 2014/32/EC of the European Parliament and of the Council [OJ L 135, 30.4.2004, p. 1.] or any other device to measure and record the amount of thermal energy produced based upon flow volumes and temperatures*". For guidance on situations where no heat meter is installed see 'UKETS13 FAR - Monitoring and reporting in relation to the free allocation rules'.

Table 1. Conditions under which each of the four approaches apply

Approach	Value[3]	Conditions
Product benchmark	See list in Annex 8 to the FAR[4] for the final values for 2021-2026 Product benchmarks for 2027-2030 will be published in due course following the 2025 data collection exercise.	A product benchmark is available in Annex I to the FAR. Products meet the detailed criteria given in Annex I to the FAR, as further explained in 'UKETS18 FAR - Sector specific guidance'.
Heat Benchmark	47.3 allowances / TJ of net measurable heat	**For heat benchmark sub-installations:** Heat should meet all six conditions below to be covered by a heat benchmark sub-installation (Article 2(3) of the FAR): 1. the heat is measurable (as transported through identifiable pipelines or ducts using a transfer medium, a heat meter[5] is or could be installed) (Article 2(7-8) of the FAR) 2. the heat is used for a purpose (production of products, mechanical energy, heating, cooling) 3. the heat is not used to produce electricity 4. the heat is not produced within the boundaries of a nitric acid product benchmark (Article 16(5) of the FAR) 5. the heat is not consumed within the system boundaries of a product benchmark 6. the heat is: • consumed within the UK ETS installation's boundaries and produced by a UK ETS installation OR • produced within the UK ETS installation's boundaries and consumed by a non-UK ETS installation or other entity for a purpose other than: ○ electricity production, or ○ district heating.

[3] All values referenced in the table are for the 2021-2026 allocation period and subject to update following the conclusion of the 2025 baseline data collection.
[4] including if applied to district heating sub-installations, see section 3.3 for more details.
[5] For more information, see 'UKETS13 FAR - Monitoring and reporting in relation to the free allocation rules'.

Approach	Value[3]	Conditions
		For district heating sub-installations: Heat should meet conditions 1 to 4 above, be produced by a UK ETS installation AND be exported for the purpose of district heating (Article 2(4) of the FAR). Heat produced outside of the UK ETS is not eligible for free allocation. For further information see 'UKETS15 FAR - Cross-boundary heat flows'.
Fuel benchmark	42.6 allowances / TJ of fuel used	Fuel input[6] should meet all four of the conditions below to be covered by a fuel benchmark sub-installation (Article (2(6) of the FAR): 1. the fuel is not consumed within the boundaries of a product or heat benchmark sub-installation 2. the fuel is not consumed to produce electricity 3. the fuel is not flared, except in the case of safety flaring. 4. the fuel is combusted: • for direct heating or cooling purposes, without a heat transfer medium (heat cannot be measured) OR • to produce mechanical energy which is not used to produce electricity OR • to produce products.
Process emissions approach	0.97 allowances per tonne of process emissions	Process emissions should meet both conditions below to be covered by a process emissions benchmark sub-installation (Article 2(10) of the FAR): 1. the emissions are not covered by a product benchmark or by any of the other fall-back approaches 2. the emissions are one of the following: • non-CO_2 greenhouse gas emissions listed within Table C in Schedule 2 to the Order occurring outside of the system boundaries of a product benchmark listed in Annex I to the FAR • CO_2 emissions from any of the relevant processes listed below. Only CO_2 as a direct and immediate result of the production process or chemical reaction can be considered. CO_2 from the oxidation of CO or other incompletely oxidised carbon is not covered, regardless of whether this oxidation takes place in the same or a separate technical unit e.g. CO_2 from the oxidation of CO in an open furnace cannot be regarded as process emissions under this category (but may fall under the third category if the criteria are met).[7]

[6] In this case "fuel" will, where applicable, include the portion of waste gases tha is attributed to the consumption of the waste gas, if outside a product benchmark sub-installation. For more details see 'UKETS17 FAR - Waste gases and process emissions sub-installations'.
[7] see 'UKETS17 FAR - Waste gases and process emissions sub-installation' for additional guidance on combustion of waste gases in an open furnace.

Approach	Value[3]	Conditions
		• emissions originating from the combustion of waste gases for the purpose of producing measurable heat, non-measurable heat or electricity MINUS the equivalent emissions which would have resulted from combusting natural gas with equal energy content as the waste gases, taking into account differences in energy conversion efficiencies (see 'UKETS17 FAR - Waste gases and process emissions sub-installations' for additional information). Relevant processes (provided they serve a primary purpose other than the generation of heat): • the chemical or electrolytic reduction of metal compounds in ores, concentrates and secondary materials • the removal of impurities from metals and metal compounds • the thermal decomposition of carbonates, excluding those for flue gas scrubbing • chemical synthesis where the carbon bearing material participates in the reaction • the use of carbon containing additives or raw materials • the chemical or electrolytic reduction of metalloid oxides or non-metal oxides such as silicon oxides and phosphates.

2.2 Impact of carbon leakage status on (sub-) installation level allocation

The Government has consulted on changes to the free allocation process that includes possible changes to the allocation methodology outlined below, beginning in 2027. This guidance will be updated following publication of the Government response to the Free Allocation Review.[8]

Sectors or sub-sectors deemed exposed to a significant risk of carbon leakage are those that may suffer a material competitive disadvantage against competitors located in areas outside the UK that do not have similar constraints on emissions. The first phase of the UK ETS (2021 – 2026) utilises the same carbon leakage list (CLL) adopted for phase IV of the EU ETS under the European Commission's delegated act of 15 February 2019. This determined the 63 (sub-) sectors deemed to be exposed to a significant risk of carbon leakage. Sectors and sub-sectors included in the list are also referred to here as "carbon leakage" or CL (sub-) sectors, while (sub-) sectors not included in the list are referred to as "non-carbon leakage" or non-CL (sub-) sectors.

NACE and PRODCOM codes

In principle, the eligibility of (sub-) sectors included in the CLL is based on their NACE[9] classification codes, though for several sub-sectors it is based on the more disaggregated PRODCOM classification codes.

NACE codes are 4-digit codes used to classify production or activities carried out at an installation. The codes are taken from the Classification of Economic Activities in the European Community. The PRODCOM[10] code is an 8-digit code and stands for the PRODucts of the European COMmunity Inquiry. It is a survey of manufactured products governed by European Regulation (3924/91) (since repealed). The product definitions are standardised across the EU to give comparability between data and the production of European aggregates at product level. There is a direct relationship between the NACE and PRODCOM codes, as the first 4 digits of the PRODCOM code match the 4 digits of the NACE.

Installations in (sub-) sectors on the CLL receive up to 100% of the allowances at the level of a benchmark free of charge. Installations in sectors not on the list will instead receive only 30% of their allowances at the level of a benchmark free of charge, with this proportion decreasing after 2027 to 0% in 2030. An exception is made for district heating sub-installations, for which

[8] https://www.gov.uk/government/consultations/uk-emissions-trading-scheme-free-allocation-review.
[9] NACE codes mean "NACE Rev 2.0" as laid down in Regulation (EC) No 1893/2006 of the European Parliament and of the Council, as amended (see annex for latest list of codes) https://www.legislation.gov.uk/eur/2006/1893/pdfs/eur_20061893_2019-07-26_en.pdf.
[10] The applicable PRODCOM codes are those set down in Commission Regulation (EU) 2019/1933 https://www.legislation.gov.uk/eur/2019/1933/annexes.

the proportion of allowances received free of charge remains at 30% after 2027. These proportions are expressed in the CLEF, which is set at 1 for carbon leakage sectors and 0.3 for non-carbon leakage sectors. Table 2 below shows the development of CLEFs over time for different categories.

Table 2. Overview of carbon leakage exposure factors (CLEF)[11]

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
CLEF for CL (sub-) sectors	1	1	1	1	1	1	1	1	1	1
CLEF for non-CL (sub-) sectors	0.3	0.3	0.3	0.3	0.3	0.3	0.225	0.15	0.075	0
CLEF for district heating sub-installations	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

The preliminary free allocation is determined by multiplying the benchmark value with the HAL and the appropriate CLEF. As benchmarks are applicable to sub-installations, the CLEF is also applied at sub-installation level. The generic equations for the calculation of the preliminary amount needed for the calculation of the CSCF is as follows:

$$F_{i,k} = BM_i \times HAL_i \times CLEF_{i,k}$$

With:

$F_{i,k}$ annual preliminary allocation for sub-installation *i* in year *k* (allowances per year)

BM_i applicable benchmark value (allowances per unit of activity)[12]

HAL_i sub-installation's historic activity level (unit of activity per year)

$CLEF_{i,k}$ applicable carbon leakage exposure factor (unitless)

The final free allocation at installation level is determined after the calculation of any CSCF, should one by introduced and be applicable, as described in section 5.1.

[11] Currently under consideration as part of the Free Allocation Review.
[12] tonne of product (or CWT) for product benchmark sub-installations, TJ of heat for heat benchmark (and district heating) sub-installations, TJ of fuel for fuel benchmark sub-installations or t of CO2 for process emission sub-installations.

For product benchmark sub-installations

When calculating the number of allowances for benchmarked products, the CLL is used to determine the applicable CLEF. If the product produced in the product benchmark sub-installation is on the list (i.e. its NACE code or the PRODCOM code is on the list) then the CLEF is 1. If the product is not on the list, the declining factor given in Table 2 must be used (CLEF for non-CL (sub-) sectors). The CLL is based on NACE revision 2,[13] with the corresponding 2019 codes for PRODCOM.[14] See section 4.1 for more details.

For fall-back sub-installations

In the case of fall-back approaches, the CLEF used depends on whether the heat, fuel, or process emissions are associated with a process manufacturing a product on the CLL. If the product manufactured is on the CLL, then the CLEF used is 1 across all years, otherwise the declining CLEF is used.

Operators must take extra care in cases when an installation exports heat to another installation. If a sub-installation exports heat to a UK ETS plant, then the carbon leakage status of the sub-installation in which the imported heat is used applies. This is because the FAR determine that allowances are given to heat consumers, unless the heat-importing installation is not in the UK ETS; in the latter case, the allowances are given to the producer of the heat. For more information about the allocation procedure in cases of cross-boundary heat flows, see 'UKETS15 FAR - Cross-boundary heat flows'.

The carbon leakage status of the heat importing installation is determined based on the product(s) that the heat importing plant manufactures, and whether the product(s) is on the CLL. If an installation exports heat to a non-UK ETS plant, the carbon leakage status of the importing installation is assumed to be not at risk by default, unless the "at risk" status of the products for which the exported heat is used can be proven.

The relevant documentation to evidence the carbon leakage status must be included in the data collection report. The regulator will need to review and accept such evidence before the CL status can be changed. In case an installation exports heat for district heating, the exporting sub-installation will always be considered non-CL.

[13] NACE codes mean "NACE Rev 2.0" as laid down in Regulation (EC) No 1893/2006 of the European Parliament and of the Council, as amended by Commission Delegated Regulation (EU) 2023/137 (see annex for list).
[14] The applicable PRODCOM codes are those set down in Commission Regulation (EU) 2019/1933 and can found in the annex at https://www.legislation.gov.uk/eur/2019/1933/annexes.

The “de minimis rule”

In case there is more than one carbon leakage status existing for each type of fall-back sub-installation within an installation, the FAR allows a method to simplify data collection if one activity level can be considered as "dominant".[15] More specifically, when at least 95% of the HAL of the heat benchmark sub-installation (or the fuel benchmark or process emissions sub-installation) serves sectors or subsectors deemed to be exposed to a significant risk of carbon leakage, it may be considered as only one heat benchmark sub-installation (or one fuel benchmark or process emissions sub-installation, respectively), which as a whole is deemed to be exposed to a significant risk of carbon leakage. The reverse is also true, where the whole sub-installation is deemed not to be exposed to a significant risk of carbon leakage when at least 95% of the HAL is non-exposed. In both cases it is not necessary to determine the allocation for the remaining 5% of emissions separately. Application of the de minimis rule in this case does not affect monitoring obligations (for more details, see ‘UKETS07 MRR - Sampling and analysis’).

This rule also applies for the district heating sub-installation in combination with the heat benchmark sub-installation: when at least 95% of the HAL is attributable to either of the three heat benchmark sub-installations (i.e. CL heat benchmark sub-installation, non-CL heat benchmark sub-installation, or district heating sub-installation), the operator may attribute the remaining 5% to that sub-installation.

As the HAL is based on the arithmetic mean value over the baseline period, the rule will apply to the arithmetic mean value, regardless of whether the 95% rule held true for every year of the baseline period.

At the installation level

The preliminary allocation at the installation level is determined by the sum of the allocation over the sub-installations within its system boundaries. The next section explains in further detail how an installation must be split into separate sub-installations for the purpose of determining the allocation.

Example: Installation without product benchmarks and different carbon leakage status

In this example an installation produces products A, B, and C. First, the operator must check the relevant NACE code or PRODCOM code against the list of products deemed at risk of carbon leakage.

The installation produces crude soybean oil (Product A, PRODCOM 15411210), crude rapeseed oil (Product B, PRODCOM code 15411260) and refined soybean oil (Product C, PRODCOM code 15421110). The first 4 digits of the codes are 1541 for the crude oils and 1542 for the refined oil. By checking these digits against the CLL, the operator determines that

[15] See Article 10(3) of the FAR

the 1541 NACE code is on the list whereas the 1542 is not. This means that the products associated with the 1541 code are deemed to be exposed to a significant risk of carbon leakage (these are crude soybean oil and crude rape seed oil), but not the product associated with code 1542 (refined soybean oil).This is summarised in figure 1 below.

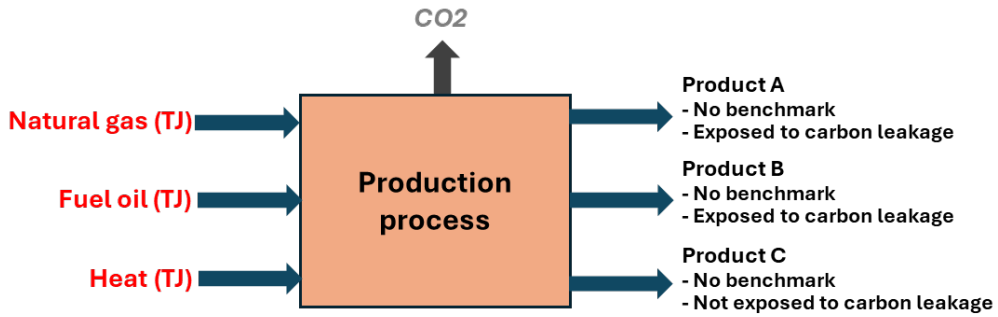


Figure 1 Installation producing products deemed to be exposed and not exposed to carbon leakage

Since no product benchmark is applicable for products A, B, or C, the fall-back approaches must be used. Since no process emissions occur, only heat and fuel benchmarks are relevant. As the carbon leakage status is not the same for all products, there will be four sub-installations in total, as listed below:

- sub-installation 1: a heat benchmark for products deemed exposed to a significant risk of carbon leakage (products A and B)
- sub-installation 2: a heat benchmark for products not deemed exposed to a significant risk of carbon leakage (product C)
- sub-installation 3: a fuel benchmark for products deemed exposed to a significant risk of carbon leakage (products A and B)
- sub-installation 4: a fuel benchmark for products not deemed exposed to a significant risk of carbon leakage (product C)

Only fuel that is not used to produce measurable heat will be included in sub-installations 3 and 4.

To determine if all four sub-installations are needed, the 95% rule is applied. The HALs of the heat benchmark sub-installations and the fuel benchmark sub-installations are calculated and compared to the total.

If measurable heat, fuel or emissions cannot be split between products deemed and not deemed to be exposed to a significant risk of carbon leakage, then the outputs, inputs and emissions may be attributed to the relevant product proportionally to the amount of product produced. In cases when data are unavailable, proxy data and estimates (e.g. % values, as allowed by the data collection template) may be used, but the operator must provide evidence to support their estimates.

This means that in cases when a product is deemed to be exposed to a significant risk of carbon leakage (e.g. casein) but the manufacturing process for the product includes the manufacture of intermediate products not deemed to be exposed to a significant risk of carbon leakage (e.g. fresh skim milk) or by-products that are not deemed to be exposed to a significant risk of carbon leakage, relevant data shall be split in order to assign the correct carbon leakage status to the process concerned.

If the arithmetic mean of the heat consumed to produce products A and B is at least 95% of the total heat consumed in the installation, there will only be one heat sub-installation (including the total heat consumed) that will be deemed to be exposed to a significant risk of carbon leakage. If it is lower than 5% there will only be one heat sub-installation (including the total heat consumed in the installation) but this will be deemed as not exposed to carbon leakage. Similarly, if the arithmetic mean of the fuels combusted to produce products A and B is higher than 95% compared to the fuels combusted in the whole installation, then there will only be one fuel sub-installation (including the total amount of fuel combusted in the installation) deemed at risk of carbon leakage. If, on the contrary it is lower than 5%, there will only be one fuel sub-installation (including the total amount of fuel combusted in the installation) deemed not to be at risk of carbon leakage.

For this exercise, it is assumed that for both sub-installations the HALs are lower than 95%, and therefore all four sub-installations identified are applicable.

When calculating the allowances available for free, the following formulae must be used for each sub-installation:

- sub-installation 1: preliminary allocation = $BM_h \times HAL_h(A+B) \times CLEF_{CL}$
- sub-installation 2: preliminary allocation = $BM_h \times HAL_h(C) \times CLEF_{non-CL,k}$
- sub-installation 3: preliminary allocation = $BM_f \times HAL_f(A+B) \times CLEF_{CL}$
- sub-installation 4: preliminary allocation = $BM_f \times HAL_f(C) \times CLEF_{non-CL,k}$

With:

BM_h	benchmark value for heat (allowances/TJ);
$HAL_h(A+B)$	historical measurable net heat consumption to produce A and B (TJ/yr);
$HAL_h(C)$	historical measurable net heat consumption to produce C (TJ/yr);
BM_f	fuel benchmark value (allowances/TJ);
$HAL_f(A+B)$	historical fuel consumption to produce A and B (TJ/yr);
$HAL_f(C)$	historical fuel consumption to produce C (TJ/yr);
$CLEF$	carbon leakage exposure factor (unitless, see Table 2 for CL / non-CL CLEFs for individual years k).

Therefore, the preliminary allocation for sub-installations 1 and 3 will be for every year up to 2030:

- sub-installation 1: preliminary allocation = $BM_h \times HAL_h(A+B) \times 1$
- sub-installation 3: preliminary allocation = $BM_f \times HAL_f(A+B) \times 1$

The preliminary allocation for sub-installations 2 and 4 will be

- in 2021-2026:
  - sub-installation 2: preliminary allocation = $BM_h \times HAL_h(C) \times 0.3$
  - sub-installation 4: preliminary allocation = $BM_f \times HAL_f(C) \times 0.3$

- in 2027:
  - sub-installation 2: preliminary allocation = $BM_h \times HAL_h(C) \times 0.225$
  - sub-installation 4: preliminary allocation = $BM_f \times HAL_f(C) \times 0.225$

- in 2030 (when non-CL CLEFs have reduced further)
  - sub-installation 2: preliminary allocation = $BM_h \times HAL_h(C) \times 0 = 0$
  - sub-installation 4: preliminary allocation = $BM_f \times HAL_f(C) \times 0 = 0$

3 Splitting installations into sub-installations

The first step in calculating the allocation of an installation is to define the 'sub-installations'. A sub-installation means all inputs, outputs and corresponding emissions related to a specific allocation approach. Note that the boundaries of a sub-installation are not necessarily defined by the boundaries of physical process units. They should instead be understood as the system boundaries of a mass and energy balance for the specific purpose of the FAR.

As described in guidance document 'UKETS10 FAR - General guidance on the allocation methodology', an installation can be split into a maximum number of *n*+7 sub-installations, *n* being the number of product benchmarks applicable within the installation, complemented by 2 heat benchmark sub-installations (CL and non-CL), 2 fuel benchmark sub-installations (CL and non-CL), 2 process emissions sub-installations (CL and non-CL) and a district heating sub-installation.[16]

All inputs, outputs and corresponding emissions in an installation must be attributed to a sub-installation, unless they relate to any process that is not eligible for free allocation. Examples are the production of electricity in the installation, flaring (other than safety flaring) that is not covered by a product benchmark sub-installation, and the production of measurable heat exported to other UK ETS installations.[17]

Care should be taken to ensure that sub-installations do not overlap. Inputs, outputs and corresponding emissions should not be covered by more than one sub-installation and each sub-installation will be limited to receiving allocation via one allocation approach (See 'UKETS12 FAR - Data collection guidance' for more guidance on the attribution of inputs and outputs, including emissions).

Installations are split into sub-installations via the steps described in sections 3.1 to 3.5 below.

3.1 Establishing product benchmark sub-installations

Step 1a - Define one or more product benchmark sub-installations (if applicable)

Operators should establish whether one or more product benchmarks, as defined in Annex I to the FAR, apply to the installation. For each product benchmark that applies, a product benchmark sub-installation must be defined.

For each product benchmark sub-installation:

[16] In the FAR, formal definitions are provided for the product benchmark sub-installation in Article 2(2), the heat benchmark sub-installation in Article 2(3), the district heating sub-installation in Article 2(5), the fuel benchmark sub-installation in Article 2(6) and the process emissions sub-installation in Article 2(10).
[17] Article 10(5) of the FAR.

- identify the system boundaries (see 'UKETS18 FAR - Sector specific guidance' for details on boundaries)
- look up the relevant product benchmark values
- look up the carbon leakage status in the CLL.[18]

Note that product benchmark values BM_p are constant over the years within the same allocation period (2021-2026 and 2027-2030 respectively), while the CLEF may change in the second allocation period depending on the carbon-leakage status (as described in section 2.2).

Step 1b - Attribute relevant inputs and outputs

Attribute all relevant inputs (e.g. raw materials, fuel, heat, and electricity input required for making the product) and outputs (e.g. production activity, heat, process emissions, waste gases) to the sub-installation for each year in the period 2019 to 2023 (to claim free allocation for 2027 – 2030) that the installation has been operating.

If more than one product benchmark is applicable to an installation, care should be taken to ensure that the inputs and outputs of each sub-installation are not attributed twice (and that none are missing). When only product benchmark sub-installations occur in an installation, operators must calculate the amount of fuel and heat attributed to each sub-installation to update the benchmark values (as the data collection for updating the benchmark values is combined with the data collection for providing the basis for the calculation of allowances).

Figure 2 below shows an example installation where the incoming flows of heat and fuel are split between the two sub-installations; the sum of the energy content attributed to each sub-installation should not exceed the total energy content of the heat and fuel consumed within the installation, taking into account any losses.

[18] Commission Delegated Decision (EU) 2019/708 of 15 February 2019 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D0708&from=EN.

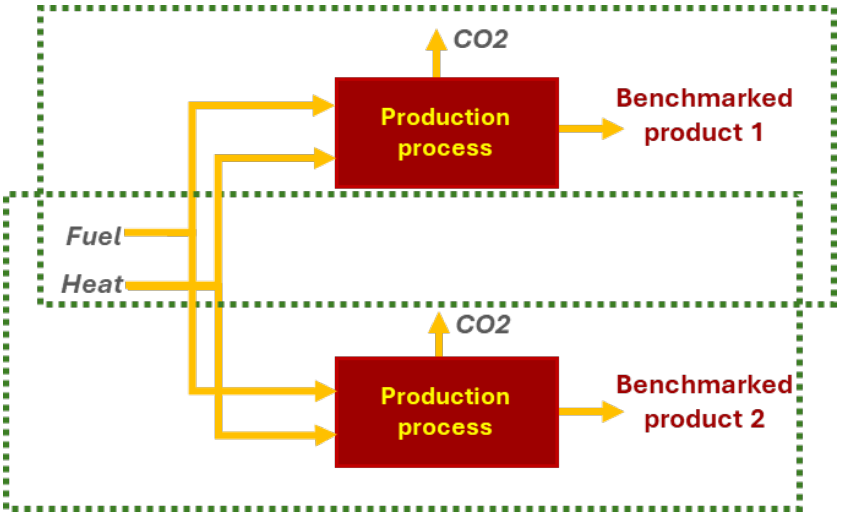


Figure 2 Example installation with two product benchmarks

3.2 Establishing heat benchmark sub-installations

No distinction is made between heat from different sources (e.g. produced from different fuels, produced by boilers or CHP, heat as a by-product of a benchmarked production process, etc.) if the heat is eligible for free allocation.

In principle, heat is eligible for free allocation if it can be regarded as covered by the UK ETS and is not produced from electricity. This is likely to be the case for measurable heat directly linked (combustion process or exothermic production process) to source streams which are contained in the monitoring plan (MP) of an installation covered by the UK ETS. Eligible heat may include heat produced from biofuels, bioliquids (sustainable or otherwise), solid biomass, biogas, exothermic heat, and heat recovered from an eligible process or physical unit (covered under a product, heat, or fuel benchmark, or a process emissions sub-installation).

Consumption of heat

Eligibility for free allocation is determined by the purpose for which the heat is used, with eligible heat being used for any of the purposes listed in Article 2(3) of the FAR: production of products, production of mechanical energy other than that used to produce electricity, and (space) heating or cooling.

Production of cooling

An absorption cooling process shall be considered as the heat consuming process, as per the last sentence in section 7.1 of Annex VII to the FAR. In the case of district cooling, the heat consumed for that cooling should be covered by the district heating sub-installation.

Heat is ineligible for free allocation in the following cases:

- export or consumption of heat produced in the nitric acid production process, as this heat is already accounted for under the nitric acid benchmark.

- consumption of heat produced by a non-UK ETS installation (i.e. not covered by a GHGE permit).
- consumption of heat used for electricity generation.
- heat used to pre-heat fuels
- heat used for wastewater treatment
- steam used to obtain smokeless flaring

Note that heat exported for the purpose of district heating is not considered as part of the heat benchmark sub-installation, instead a separate district heating sub-installation is defined for this purpose (see section 3.3).

Whether one or two heat benchmark sub-installations need to be defined depends on the carbon leakage status of the products for which the heat is consumed. Heat that is consumed within the production process of a product deemed exposed to carbon leakage must be included in a different sub-installation than the heat consumed within the production process of a product not deemed exposed to carbon leakage (see section 2.2).

Step 2a Define one or two heat benchmark sub-installations (if applicable)

Heat benchmark sub-installations need to be defined if either or both of the following apply:

- the installation consumes measurable heat outside the boundaries of a product benchmark sub-installation, provided that:
    - the heat is not produced by a non-UK ETS installation
    - the heat is not produced within the boundaries of a nitric acid product benchmark
    - the heat is not used to produce electricity

  AND/OR
- the installation exports measurable heat to a non-UK ETS installation or entity other than for the purpose of district heating, provided that:
    - the heat is not produced within the boundaries of a nitric acid product benchmark
    - the heat is not used to produce electricity.

Step 2b Attribute relevant inputs and outputs (if applicable)

Attribute all relevant inputs (such as heat) and outputs (such as emissions relating to the heat production) to each sub-installation for each year in the period 2019 to 2023 (for the second allocation period) that the installation has been operating.

When measurable heat is used for heating offices and canteens, this heat is included within the system boundaries of the product benchmark. In case no product benchmark sub-installation is appropriate within the installation, then the inputs, outputs and emissions related

to heating offices and canteens should be accounted for within the heat benchmark sub-installation. The carbon leakage exposure status of this heat is based on the most relevant production process within the installation. Note that for offices and canteens on industrial sites, this cannot be considered as a form of district heating. The consideration of heating needs to be in line with the permit of the installation (see section 3.3).

Heat consumed by a heat benchmark sub-installation should be measured at the heat-consuming production lines, and not at the heat-producing facilities. However, for heat exported from a heat benchmark sub-installation to a non-UK ETS entity, the point of measurement is at the exit of the heat-producing facilities.

3.3 Establishing a district heating sub-installation

Step 3a Define one district heating sub-installations (if applicable)

One district heating (DH) sub-installation can be defined, if both of the following apply:

- the installation produces measurable heat outside the boundaries of a nitric acid product benchmark sub-installation

  OR

- the installation imports measurable heat from a UK ETS installation, provided that the heat is not produced within the boundaries of a nitric acid product benchmark

AND

- the heat is exported for the purpose of district heating.

'District heating' is characterised as:

- the distribution of measurable heat through a network
- for the purpose of heating or cooling of space, or to produce domestic hot water
- to buildings or sites not covered by the UK ETS, and
- the exclusion of measurable heat used to produce products and related activities, or electricity.

Note that for a DH sub-installation, no distinction is made based on the carbon leakage status, as all heat is used for the purpose of district heating, which is not exposed to a risk of carbon leakage. Therefore, a maximum of one DH sub-installation can be defined. To reward the efficient use of excess heat for district heating purposes, district heating sub-installations are not subject to a decrease in the CLEF when calculating the number of free allowances, unlike non-carbon leakage sub-installations. Instead, a CLEF of 0.3 continues to be applied for district heating sub-installations after 2026 (see section 2.2).[19]

[19] This value is subject to the outcome of the Free Allocation Review.

The entity to which heat is exported to must meet the definition of district heating as defined in FAR Article 2(4). Evidence must be provided that the heat considered as delivered to district heating is used for the purposes of heating or cooling of space or the production of domestic hot water.

- in cases of low temperature heat[20] delivered to a district heating network, it can be assumed that the conditions of the definition of district heating are fulfilled.
- in cases of a design temperature of 130°C and more, the heat will only be considered as delivered to district heating if the heat producer provides appropriate evidence, e.g. via annual sales figures (for the entire baseline period), clearly indicating the amount of heat sold for the purposes of heating or cooling of space or the production of domestic hot water.

In both cases the heat producer must confirm that heat reported as district heating is not subject to free allocation to other UK ETS installations.

Space heating of a non-UK ETS installation is in principle within the definition of district heating, as defined in FAR Article 2(4).

Step 3b Attribute relevant inputs and outputs (if applicable)

Attribute all relevant inputs (such as fuel and/or heat) and outputs (such as heat exported and emissions relating to the heat production) to each sub-installation for each year in the period 2019 to 2023 (for the second allocation period) that the installation has been operating.

Heat exported for the purpose of district heating is measured at the exit of the heat exporting facilities, or at the entrance of the heat importing ones. Where heat is exported for the purpose of district heating as well as for other purposes, the heat for the purpose of district heating may need to be measured at the entrance of the heat importing facility, depending on the layout of the heat distribution system.

3.4 Establishing fuel benchmark sub-installations

Step 4a Define one or two fuel benchmark sub-installations[21] (if applicable)

As indicated in Table 1, fuel benchmark sub-installations must be defined if the installation combusts fuel outside the boundaries of a product benchmark for either:

- direct heating or cooling without a heat transfer medium (i.e. when heat cannot be measured)
- the production of products
- the production of mechanical energy, which is not used for the production of electricity

Provided that:

[20] with a design temperature below 130°C at the heat producer's entry point to the district heating network.
[21] Depending on the carbon leakage status, see section 2.2.

- the fuel is not consumed to produce electricity
- the fuel is not flared, unless it is for safety flaring,[22] and
- heat from the process is not recovered (which would receive allocation via another allocation methodology, unless it is used for electricity production). To avoid double-counting in this situation, the activity level of the fuel benchmark sub-installation should be corrected by subtracting the amount of recovered measurable heat, covered by a product benchmark or heat benchmark sub-installation or used for electricity production, divided by a virtual generation efficiency of 90% (in line with Article 10(5)(k) of the FAR).

Note that fuel combusted directly for the purpose of waste treatment (without recovery of measurable heat) cannot be considered eligible as a fuel benchmark sub-installation, as it does not relate to any of the three production activities listed above (i.e. direct heating/cooling, production of products, production of mechanical energy).

Whether one or two fuel benchmark sub-installations need to be defined will depend on the carbon leakage status of the products for which the fuel is combusted: fuel combusted within the production process of a product deemed to be exposed to a significant risk of carbon leakage must be included in a different sub-installation than fuel combusted within the production process of a product not deemed to be exposed to such a risk. See section 2.2 on carbon leakage for more details.

Step 4b Attribute relevant inputs and outputs (if applicable)

Attribute all relevant inputs (combusted fuel) and outputs (emissions relating to the combusted fuel) to each sub-installation for each year in the period 2019 to 2023 (for the second allocation period) that the installation has been operating.

3.5 Establishing process emissions sub-installations

Step 5a Define one or two process emissions sub-installations[23] (if applicable)

One or two process emissions sub-installations must be defined if the installation has process emissions outside the boundaries of a product benchmark, where process emissions are defined as:

- **type a**: non-CO2 greenhouse gas emissions listed within Table C in Schedule 2 of the Order; N2O is currently the only non-CO2 greenhouse gas included in UK ETS for non-benchmarked products (for emissions from the production of nitric, adipic, glyoxal, and glyoxylic acid)

[22] 'Safety flaring' refers to the combustion of pilot fuels and highly fluctuating amounts of process or residual gases in a unit open to atmospheric disturbances that is explicitly required for safety reasons by relevant permits for the installation. Please see 'UKETS17 - FAR - Waste gases and process emissions sub-installation' for further explanation of this definition.
[23] Depending on the carbon leakage status, see section 2.2.

- **type b**: CO2 emissions[24] as a direct result of any of the activities listed in Table 3 below (and not as a result from the combustion of incompletely oxidised carbon produced in these activities as such 'indirect CO2 emissions' are in principle covered by type c)
- **type c**: emissions stemming from the combustion of waste gases for the purpose of producing measurable heat, non-measurable heat or electricity, MINUS the equivalent emissions resulting from the combustion of natural gas with equal energy content as those waste gases.[25] See 'UKETS17 FAR - Waste gases and process emissions sub-installation' for additional information on the definition of waste gases, the distinction between emissions of type b and c and the corresponding allocation.

In line with Article 10(5)(k) of the FAR, there may be instances where heat is recovered from processes covered by a process emissions sub-installation. To avoid double-counting, the activity level of the process emissions sub-installation should be corrected by subtracting the amount of recovered measurable heat (that is covered by a product benchmark, a heat benchmark sub-installation or used for electricity production) divided by a virtual generation efficiency of 90%.

Whether one or two sub-installations based on the process emissions approach must be defined depends on the carbon leakage status of the products whose production process emits the process emissions: emissions from the production process of a product deemed to be exposed to a significant risk of carbon leakage must be included in a different sub-installation than emissions from the production process of a product not deemed to be exposed to such a risk.

For the processes in the table below – but only when not part of a product benchmark sub-installation – operators must assess whether using the carbon-containing material has a purpose other than the production of heat. If yes, the operator must decide whether the other purpose should be regarded as the primary purpose. Only where heat production is not the primary purpose are the emissions included in a process emissions sub-installation.

[24] CO2 emissions must be determined in line with the rules the MRR. This means that emissions from any biomass that is sustainable or where no sustainability criteria apply (e.g. solid biomass) are rated as zero.
[25] A specific rule applies where waste gases occurring outside the boundaries of product benchmarks are not used, mainly in cases of open furnaces, as the further oxidation of incompletely oxidised carbon is difficult to control. See 'UKETS17 FAR - Waste gases and process emissions sub-installation' for further guidance.

Table 3. Definitions and examples of activities covered by the process emissions sub-installations definition (Article 2(10) of the FAR)

Definition of activity[26]	Example
Chemical, electrolytic or pyrometallurgical reduction of metal compounds in ores, concentrates and secondary materials	Production of copper from copper carbonate minerals
Removal of impurities from metals and metal compounds	Emissions from the oxidation of impurities of scrap metal emitted as part of a recycling process
Decomposition of carbonates, excluding those for the flue gas scrubbing	Production of magnesia
Chemical synthesis where the carbon bearing material participates in the reaction	Acrylic acid production, acetylene production (partial oxidation), acrylonitrile production (ammoxidation), formaldehyde production (partial oxidation/dehydrogenation)
Use of carbon containing additives or raw materials	Emissions from the oxidation of organic additives to increase the porosity of ceramics products
Chemical or electrolytic reduction of metalloid oxides or non-metal oxides such as silicon oxides and phosphates	Production of silicon, reduction of phosphate ore

Step 5b Attribute relevant inputs and outputs

Attribute all relevant inputs (all material from which the process emissions originate, if applicable) and outputs (e.g. process emissions, data relating to the use of the waste gases including emissions from their combustion) to each sub-installation for each year in the period 2019 to 2023 (for the second allocation period) that the installation has been operating.

[26] All for a primary purpose other than the production of heat.

4 Determination of allocation per sub-installation

Following definition of the relevant sub-installations, the allocation to the sub-installations can be calculated based on the HAL and the benchmark values. Each sub-installation must apply only one approach. This chapter describes the application of the different allocation approaches for each of the sub-installations.

4.1 Product benchmark sub-installation

Figure 3 shows a product benchmark sub-installation. The dotted line shows the system boundaries of the sub-installation. The allocation is determined based on the production of the benchmarked product.

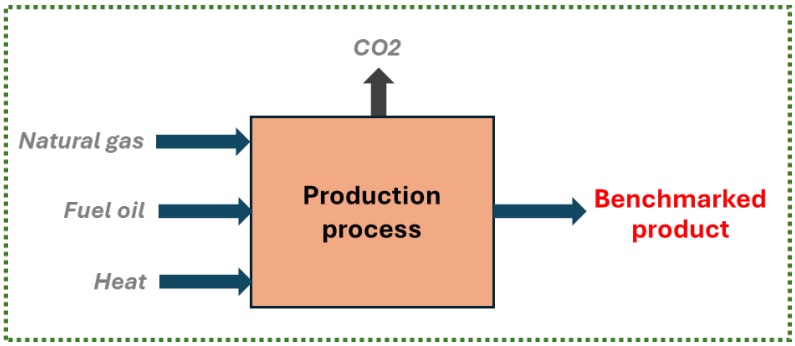


Figure 3 Example of product benchmark sub-installation

Following steps 1a and 1b for product benchmark sub-installations described in section 3.1, subsequent steps include the following.

Step 1c Determine the HAL

The HAL of each product benchmark sub-installation *p* (*HALp*) are expressed as the average annual production volumes of the benchmarked product. Product definitions and units of production are defined in the FAR and explained in 'UKETS18 FAR - Sector specific guidance'.

Step 1d Calculate preliminary free allocation

The preliminary annual amount of allocation for each product benchmark sub-installation is:

$$F_{p,k} = BM_p \times HAL_p \times CLEF_{p,k}$$

With:

$F_{p,k}$ annual preliminary allocation for product p in year k (expressed in UK allowances (UKAs)/yr)

BM_p product benchmark value for product *p* (expressed in UKAs/unit of product)

HAL_p historical activity level of product *p*, i.e. the arithmetic mean of the annual production in the baseline period as determined and verified in the baseline data collection (expressed in unit of product). See 'UKETS18 FAR - Sector specific guidance' for the unit of production to be used for different products

$CLEF_{p,k}$ carbon leakage exposure factor for product p in year k.

Exchangeability between fuel and electricity

In processes where either fuel or electricity can be used to produce heat or mechanical energy to produce an equivalent product (e.g. mineral wool), the choice of energy carrier should not influence the determination of the benchmark value. In such cases the indirect emissions have been accounted for when determining the benchmark value. Figure 4 illustrates how the benchmark curve (yellow curve) accounts for both direct (blue bar) and indirect (orange bar) emissions to define the benchmark value (in green) (see 'UKETS10 FAR - General guidance on the allocation methodology' for further details on how the curve is constructed).

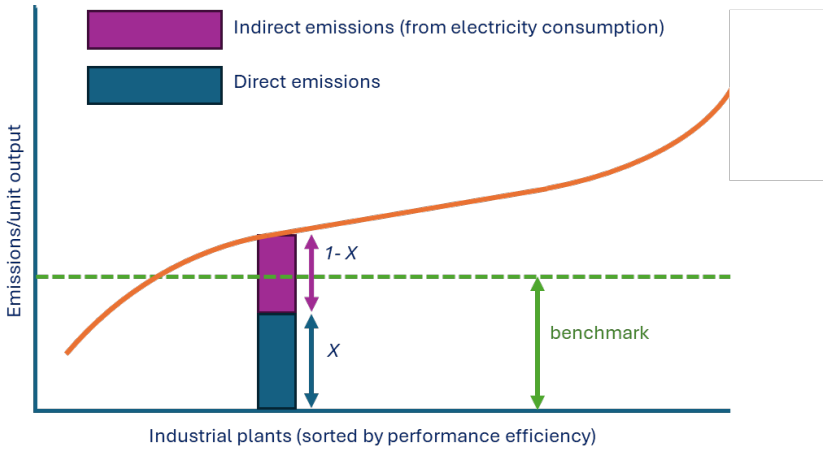


Figure 4 Definition of benchmarks in the case of exchangeability between fuel and electricity

Allocation should be based, however, on direct emissions only. To achieve consistency between the benchmarks and the allocation, for the product benchmarks concerned (as determined by point (2) of Annex I to the FAR), the preliminary allocation is calculated using a

ratio of direct and total emissions (see equation below). 'UKETS18 FAR - Sector specific guidance' provides additional guidance on sectors for which this applies.

If the benchmark is based on direct and indirect emissions, the preliminary annual amount of allocation is determined as follows:

$$F_{p,k} = \frac{Em_{direct} + Em_{NetHeatImport}}{Em_{direct} + Em_{NetHeatImport} + Em_{Elec}} \times BM_p \times HAL_p \times CLEF_{p,k}$$

With:

$F_{p,k}$ annual preliminary allocation for a product benchmark sub-installation in year *k* (expressed in UKAs/yr)

BM_p product benchmark (expressed in UKAs/unit of product)

HAL_p arithmetic mean annual production in the baseline period as determined and verified in the baseline data collection (expressed in units of product per year) for product p

Em_{direct} direct emissions within the system boundaries of the product benchmark sub-installation over the baseline period. These are the total cumulative emissions over the entire baseline period (2019-2023) irrespective of any changes in capacity, activity or operation that may have occurred. The direct emissions include the emissions due to the production of heat within the same UK ETS installation that is consumed within the system boundaries of the benchmarked production process. Direct emissions should exclude any emissions from electricity generation or net heat export/import from other UK ETS installations or non-UK ETS entities

$Em_{NetHeatImport}$ emissions from any net measurable heat import from other UK ETS installations and non-UK ETS entities over the baseline period by the product benchmark sub- installation. Irrespective of where and how the heat is produced, these emissions expressed in tonnes of CO2/yr are calculated as follows:

$$Em_{NetHeatImport} = NetHeatImport \times BM_{heat}$$

Where $NetHeatImport$ is the total net measurable heat imported from other UK ETS installations and non-UK ETS entities by the product benchmark sub-installation over the baseline period, expressed in TJ. This is the cumulative net heat import over the entire baseline period (2019-

2023) irrespective of any changes in capacity, activity or operation that may have occurred[27]

Em_{Elec} — indirect emissions from electricity consumption within the system boundaries of the product benchmark sub-installation over the baseline period. Irrespective of where and how the electricity is produced, these emissions expressed in tonne CO2/yr are calculated as follows:

$$Em_{Elec} = Elec\ use \times 0.376$$

Where $Elec\ use$ is the electricity consumption within the system boundaries of the production of the benchmarked product over the baseline period, expressed in MWh. This is total electricity consumption over the entire baseline period (2019-2023) irrespective of any changes in capacity, activity or operation that may have occurred

$CLEF_{p,k}$ — carbon leakage exposure factor for product p in year k.

Import of heat from non-ETS installations

The consumption of heat produced either by a non-UK ETS installation or by a sub-installation producing products covered by the nitric acid benchmark is not eligible for free allocation. Therefore, when a product benchmark sub-installation imports such heat, the allocation relating to this amount of heat should be subtracted from the total allocation. See 'UKETS15 FAR - Cross-boundary heat flows' for more guidance on this topic.

4.2 Heat benchmark sub-installation

Figure 5 shows a heat benchmark sub-installation. The dotted line shows the system boundaries of the sub-installation. The allocation is determined based on the net measurable heat consumption.

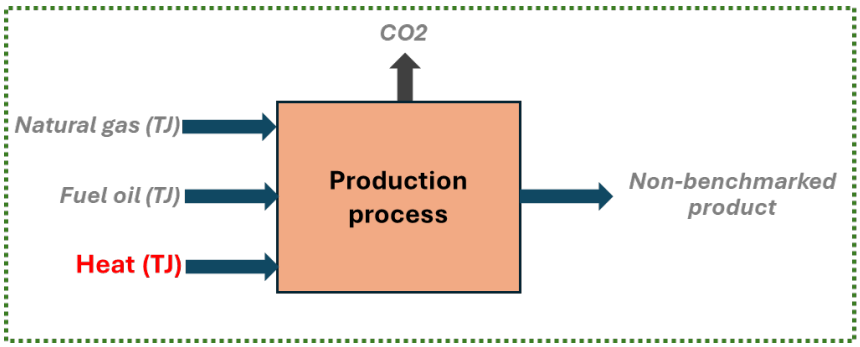


Figure 5 Example of a heat benchmark sub-installation

[27] Please note that the baseline data report template will automatically calculate the result using the BM_{heat} value.

Following steps 2a and 2b for heat benchmark sub-installations described in section 3.2, subsequent steps include the following:

Step 2c Determine the HAL

The annual HAL of a heat benchmark sub-installation (HAL_h) is expressed in TJ/yr and is the sum of:

- consumption of net measurable heat outside the boundaries of a product benchmark produced by the installation itself or another UK ETS installation, provided that the heat is not produced within the boundaries of a nitric acid product benchmark or used to produce electricity.
- net measurable heat production exported to non-UK ETS consumers (other than for the purpose of district heating) provided that the heat is not produced within the boundaries of a nitric acid product benchmark or used to produce electricity (see 'UKETS15 FAR - Cross-boundary heat flows' for more details on this topic).

In principle, no distinction is made between heat from different sources (see section 3, step 2a for further explanations).

The applicable methodologies as to which type of data should be used to calculate the HAL are described in section 4.9 of 'UKETS13 FAR - Monitoring and reporting in relation to the free allocation rules'

Step 2d Calculate preliminary free allocation

Calculate the preliminary annual allocation for each heat benchmark sub-installation using the following equation:

$$F_{h,k} = BM_h \times HAL_h \times CLEF_{h,k}$$

With:

$F_{h,k}$ preliminary annual allocation for the sub-installation based on the heat benchmark in year k (expressed in UKAs/yr)

BM_h heat benchmark, set at 47.3 UKAs/TJ[28]

HAL_h arithmetic mean annual consumption of net eligible heat, measured as the production and imported heat from UK ETS installations MINUS heat exported to non-UK ETS for the purpose of district heating in the baseline period, as determined and verified in the baseline data collection (expressed in TJ/yr) for the heat benchmark sub-installation

$CLEF_{h,k}$ carbon leakage exposure factor for the heat BM sub-installation in year k.

[28] This is the heat benchmark value for the first allocation period. This benchmark value will be updated for the second allocation period following review of the baseline data.

Only net heat flows are relevant, meaning that the heat content in the condensate or transfer medium returning to the heat supplier is subtracted.[29] Heat consumed as part of the heat production process (e.g. in the deaerator and for fuel pre-heating) is already accounted for as part of the heat benchmark; therefore, for the purpose of free allocation, such heat should be excluded from inclusion in a heat benchmark sub-installation. The value of the heat benchmark (in allowances/TJ) covers all emissions related to heat production but must only include net heat flows consumed outside the heat production system, meaning that heat losses within the installation are not included in the heat benchmark sub-installation.

Where heat is exported to non-UK ETS consumers (other than for the purpose of district heating), operators should use the net heat exported data instead of the net heat consumed (by the non-UK ETS entity) data. In this case the relevant allocation for the exported heat can be claimed by the heat producer. Generally, a non-UK ETS plant is not deemed to be exposed to a risk of carbon leakage. If an operator believes that the non-UK ETS heat consumer is deemed to be exposed to a risk of carbon leakage, they must provide sufficient proof of this to the regulator. See 'UKETS15 FAR - Cross-boundary heat flows' for more details.

4.3 District heating sub-installation

Figure 6 shows a district heating sub-installation. The dotted line shows the system boundaries of the sub-installation. The allocation is determined based on the measurable heat exported for district heating purposes.

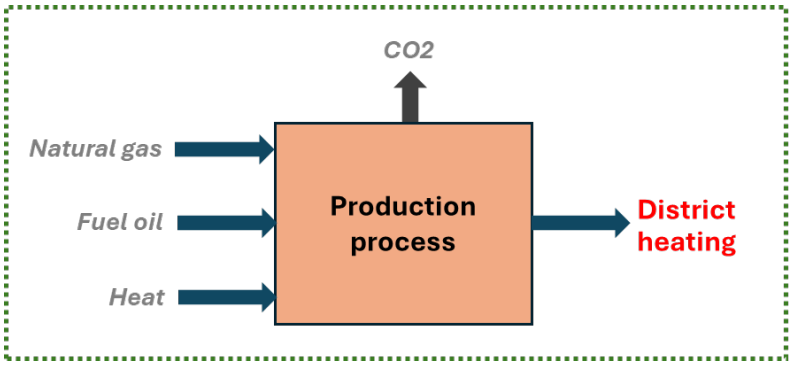


Figure 6 Example of a district heating sub-installation

Following steps 3a and 3b for district heating sub-installations described in section 3.3, subsequent steps include the following.

Step 3c Determine the HAL

The annual HAL of a district heating sub-installation (HAL_{DH}) is expressed in TJ/yr and is the net measurable heat exported for the purpose of district heating.

[29] Even if not all condensate is returned to the supplier, net measurable heat should be calculated assuming a 100% return of the condensate.

Step 3d Calculate preliminary free allocation

Calculate the preliminary annual allocation for the district heating sub-installation using the following equation:

$$F_{DH,k} = BM_h \times HAL_{DH} \times CLEF_{DH}$$

With:

$F_{DH,k}$ preliminary annual allocation for the district heating sub-installation in year k (expressed in UKAs/yr)

BM_h heat benchmark, set at 47.3 UKAs/TJ[30]

HAL_{DH} arithmetic mean annual export of measurable heat, either imported or produced on-site, by a UK ETS installation for the purpose of district heating in the baseline period as determined and verified in the baseline data collection (expressed in TJ/yr)

$CLEF_{DH}$ carbon leakage exposure factor for the district heating sub-installation (i.e. 0.3)[31]

Only net heat flows are relevant meaning that the heat content in the condensate or transfer medium returning to the heat supplier is subtracted.

4.4 Fuel benchmark sub-installation

Figure 7 shows a fuel benchmark sub-installation. The dotted line shows the system boundaries of the sub-installation. The allocation is determined based on the energy consumption.

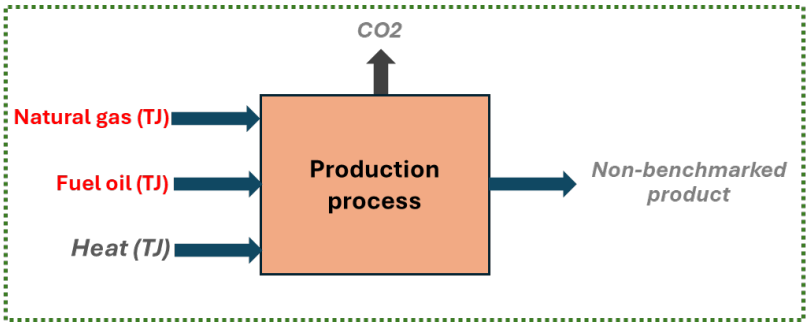


Figure 7 Fuel benchmark sub-installation

[30] This is the heat benchmark value for the first allocation period. This benchmark value will be updated for the second allocation period following review of the baseline data.
[31] The value of the CLEF for district heating for the second allocation period is subject to the outcome of the Free Allocation Review.

Following steps 4a and 4b for fuel benchmark sub-installations described in section 3.4, subsequent steps include the following:

Step 4c Determine the HAL

The annual of a fuel benchmark sub-installation (HAL_f) is the consumption of energy outside the boundaries of a product benchmark (expressed in TJ/yr), provided that the fuel is used to produce products, mechanical energy or heating/ cooling, and not to produce electricity or measurable heat. The annual HAL includes the amount of fuel used for safety flaring. Energy used for other purposes (e.g. waste treatment outside the boundaries of a product benchmark) is not considered.

If a fuel is not primarily used in a combustion process to produce non-measurable heat[32], this fuel must not be included in the HAL of the fuel sub-installation(s). For further details see 'UKETS17 FAR - Waste gases and process emissions sub-installation' .

Step 4d Calculate preliminary free allocation

Calculate the preliminary annual amount of allocation for each fuel benchmark sub- installation using the following equation:

$$F_{f,k} = BM_f \times HAL_f \times CLEF_{f,k}$$

With:

$F_{f,k}$ preliminary annual allocation for the sub-installation in year k (expressed in UKAs/yr)

BM_f fuel benchmark, set at 42.6 UKAs/TJ[33]

HAL_f arithmetic mean annual consumption of energy in the sub-installation (expressed in TJ/yr);

$CLEF_{f,k}$ carbon leakage exposure factor for the fuel sub-installation in year k.

4.5 Process emissions sub-installation

Figure 8 shows a process emissions sub-installation. The dotted line shows the system boundaries of the sub-installation. The allocation is determined based on the historical process emissions.

[32] as it is used for other chemical reactions producing waste gases (e.g. chemical reduction of metal ores, chemical syntheses, etc).
[33] This is the fuel benchmark value for the first allocation period. This benchmark value will be updated for the second allocation period following review of the baseline data.

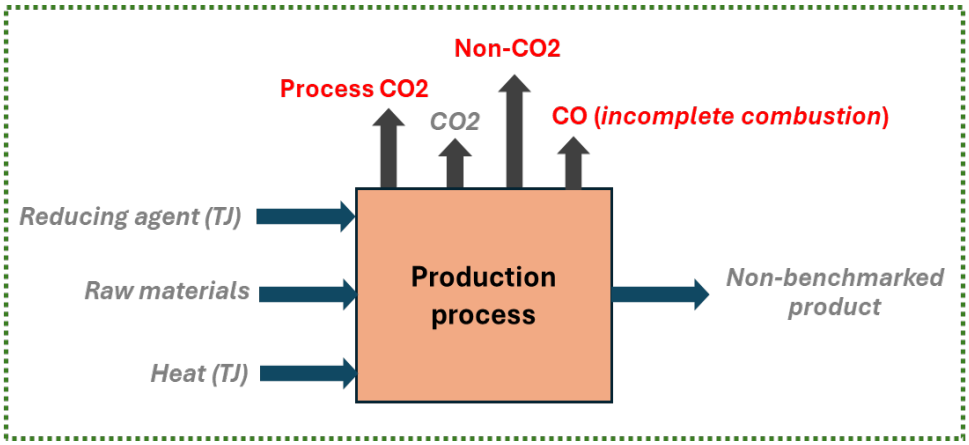


Figure 8 Process emissions sub-installation

Following steps 5a and 5b for process emissions sub-installations as described in section 3.5, subsequent steps include the following.

Step 5c Determine the HAL

The HAL of a process emission sub-installation (HAL_e) is the sum of:

- non-CO2 greenhouse gas emissions listed in Table C of Schedule 2 of the Order that are not covered by a product benchmark or by any other fall back approaches (type a process emissions)
- CO2 emissions as a result of any of the activities listed in step 5.a (type b process emissions)

Emissions arising from the combustion of incompletely oxidised carbon produced as a result of any of the activities listed in step 5a (see section 3.5) for the purpose of producing measurable heat, non-measurable heat or electricity, MINUS equivalent emissions from the combustion of natural gas with equal energy content as those waste gases, taking into account differences in energy conversion efficiencies. The allocation for incompletely oxidised carbon constitutes the allocation for waste gases (type c process emissions).

Step 5d Calculate the preliminary free allocation

Calculate the allocation for each sub-installation for which a historical emissions approach is applicable using the following equation:

$$F_{e,k} = PRF \times HAL_e \times CLEF_{e,k}$$

With:

$F_{e,k}$ preliminary annual allocation for the sub-installation in year k (expressed in UKAs/yr)

PRF process emissions reduction factor, which is set at 0.97 (dimensionless)

HAL_e arithmetic mean of the “process emissions” of the sub-installation (expressed in t CO2eq/yr)

$CLEF_{e,k}$ carbon leakage exposure factor for the process emissions sub-installation in year k.

For type b process emissions sub-installations, the HAL is based on the CO2 emissions for the baseline period.

When waste gases are combusted for a different purpose other than producing measurable heat, non-measurable heat or electricity) the HAL should be based on the assumption that 75% of the carbon content of the gas mix is fully oxidised (CO2).

For further guidance on process emissions resulting from combusting waste gases,[34] see ‘UKETS17 FAR - Waste gases and process emissions sub-installation’.

[34] Including waste gases occurring outside the boundaries of product benchmarks in open furnaces.

5 Preliminary and final allocation per installation

5.1 Preliminary allocation

The preliminary total annual number of emission allowances (including the CLEF, as per the equation in section 2.2) per installation is calculated by summing the allowances across sub-installations:

$$F_{inst,k} = \sum_i F_{i,k}$$

With:

$F_{inst,k}$ preliminary total allocation for the installation in year k

$F_{i,k}$ preliminary allocation for sub-installation i in year k.

5.2 Final allocation

For installations not classified as an "electricity generator" the final total annual number of allowances is determined by:

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

With:

$F_{inst}^{final}(k)$ final total allocation for the installation in year k

$CSCF_k$ cross-sectoral correction factor in year k (if necessary).

If the CSCF applies in any year,[35] the final total annual number of allowances for installations classified as an "electricity generator" is determined in the same way as above. However, in years the CSCF does not apply, the final total annual number of allowances is determined by:

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

[35] The 'CSCF applies' means that the CSCF value is below 1 in any year leading to downwards adjustments of the allocation.

Where:

$F_{inst}^{final}(k)$ final total allocation for the installation in year k

$F_{inst,k}$ final preliminary allocation for the installation in year k.

LRF_k linear reduction factor, a reduction of 2.2% annually from 0.8562 in 2021. See column 3, Table A in Article 16a(6) of the FAR for the reduction factor per year.

6 Determination of historical activity levels

6.1 Default approach to determining historical activity levels

As indicated in the steps described in the previous chapter, the typical method to determine the HAL of a sub-installation is to take the arithmetic mean value of the annual activity levels of the sub-installation in the baseline period (2019-2023) for the second allocation period, so:

$$HAL = mean_{2019-2023}(annual\ activity\ levels)$$

All years in the baseline period in which the installation has been operating for at least 1 day should be included (See Article 15(7) of the FAR).

Consequently, in some cases, a sub-installation may have zero activity in a year, if at least one other sub-installation has been operating. This is particularly relevant for installations that have produced different benchmarked products in the same production line. The following examples demonstrate that the standard methodology also works for such cases.

Example 1

A glass factory has a glass production line in which both coloured and colourless glass bottles can be produced. The two types of products are covered by two different product benchmarks, with the activity levels during 2019-2023 in Table 4 below.

Table 4: Historical activity levels of a glass-producing installation

	2019	2020	2021	2022	2023
Coloured glass bottles	800	800	0	0	800
Colourless glass bottles	0[36]	0	800	800	0

The installation is covered by two product benchmarks; hence two sub-installations are relevant. To determine the HAL for each product benchmark sub-installation, the operator must calculate the arithmetic mean of the annual production over the baseline period in which the installation (i.e. the whole installation, rather than each individual sub-installation alone) has been operating for at least one day, following Article 15(7) of the FAR:

$$HAL_{coloured\ glass} = mean_{2019-2023}(800, 800, 0, 0, 800) = 480$$

$$HAL_{colourless\ glass} = mean_{2019-2023}(0, 0, 800, 800, 0) = 320$$

[36] In this instance, the AL value of 0 is considered in the calculation of the HAL because the sub-installation has been operating in previous years. If the sub-installation had started operating in 2021, then years 2019 and 2020 would not have been considered in the calculation of the HAL. See section 6.2 for guidance on such cases.

The sum of the HALs for the whole installation is 800 and reflects the historical activities of the glass factory.

Example 2

A paper mill has a paper production line in which three types of paper can be produced: newsprint, uncoated fine paper and coated fine paper. The three types of products are covered by three different product benchmarks. The following activity levels occurred during 2019-2023.

Table 5: Historical activity levels of a paper-producing installation

	2019	2020	2021	2022	2023
Newsprint	800	0	500	700	0
Uncoated fine paper	200	600	0	300	500
Coated fine paper	0[37]	400	500	0	500

The installation is covered by three product benchmarks; hence three sub-installations are relevant. To determine the HAL for each product benchmark sub-installation, the operator must calculate the arithmetic mean of the annual production over the baseline period in which the installation (i.e. the whole installation, rather than each individual sub-installation alone) has been operating for at least one day, following Article15(7) of the FAR

$$HAL_{newsprint} = mean_{2019-2023}(800, 0, 500, 700, 0) = 400$$

$$HAL_{uncoated\ fine} = mean_{2019-2023}(200, 600, 0, 300, 500) = 320$$

$$HAL_{coated\ fine} = mean_{2019-2023}(0, 400, 500, 0, 500) = 280$$

The sum of the HALs for the whole installation is 1000. As in the first example, the results reflect the production levels.

6.2 Determination of the HAL when not operating for the full baseline period

Special provisions apply if the HAL does not apply for the entire baseline period. The FAR distinguish two situations:

- a sub-installation has been operating for less than two calendar years, and

[37] As previously, in this case the AL value of 0 is considered in the calculation of the HAL because the sub-installation has been operating in previous years. If the sub-installation had started operating in 2020, then year 2019 would not have been considered in the calculation of the HAL. See section 6.2 for guidance on such scenarios

- a sub-installation has not been operating for a full calendar year since the start of normal operations.

If a sub-installation has been operating for less than two calendar years during the relevant baseline period, the HAL is determined as the activity level of the first calendar year of operation after the start of normal operation of the sub-installation. This approach is applicable to all sub-installations within an installation that start normal operations after 1st January 2022.

If, over the baseline period, a sub-installation has not been operating for a full calendar year after the start of normal operation, the HAL shall be determined when the activity level report (ALR) is submitted, after the first full calendar year of operation. This approach is applicable to all (sub-) installations that start normal operation after 01 January 2023. In these cases, the operator will be unable to calculate the HAL as part of the baseline data collection exercise. However, the HAL will be calculated as part of subsequent ALR reporting, before the start of the second allocation period.

Prior to the 2025 scheme year, no specific approach was necessary to account for the cessation of a (sub-) installation or change in production during the baseline period. Any such change was regulated by the activity level change rules. For more guidance, please see 'UKETS16 FAR - Guidance on allocation level changes' for details on new entrants and closures. (for the new obligations from the 2025 scheme year onward, please see section 6.3 below).

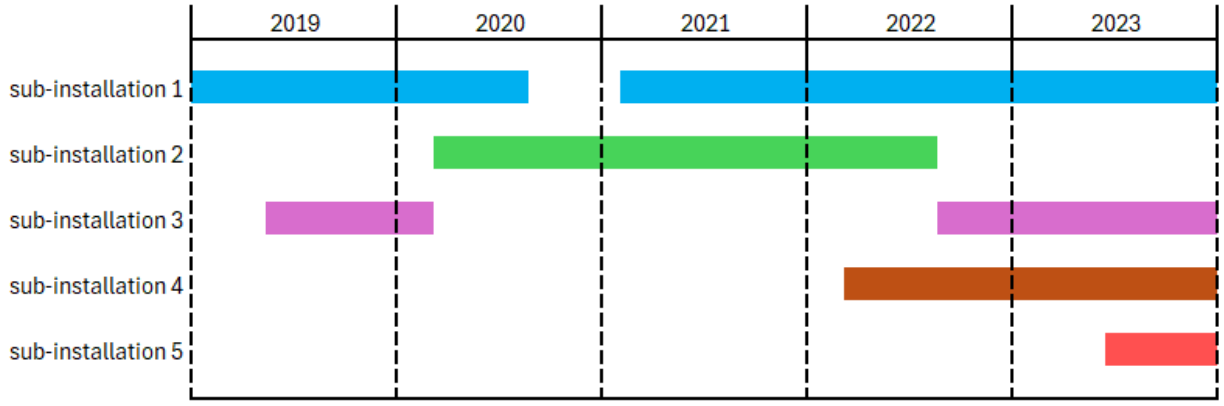
The 'start of normal operation' is defined as the first day of operation (Article 2(12) of the FAR). The "first day of operation" is defined as the first day the activity level is higher than 0.

The text box below covers several examples of how to consider the differing operation of sub-installations during the baseline period when determining the HAL.

Examples of calculating the HAL when not operating during the entire baseline period

The following example illustrates how different sub-installations must be treated when determining the HAL. The appropriate treatment depends on the year when they start operating and how they operate in the following years during the baseline period.

In this example, several sub-installations are presented, including the years in which they were operating during the baseline period. It is assumed that sub-installations 2, 4 and 5 start normal operation during the baseline period, i.e. they have never operated before. Several examples of installations are set out, consisting of one or more of the listed sub-installations.



Installation	Consisting of	Years to be taken into account for HAL for each sub-installation					Sub-installation operating < 2 calendar years?	If yes, year relevant for HAL
		2019	2020	2021	2022	2023		
A	Sub-inst. 1	x	x	x	x	x	No	N/A
B	Sub-inst. 2		x	x	x		No	N/A
C	Sub-inst. 3	x	x		x	x	No	N/A
D	Sub-inst. 4				x	x	Yes	2023
E	Sub-inst. 5					x	Yes	2024
F	Sub-inst. 1 Sub-inst. 2	x	x x	x x	x x	x x	No No	N/A N/A
G	Sub-inst. 1 Sub-inst. 3	x x	x x	x x	x x	x x	No No	N/A N/A
H	Sub-inst. 2 Sub-inst. 3	x	x x	x x	x x	x x	No No	N/A N/A
I	Sub-inst. 4 Sub-inst. 5				x	x x	Yes Yes	2023 2024
J	Sub-inst. 3 Sub-inst. 4	x	x		x x	x x	No Yes	N/A 2023

In summary:

- if a sub-installation A starts operating during the baseline period in year Y, the HAL can only be calculated using data starting from year Y (i.e. in case several sub-installations are included in the installation, this sub-installation will NOT have an AL of 0 in year Y-1). This is the case for sub-installation 2 that started operating in 2020. Operators should exclude year 2019 when calculating the HAL for sub-installation 2.

- with the exception of situations described in the previous bullet, the HAL must be calculated using every year during the baseline during which AT LEAST ONE sub-installation has been operating (if a sub-installation does not operate during one or more of the years of the baseline, but another sub-installation does, these years are to be counted using an AL of 0 – see examples in section 6.1). In the example of installation C, 2021 is not included in the HAL calculation as the sub-installation was not operating that year, and installation C has no other sub-installations. However, year 2021 must be included when calculating the HAL for sub-installation 3 within installation H;, even

though the AL is 0 for that year, installation H had been operating for at least one day that year (with sub-installation 2).

- if a sub-installation operates less than 1 calendar year during the baseline period, its HAL will be based on the AL of the first full calendar year of operation. In the example above, the HAL for sub-installation 5 will be based on the AL during 2024.

For new entrants, the same approach for calculating the number of free allowances applies as it does for incumbents, i.e. multiplying the HAL with the benchmark value[38]. For the first two years of operation, the new entrant will calculate the preliminary annual number of emission allowances using the actual activity level of the respective year.

For more detailed guidance on allocation for new entrants and how to determine the change in allocation as a result in changes in activity level see 'UKETS16 FAR - Guidance on allocation level changes'.

6.3 Free allocation rules and cessations from the 2025 scheme year onwards

The following obligation applies in relation to activity level reports prepared in relation to the 2025 scheme year onwards.

Where all operations have ceased to be carried out at a sub-installation (whether that cessation is permanent or not) the relevant ALR must include:

- the date of the cessation
- whether the operator intends for operations to resume at the sub-installation.

If the operator intends for operations to resume at the sub-installation, the report must also include (as per Article 3(9) of the ALCR):

- the date by which it expects operations to resume
- whether the sub-installation is technically capable of resuming operations without physical changes being made or the operator intends for that technical capability to be restored.

If an installation receives free allowances and it has ceased operation, the operator is required to submit a report on its installation's activity levels in the final year of operation (see paragraph 1a of Article 3 of the ALCR). This is to facilitate the application of the Final Year Rule.

The "Final Year Rule"

The Final Year Rule applies where, on or after 6 February 2025,[39] either:

[38] And any other correction factors (such as CLEF) as applicable.
[39] the date upon which the relevant amendments to the 2020 Order came into force

- a FA installation ceases operation in a scheme year (i.e. all regulated activities permanently cease to be carried out at the installation)
- the surrender or revocation of a FA installation's greenhouse gas emissions permit takes effect in a scheme year, or
- a sub-installation of a FA installation ceases operation in a scheme year (i.e. all operations permanently cease to be carried out at that sub-installation), (the "final free allocation year").

The effect of this rule is that the regulator must re-calculate the allocation for each sub-installation that has ceased operation (or, where the relevant permit has been surrendered or revoked, each sub-installation which makes up the installation).

Where an installation or sub-installation has not "ceased operation" (and where the permit has not been surrendered or revoked), including where the relevant cessation is temporary only, the normal ALC rules apply. Your regulator will re-calculate the allocation for each relevant sub-installation based on the activity levels set out in the ALR covering the final free allocation year (Article 3za of the ALCR).

All free allocation entitlements in respect of scheme years after the final free allocation year are set to zero.

Operators can apply for an exemption from the Final Year Rule when a product benchmark sub-installation ceases operation as part of a series of changes that result in the decarbonisation of production at the installation. For further information refer to "UKETS16A FAR – Guidance for installations ceasing operation".

7 Additional examples

This chapter provides some additional examples to illustrate how to calculate the allocation for different installations.

7.1 Installation with no product benchmarks and different carbon leakage statuses

The example installation in Figure 9 below produces three products (A, B, and C) of which A and B are deemed to be exposed to a significant risk of carbon leakage, and C is not.

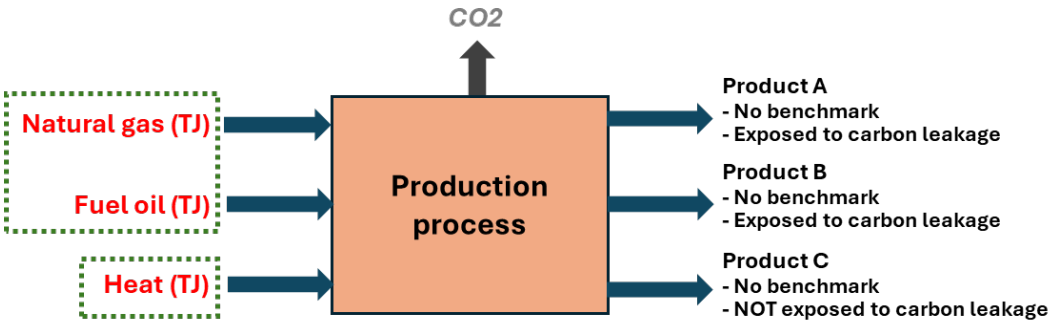


Figure 9 How many sub-installations are present in this installation?

As there is no applicable product benchmark for products A, B, and C, the fall-back approaches should be used. Where no eligible process emissions arise, only heat and fuel benchmarks can be used. As the carbon leakage status is not the same for all the products, there will be four sub-installations in total:

1. Heat benchmark for products deemed exposed to Carbon Leakage (A and B)
2. Heat benchmark for products not deemed exposed to Carbon Leakage (C)
3. Fuel benchmark for products deemed exposed to Carbon Leakage (A and B)
4. Fuel benchmark for products not deemed exposed to Carbon Leakage (C)

To calculate the HAL for each sub-installation, only the share of heat (or energy from fuel) necessary to produce the relevant product(s) should be included:

- the HAL of sub-installation 1 must be based on the measurable heat consumed to produce products A and B only
- the HAL of sub-installation 2 must be based on the measurable heat consumed to produce product C only

- the HAL of sub-installation 3 must be based on the energy content of fuel combusted to produce products A and B only, excluding any fuel combusted to produce measurable heat
- the HAL of sub-installation 4 must be based on the energy content of fuel combusted to produce product C only, excluding any fuel combusted to produce measurable heat

For guidance on the data to be used, see 'UKETS12 FAR - Guidance on completing the 2025 Baseline Data Collection and applying for HSE/USE status'.

7.2 A CHP installation

The example CHP installation in Figure 10 below produces both heat and electricity where

- the production of electricity is not eligible for free allocation
- the production of heat is eligible for free allocation

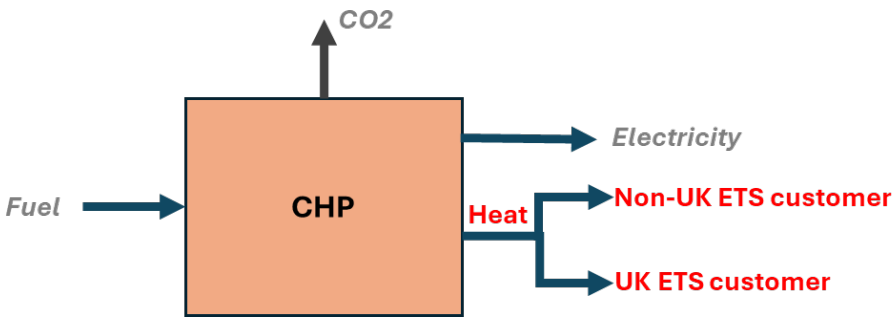


Figure 10 Schematic diagram of CHP installation

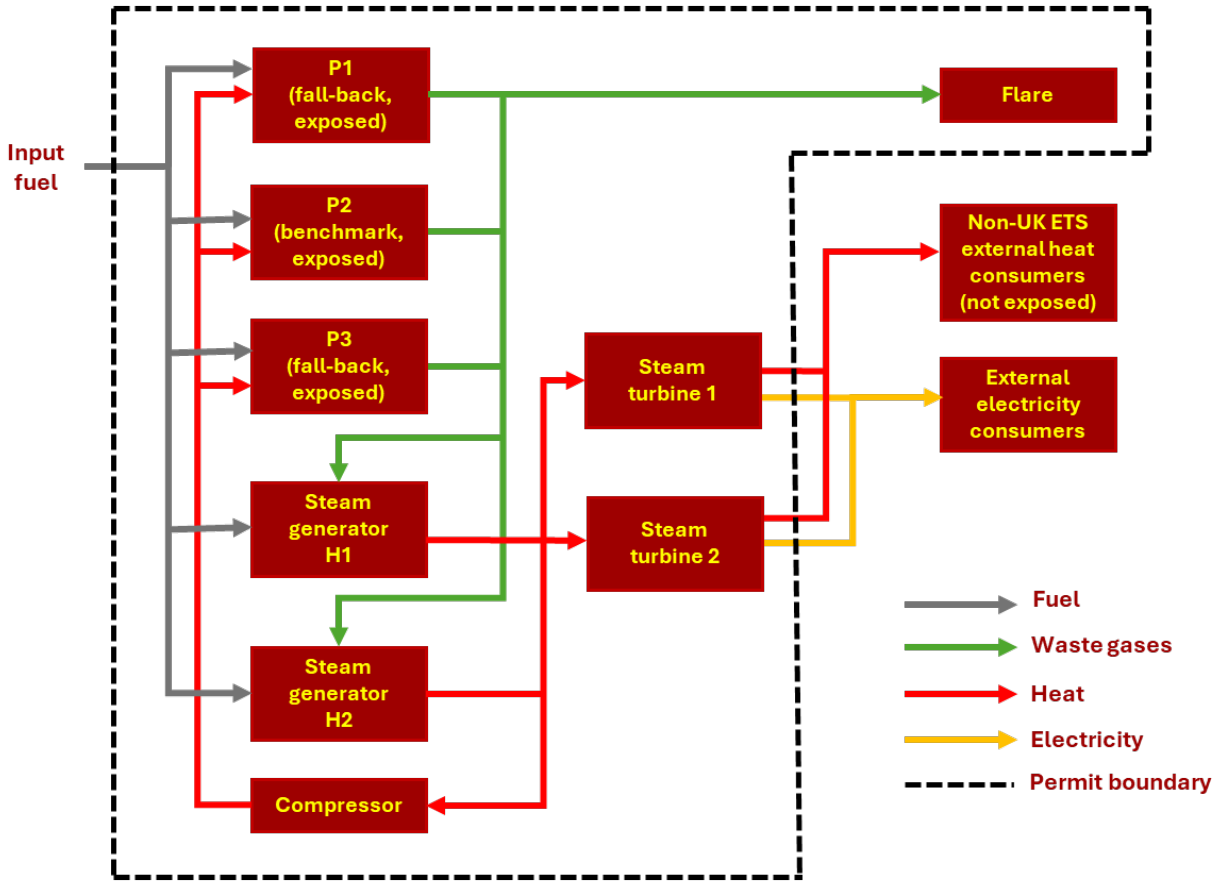
The CHP installation will not receive any free allocation for any heat exported to another ETS consumer, as the other ETS heat consumer will receive the free allowances for the heat it consumes.

The CHP installation will receive free allocation under a heat benchmark for heat exported to non-ETS consumers, and for heat consumed at the installation, as long as the heat is not used to produce electricity. Only this portion of the total heat produced by the CHP should be included in the HAL relevant for the heat benchmark sub-installation of the CHP.

By default, non-UK ETS consumers are not deemed to be exposed to a risk of carbon leakage. If the CHP operator is able to prove that one of the non-UK ETS heat consumers is deemed to be exposed to a risk of carbon leakage, then the operator may need to split the sub-installation into 2 heat benchmark sub-installations: one to include heat supplied to non-UK ETS heat consumers that are deemed to be exposed to a risk of carbon leakage, and one to include heat supplied to non-ETS consumers who are not deemed to be exposed.

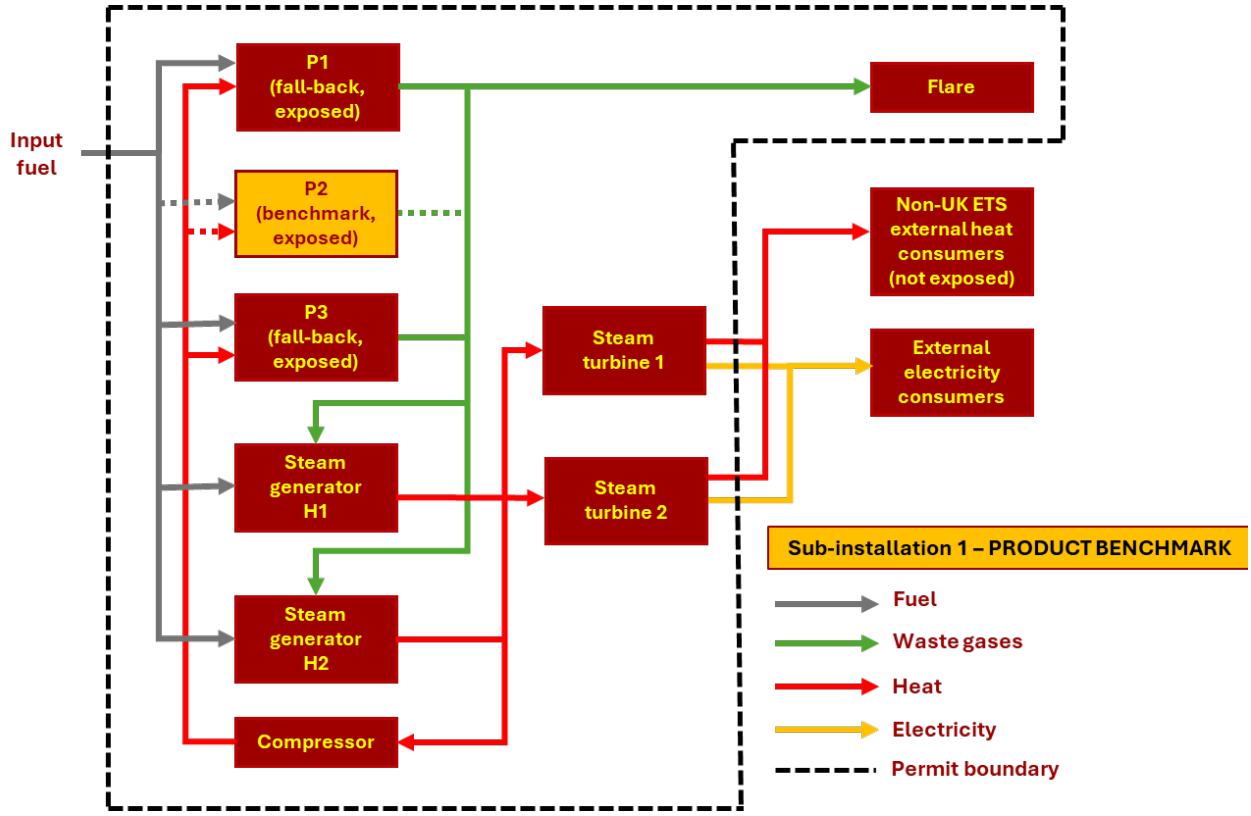
7.3 A complex installation

Frame 1 – combining all methodologies



- each box depicts a physical unit where one or more industrial processes take place
- to avoid a crowded figure, greenhouse gas emissions are not shown in this example, but are relevant and should be attributed to each process unit
- the coloured lines depict energy flows to and from process units
- P1, P2, and P3 refer to three process-units in which a product is made
  - P2 produces a benchmarked product
  - P1 and P3 produce products that are not covered under a product benchmark
- carbon leakage
  - P1, P2 and P3 are subject to a significant risk of carbon leakage
  - The external heat consumers are not
- no safety flaring occurs

Frame 2 – product benchmark



Step 1a: Define one or more product benchmark sub-installations

- the installation has 1 product with a product benchmark (hence, n=1). Process unit P2 manufacturers this product

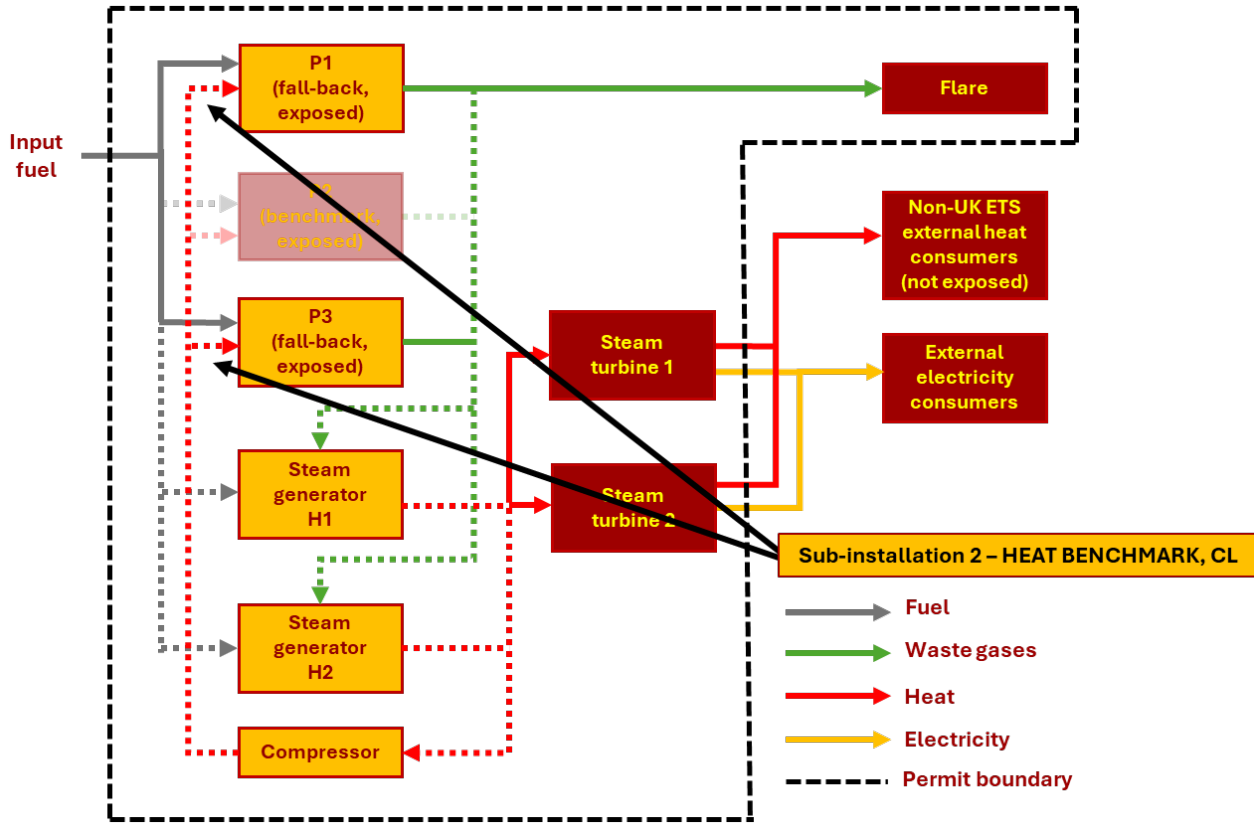
Step 1b: Attribute relevant inputs and outputs

- the relevant energy flows for sub-installation 1 are shown as dashed arrows
- in sub-installation 1 (P2) fuel and heat are inputs, waste gases and emissions (not shown) are outputs, and must be attributed to the sub-installation
- the amount of fuel and heat input (in units of energy) do not influence the amount of free allocation to sub-installation 1, however they are relevant because they should not be attributed to other sub-installations

Step 1c: Determine the HAL

- the historical activity level of sub-installation 1 is based on the historical production levels of product P2

Frame 3 – heat benchmark; carbon leakage exposed



Step 2a: Define one or two heat benchmark sub-installations

- the installation consumes measurable heat outside the boundaries of a product benchmark (P1 and P3) and exports heat to non-UK ETS consumers
- the process units (P1 and P3) produce products that are exposed to a significant risk of carbon leakage, whereas the non-UK ETS consumers are not. Therefore, two heat benchmark sub-installations need to be defined

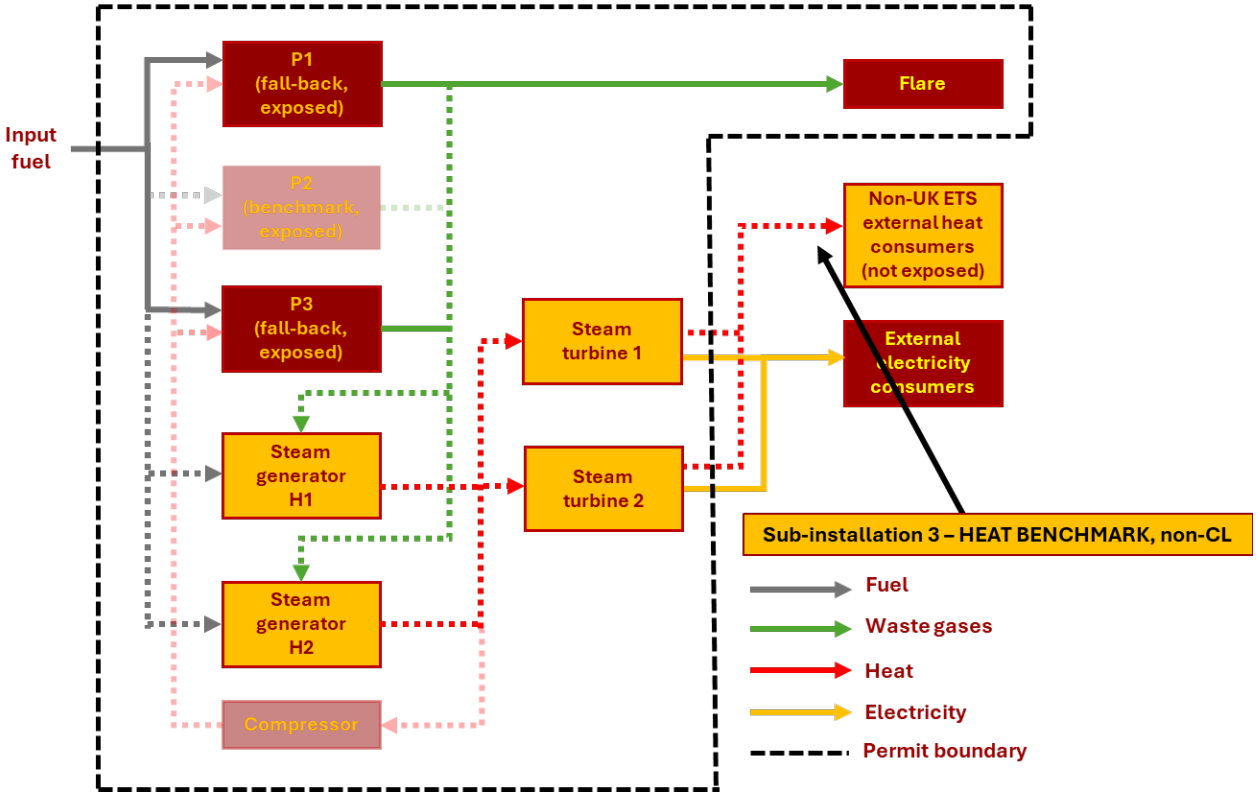
Step 2a and 2b: attribute relevant inputs and outputs (Sub-installation 2)

- sub-installation 2 includes heat consumed by P1 and P3, emissions from the production of this heat and energy flows used to produce this heat
- the heat is produced by the combustion of waste gases and fuel in the 2 steam generators (H1 and H2); part of the heat produced by the steam generators is also consumed by other consumers. Sub-installation 2 therefore includes a portion of the waste gases and fuel combusted in the steam generators, and for a portion of the corresponding emissions

Step 2c: Determine historical activity level (Sub-installation 2)

- the HAL of sub-installation 2 is based on the sum of heat consumed by P1 and P3

Frame 4 – heat benchmark; non-carbon leakage exposed



Step 2a and 2b: attribute relevant inputs and outputs (Sub-installation 3)

- sub-installation 3 includes measurable heat consumed for the production of products *not* deemed exposed to a significant risk of carbon leakage. In this example the consumers are non-ETS, and the allocation is therefore given to the producer of the heat (as no allocation can be given to a non-UK ETS plant).

If the external heat consumer was another UK ETS installation, the FA would be given to the heat consumer, and this sub-installation would not be part of the installation.

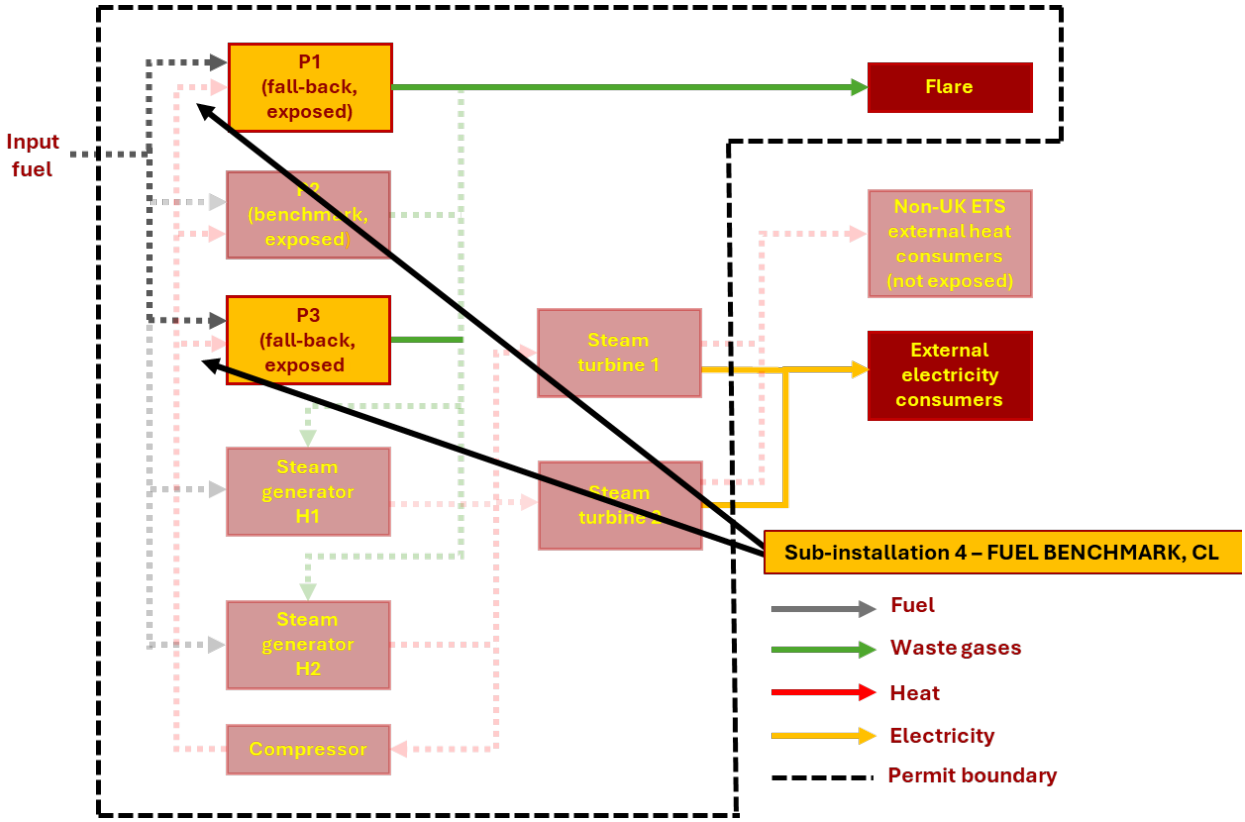
- as in sub-installation 2, sub-installation 3 includes a portion of the waste gases and fuel combusted in the steam generators, and a portion of the corresponding emissions.[40] Sub-installations 2 and 3 together cover the total amount of fuels used to generate the measurable heat and the corresponding emissions from this heat.

Step 2c: Determine historical activity level (Sub-installation 3)

- the HAL of sub-installation 3 is based on heat exported to the non-UK ETS consumers.

[40] looking at only the "consumer part" of the emissions from the waste gases – see 'UKETS17 FAR - Waste gases and process emissions sub-installation' for additional guidance.

Frame 5 – fuel benchmark; carbon leakage exposed



Step 3a: Define one or two fuel benchmark sub-installations

- the example installation contains two process units (P1 and P3) in which fuel is combusted for direct heating purposes. Both units produce products which are deemed exposed to carbon leakage and are therefore covered under the same sub-installation (sub-installation 4)

Step 3b: Attribute relevant inputs and outputs (Sub-installation 4)

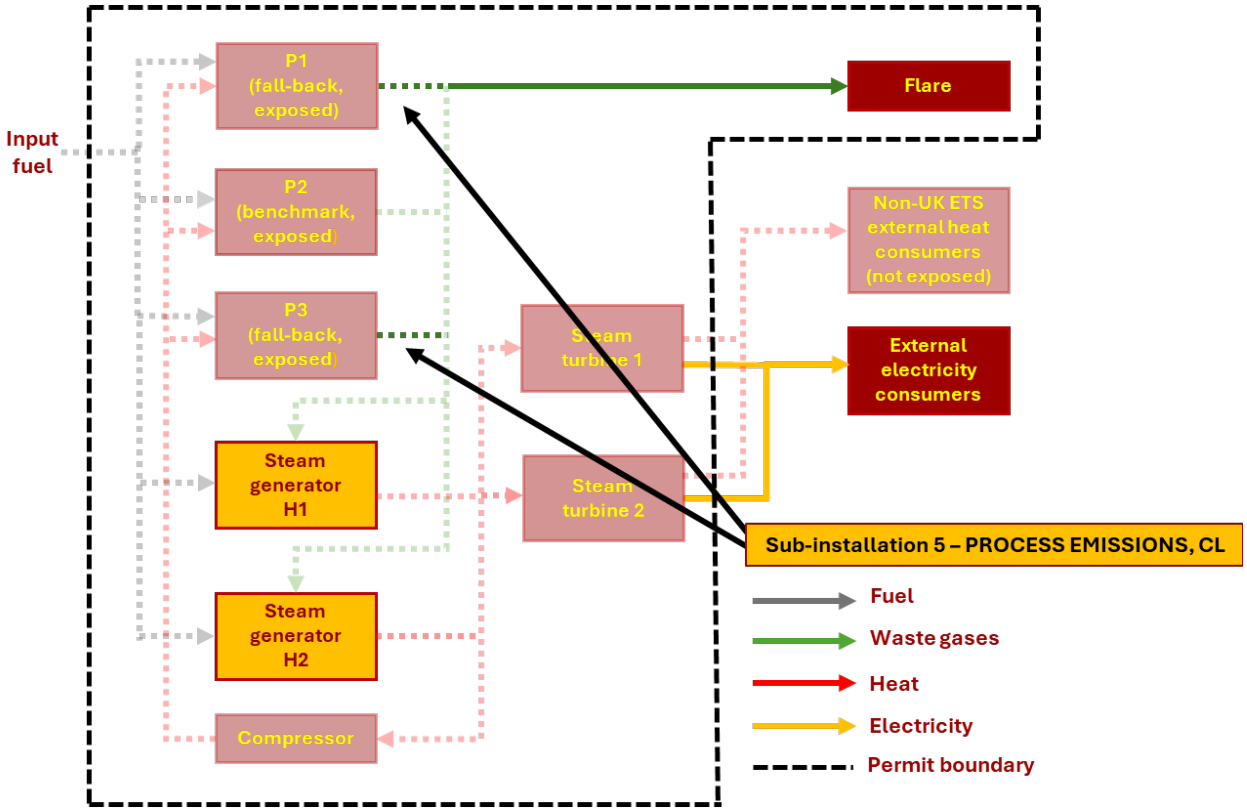
- relevant inputs are energy from fuel combusted in P1 and P3, relevant outputs are corresponding emissions from the fuel combusted

If safety flaring had occurred in this example the fuel and/or waste gases consumed for safety flaring would also have been a relevant input.

Step 3c: Determine historical activity level (Sub-installation 4)

- in this example, part of the fuel is converted into waste gases, so care must be taken when calculating the HAL of sub-installation 4: the HAL must exclude the portion of fuel which is converted into waste gases (see 'UKETS17 FAR - Waste gases and process emissions' where further guidance is given based on this example).

Frame 6 – process emissions, CL



Step 4a: Define one or two process emissions sub-installations

- in our example plant, waste gases produced by P1 and P3 (producing products which are deemed exposed to carbon leakage) can be either flared (not for safety reasons) or used for combustion in the steam generators.
- flaring (other than safety flaring) is not eligible for free allocation, and the waste gases combusted in the steam generators have been included in the 2 heat benchmarks (frames 3 and 4).
- hence, sub-installation 5 accounts for the production of waste gases from P1 and P3 as process emissions.

Step 4b: Attribute relevant inputs and outputs (Sub-installation 5)

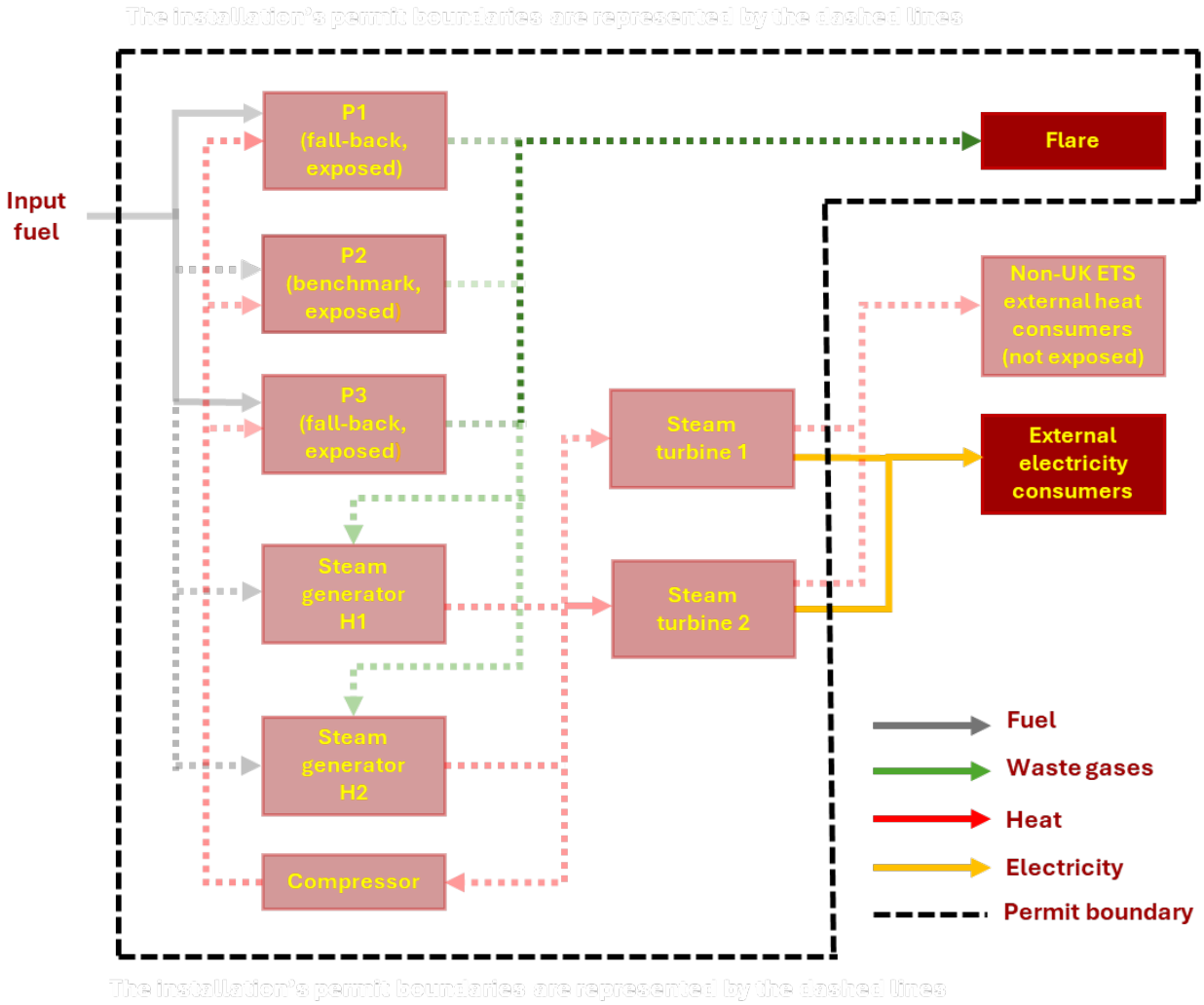
The relevant inputs and outputs are:

- the amount of CO2 in the waste gas
- the amount of incompletely combusted carbon in the waste gas that is not flared
- the energy content of the waste gas that is not flared
- the fuel needed to produce the waste gas

Step 4c: Determine historical activity level (Sub-installation 5)

- the HAL is the CO2 contained in the waste gases (completely oxidised carbon contained in the waste gases) plus the emissions originating from the combustion of incompletely combusted carbon in the waste gases that are not flared, MINUS the equivalent emissions from the combustion of natural gas with the same energy content. Note that the allocation for waste gas use goes to the consumer of the waste gas and not to the producer. This is not relevant in this example as the waste gas is both produced and consumed in the same installation. For additional guidance on allocation for emissions from waste gases, see 'UKETS17 FAR - Waste gases and process emissions'.

Frame 7 – non-eligible emissions



The last part of the exercise to split an installation into sub-installations is to attribute non-eligible emissions, i.e. emissions due to electricity production or flaring (other than safety flaring). As these emissions are not eligible for free allocation, they are not accounted for under a sub-installation. Instead, they are attributed as memo items in the full list of activities and emissions to ensure nothing is unaccounted for or double counted, etc.

At this stage, the operator should check that all identified sources (such as energy inputs and emissions) have been either attributed to a sub-installation or listed in the non-eligible section; each (part of a) source can only be attributed once.

This publication is available from: www.gov.uk/government/publications/uk-ets-2025-baseline-data-collection-and-hseuse-scheme-status-how-to-meet-the-data-submission-requirements

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