

Draft Discussion paper

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Allocation rules – EU ETS post 2012

Disclaimer

The views expressed in this paper represent only the views of the authors and not those of the European Commission. The present draft is work in progress and can by no means be regarded as a final document.

1 INTRODUCTION

The aim of this discussion paper is to outline the allocation rules to be applied by Competent Authorities to calculate the preliminary total amount of free allocation for an individual installation. The (final) total amount can only be calculated once the cross-sectoral correction factor has been determined by the Commission (if applicable).

The definition of obligations of installations and Member States as well as requirements regarding baseline data collection, data formats, data quality and verification requirements are outside the scope of this discussion paper and will be dealt with separately.

The discussion paper aims at stimulating the discussions on allocation rules in view of the preparation of the legal text and should serve as basis for testing activities carried out by Member States.

The present draft is work in progress. It will be continuously further elaborated by Umweltbundesamt GmbH (Austria) working in close contact with DG Climate Action on these issues. This discussion paper is intended to stimulate the discussion with Member States, to support pilot studies on allocation by Member States, and to invite for contribution of proven best practices from earlier allocation exercises.

2 KEY ELEMENTS OF THE CIMS

The CIMS (transitional Community-wide and fully harmonised implementing measures pursuant to Article 10a(1) of the EU ETS Directive¹) will provide the necessary elements for the calculation of the preliminary total amount of free allocation of allowances for an individual installation:

- Determination of the eligibility for free allocation
- General allocation methods (based on product benchmarks and fallback approaches) including formulae for the calculation of free allocation for installations

¹ Directive 2003/87/EC, most recently amended by Directive 2009/29/EC, making it the so-called "revised EU ETS Directive".

- Calculation rules and values for the input variables for the general allocation methods
- Rules for specific product benchmarks
- Correction of allocation for cross-boundary heat flows

These elements are described more in detail in the following sections.

The sequence of application of these elements to calculate the free allocation for an installation is summarised in the annex (10.1) in a flow chart.

3 ESTABLISHING THE LIST OF INSTALLATIONS

3.1 Scope of the EU ETS

The Guidance on interpretation of Annex I of the EU ETS Directive provided by the Commission and endorsed by the Climate Change Committee² shall be respected.

3.2 Incumbents and new entrants

As it is relevant to identify each installation as "incumbent" or "new entrant", the following criteria have to be assessed. *[This section is subject to more elaborated rules which will be inserted in section 6, especially regarding a definition of new entrants will be provided.]*

Incumbents are not defined in the EU ETS Directive. For the purpose of this discussion paper, an incumbent is considered any installation within the scope of the EU ETS, which is not a new entrant (For definition of "new entrant" see section 6.1). An incumbent must meet two criteria:

Criterion 1: Installations must be carrying out one or more of the activities indicated in Annex I or an activity opted-in under Article 24 for the first time³.

Criterion 2: The installation must have obtained a greenhouse gas emissions permit before 30 June 2011.

Installations entering the EU ETS in 2013 due to the extended scope of the Directive do not automatically meet the second criterion, even if they already operating at that time and are therefore "existing" installations. Equal treatment should be achieved for all "existing" installations (i.e. those already in the EU ETS before 2013 and those entering the EU ETS in 2013). Therefore it is important that competent authorities issue greenhouse gas emissions permits to existing installations not yet participating in the EU ETS in the 2008-12 trading period before 30 June 2011, so that they can be regarded as "incumbent" installations.

² Weblink / Reference to the minutes of the respective Climate Change Committee meeting is to be added as soon as available.

³ The ETS Directive doesn't mention a deadline for this first inclusion by opt-in. For practical reasons, it might be safe to limit the incumbent case to before 30 June 2011.

Where an incumbent extends its capacity significantly after 30 June 2011, only the capacity beyond the already existing capacity is considered new entrant. Treatment of significant capacity changes during the reference period for the baseline data collection is discussed in more detail in section 4.10.

3.3 Eligibility for free allocation

The CA will have to assess whether free allocation can be granted in accordance with Article 10a (3) and (4). *[More guidance will be provided at a later stage.]* The eligibility for free allocation pursuant to Article 10c is outside the scope of this discussion paper.

In some cases the CA will come to a final decision only after detailed information such as from the baseline data collection has been provided by the operator of the installation.

3.4 National Implementing Measures

The National Implementation Measures (NIMs) pursuant to Article 11(1) will list all installations to be included in the EU ETS from 2013 onwards, and the amount of allocation which the installations get for free pursuant to Articles 10a(1) and 10c. The NIMs will include all installations, including also those with zero allocation (e.g. electricity generators without heat production covered by Article 10c). Small emitters which a Member State may choose to exclude from the EU ETS pursuant to Article 27 of the EU ETS Directive have to be listed as well. As the Commission may assess and where appropriate reject such exclusions, these small emitters have to be considered as installations within the EU ETS in this first step.

4 ALLOCATION RULES AS PART OF THE CIMS

4.1 General approach for calculating allocation for free

In accordance with Article 10a (1) of the revised EU ETS Directive the allocation will be based to the extent feasible on community-wide ex-ante benchmarks. Only in case such benchmarks are not feasible, so-called fall-back approaches (heat production allocation method, fuel-mix allocation method, grandfathering allocation method) will be used. These allocation methods are described in sections 4.6 to 4.9. The principles for the decision on their use are laid down in section 4.3.

In order to use the most appropriate allocation approach, in installations where more than one benchmarked products are produced, or where not only fall-back approaches are relevant in an installation, the installation has to be divided into “sub-installations” as shown in Figure 1. Allocations can then be calculated for each sub-installation (applying the appropriate allocation methods and carbon leakage factors) separately.

Thereafter the preliminary allocation for the overall installation may be calculated, as outlined in section 4.4, taking into account corrections for heat transfer where necessary.

The final allocation is then calculated from the preliminary allocation by applying the cross-sectoral uniform correction factor (Art. 10a(5)) and linear factor as appropriate. *[This final step is not within the scope of this discussion paper.]*

4.2 Definition of sub-installations

In the baseline data collection (see section 8), the operator of an installation shall report activity levels and emissions in the reference period separately for each sub-installation. Each sub-installation corresponds to either one product benchmark⁴ or to the fall-back approaches. The boundaries of sub-installations for benchmarked products should in principle be the same as in the data collection for establishing the benchmark curves, except where corrections are needed because the sector rule-book has been found not to respect the principles laid down in the Commission's non paper of 27 January 2010, "Quality and Verification Criteria for benchmarking data for the EU ETS". All products, for which benchmarks are available, are defined in detail in the Annex (9.1), including the system boundaries for these product benchmarks to be used for defining the corresponding sub-installations.

The sub-installation "fall-back approaches" covers all emissions which are not inside the boundaries of any product benchmark. In exceptional cases there can be two sub-installations "fall-back approaches", one corresponding to products or services that are exposed to significant risk of carbon leakage, and one for the non-exposed products or services, as shown in Figure 1.

In order to reduce the administrative burden of all involved actors, a *de-minimis* threshold for emissions is applied: Where more than x% [*proposal: 99%*] of emissions can be attributed to one carbon leakage exposure status, all fall-back approaches may be included in one sub-installation of that overwhelmingly applicable carbon leakage status.

There shall be no overlap between sub-installations, and the emissions of all sub-installations shall add up to 100% of the installation's emissions⁵. Where emissions stem from only one product with benchmark or only from products or services covered by fall-back approaches, only one sub-installation (identical to the installation) is defined.

⁴ A product benchmark may correspond to several products, such as e.g. "high value chemicals" from crackers, which correspond to several chemical products at once. In other cases, minor amounts of by-products typical for a sector, e.g. tars from coke ovens will be included in the benchmark.

⁵ The burden of proof for data completeness is on the operator. Where an operator chooses to report less data (e.g. only data related to benchmarks, while the small amount for fall-back approaches is considered too difficult to determine), the CA will be able to calculate free allocation only to those sub-installations where data is available.

On the other hand, the verifiers and the competent authority have to ensure that there are no overlaps (double counting) between sub-installations.

If the emissions of the fall-back approaches are less than a de-minimis amount of xx% [e.g. 1%; to be discussed] of the installation's total emissions, no separate sub-installation shall be needed, and no allocation shall be given for these fall-back approaches.

An example for dividing installations into sub-installations is presented in the annex (10.2).

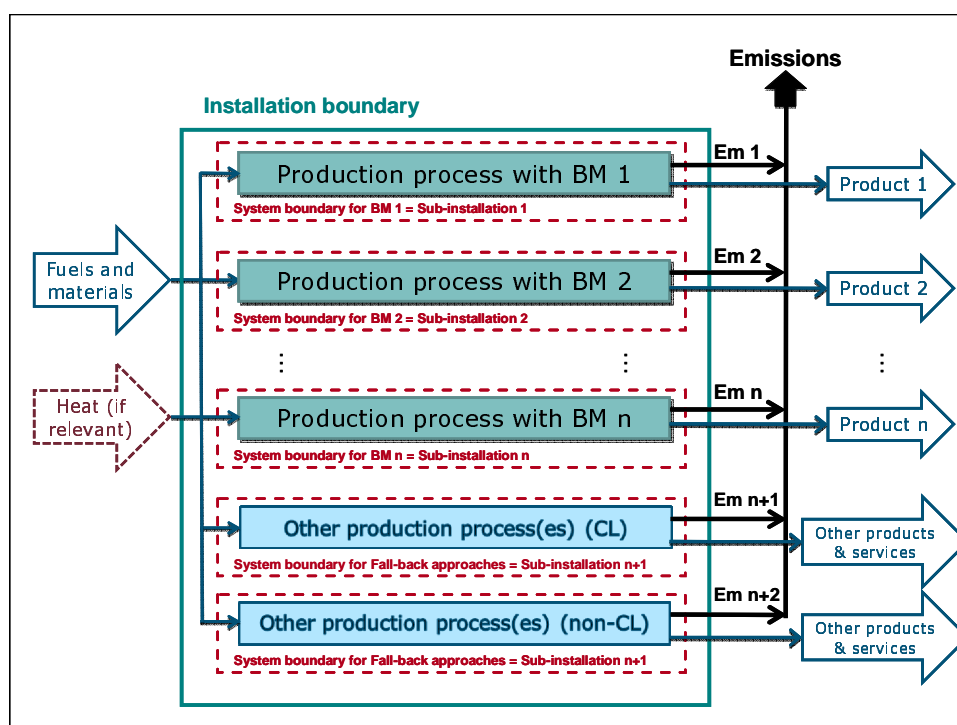


Figure 1: Division of installations into sub-installations by applying system boundaries as used for benchmarking curves (further defined by the “sector rule books” as required by the Commission non-paper “Quality and Verification Criteria for benchmarking data for the EU ETS” of 27 January 2010)

4.3 Allocation methods to be used for sub-installations

Based on the information from the baseline data collection, the CA will know for each relevant installation included in the EU ETS from 2013 onwards, which products it produces, or what other purpose (electricity generation, heat supply, CO₂ storage...) it serves. As outlined in section 4.2, all baseline data has to be assigned to “sub-installations” (representing either product benchmarks or fall-back approaches). In principle, the following priorities for allocation rules shall be followed for each sub-installation:

1. Where no products, but only heat is produced (with or without production of electricity), and subject to current discussions on cross-boundary heat flows, the heat production allocation method (see section 4.7) is applicable.

2. Where a product benchmark is available, allocation is calculated in accordance with section 4.6, using the product benchmarks and related carbon leakage factor as listed in the annex (9.2).
3. Where no further processes than those related to the production of the benchmarked products (in accordance with the system boundaries defined the annex (9.1)) are carried out or where no product benchmark is applicable, fall-back approaches are used in the following sequence⁶:
 - a. The heat production allocation method (see section 4.7) is used for emissions stemming from the production of *measurable heat*.
 - b. For emissions caused by heat production directly from fuel use without heat transfer medium (except the hot flue gas itself), the fuel mix allocation method is used (see section 4.8).
 - c. All other GHG emissions can be considered process emissions. Grandfathering is applied for these emissions, as outlined in section 4.9.

“Measurable heat” is understood as a heat flow using a heat transfer medium⁷ which is transported through identifiable piping or ducts, which makes the amount of heat measurable in principle using the measurement of the flow and the temperature (and pressure) of the medium. Heat flows shall be net heat flows, i.e. the heat content in the condensate or transfer medium returning to the heat supplier is subtracted. All such heat should be considered *measurable*, even if no precise measurement at the moment exists. *[to be developed further]*

4.4 Preliminary total free allocation for installations

The preliminary total free allocation for an installation is calculated by the CA using the following procedure:

1. The preliminary allocation is calculated for each sub-installation:
 - a. For sub-installations correlating to a product benchmark, the preliminary allocation is calculated pursuant to section 4.6 (Method A);
 - b. For sub-installations correlating to fall-back approaches, the preliminary allocation is calculated pursuant to sections 4.7 to 4.9 (Methods B to D);
2. The installation’s total preliminary free allocation is calculated for each year from 2013 onwards by summing up all sub-installations’ allocations
3. The preliminary free allocation is corrected for cross-boundary heat flows pursuant to section *[to be added later]*. This is done simultaneously with the correction of the allocation of other installations connected in relation to the heat transfer.

⁶ More than one fall-back approach can be applied to the same sub-installation, as e.g. both fuel mix benchmark and grandfathering could be applicable to different parts of the total emissions.

⁷ Steam, hot air or water, oil, liquid metals or salts, etc.

The preliminary total free allocation for an installation for each year can be calculated as

$$F_{total,pre}(k) = \left(\sum_i F_{i,pre}(k) \right) + F_{H,corr}(k) \quad \text{Equation 1}$$

or

$$F_{total,pre}(k) = \left(\sum_i F_{i,pre}(k) \right) \cdot w_{H,corr}(k) \quad \text{Equation 2}$$

with

$F_{total,pre}(k)$: preliminary total number of free allowances in year k before application of the correction factor as appropriate.

$F_{i,pre}$: preliminary number of free allowances to sub-installation i

$F_{H,corr}$: Correction of free allocation for cross-boundary heat flows (if method 1 or 2b are applied)

$w_{H,corr}$: Weighting factor for cross-boundary heat flows (if [simplified] method 3b is used).

Note: The preliminary total free allocation must not be smaller than zero:

$$F_{total,pre} \geq 0$$

Cross-boundary heat flows in the context of determining and applying the Community-wide allocation rules in the EU ETS are defined as measurable heat flows where either the producer(s) or the consumer(s) of the heat are outside the GHG emissions permit of the installation under consideration. That includes the following cases:

1. Heat flow between installations with separate GHG emissions permits,
2. Heat producing installation is in the ETS, the consumer is not, for example: a heat producing installation delivering its heat to private households using a district heating network, or to a consumer having installed less than 20 MW thermal input, nor performing another activity listed in Annex I to the EU ETS Directive.
3. Heat flow to a consumer in the ETS from an installation not covered by the EU ETS (e.g. an installation for the incineration of municipal waste), or where the heat production does not lead to GHG emissions (e.g. heat resulting from exothermal chemical reactions)
4. Heat flows in complex heat networks with several heat producers and/or consumers.

Note: Where heat flows are exchanged between sub-installations within the same installation, heat transfers do not pose any methodological challenge, as no choice has to be made to which installation allowances would be allocated. The same approach could in principle be extended to cases where several installations on one site operated by the same operator are covered by one single

GHG emissions permit⁸. However, as installations might change operator, the permit would have to be split into more permits. Therefore this discussion paper assumes that cross-boundary heat transfers have to be corrected in all cases at installation level, not GHG permit level.

Note: It is currently still under discussion which method to use for correcting for cross-boundary heat flows. For the moment, the different methods are discussed in the annex (10.4), with a view to including the final result of the discussion in the body of the discussion paper later.

4.5 Preliminary free allocation for sub-installations

For each sub-installation i , the preliminary number of free allowances (without application of the uniform cross-sectoral correction factor) can be calculated for each year as a sum of the preliminary numbers of free allowances based on the four allocation methods, multiplied by the appropriate exposure factor⁹ taking into account the carbon leakage risk of the products or services which cause the emissions corresponding to the fall-back approach selected:

$$F_{i,pre}(k) = (F_{P,pre}(k) + F_{H,pre}(k) + F_{F,pre}(k) + F_{G,pre}(k)) \cdot EF_{i,k} \quad \text{Equation 3}$$

with:

$F_{i,pre}(k)$: total preliminary number of free allowances for year k for sub-installation i

$F_{P,pre}(k)$: preliminary number of free allowances for year k for a sub-installation based on a product benchmark (see section 4.6)

$F_{H,pre}(k)$: preliminary number of free allowances for year k for sub-installation i based on the heat production benchmark (see section 4.7)

$F_{F,pre}(k)$: preliminary number of free allowances for year k for sub-installation i based on the fuel mix benchmark (see section 4.8)

$F_{G,pre}(k)$: preliminary number of free allowances for year k for sub-installation i based on grandfathering (see section 4.9)

$EF_{i,k}$: carbon leakage exposure factor of sub-installation i in year k (see section 4.11).

As outlined in previous sections, a sub-installation for fall-back approaches can relate to several products or production processes all showing the same situation regarding carbon leakage.

⁸ This is allowed pursuant to EU ETS Directive Article 6(1) second sub-paragraph.

⁹ As mentioned earlier, an installation can have a maximum of two sub-installations for fall-back approaches: One for all activities considered exposed to significant risk of carbon leakage, and one non-exposed.

4.6 Allocation method for sub-installations producing specific products with a product benchmark (method A)

For benchmarked products, the preliminary number of free allowances (without application of the uniform cross-sectoral correction factor) for a sub-installation is calculated for each year k as follows:

$$F_{p,pre}(k) = BM_{i,k} \cdot HAL_i \quad \text{Equation 4}$$

With:

$F_{p,pre}(k)$: preliminary number of free allowances for year k for a sub-installation based on a product benchmark

$BM_{i,k}$: benchmark for product i in year k . The values of $BM_{i,k}$ can be found in the annex (9.2).

HAL_i : historical activity level: historical production of product i (i.e. the average annual production in the reference period as determined and verified in the baseline data collection)

Special cases of benchmark-based allocations are discussed in section 4.12.

4.7 Heat production allocation method (method B)

For production of measurable heat as defined in section 4.3, the preliminary number of free allowances (without application of the uniform cross-sectoral correction factor) based on the heat-production benchmark for a sub-installation i is calculated for each year k as follows:

$$F_{H,pre}(k) = BM_{H,k} \cdot HAL_i \quad \text{Equation 5}$$

with:

$F_{H,pre}(k)$: preliminary number of free allowances for year k for sub-installation i based on the heat production benchmark

$BM_{H,k}$: heat-production benchmark in year k . The value of $BM_{H,k}$ is set at [to be added later]

HAL_i : historical activity level: historical measurable heat production of sub-installation i (i.e. the average annual measurable heat production in the reference period as determined and verified in the baseline data collection).

4.8 Fuel mix benchmark allocation method (method C)

For heat other than measurable heat as defined in section 4.3, the preliminary number of free allowances (without application of the uniform cross-sectoral correction factor) based on the fuel-mix benchmark for a sub-installation i is calculated for each year k as follows:

$$F_{F,pre}(k) = BM_{F,k} \cdot HAL_i \quad \text{Equation 6}$$

with:

$F_{F,pre}(k)$: preliminary number of free allowances for year k for sub-installation i based on the fuel mix benchmark

$BM_{F,k}$: fuel-mix benchmark in year k . The value of $BM_{F,k}$ is set at [to be added later].

HAL_i : historical activity level: historical consumption of fuels which are not used for production of measurable heat of sub-installation i (i.e. the average fuel consumption in the reference period as determined and verified in the baseline data collection).

4.9 Grandfathering allocation method (method D)

The preliminary number of free allowances (without application of the uniform cross-sectoral correction factor) for a sub-installation i based on grandfathering for a sub-installation is calculated for each year k as follows:

$$F_{G,pre}(k) = ESF_k \cdot HAL_i$$

Equation 7

with:

$F_{G,pre}(k)$: preliminary number of free allowances for year k for sub-installation i based on grandfathering

ESF_k : effort-sharing factor for year k . The value of ESF_k is set at [to be added later].

HAL_i : historical activity level: historical emissions of sub-installation i which cannot be related to heat production or fuel consumption ("process emissions") (i.e. the average historical emissions in the reference period as determined and verified in the baseline data collection).

4.10 Historical activity levels

4.10.1 Reference period

[Subject to further discussion] The reference period for incumbents will be the years 2005 to 2009 for all installations and all parameters to be reported¹⁰. Each installation will have to identify one calendar year of this period to be removed from the period. The application of this rule is without prejudice to submit to the CA all relevant historical activity levels during the whole reference period. Where an installation has not indicated a year to be deleted, the CA will remove the year with the lowest GHG emissions from the reference period.

¹⁰ "HAL" (Historical Activity Level) in the calculation refers to historical production of product i (method A), historical measurable heat production (method B), historical consumption of fuels which are not used for production of measurable heat (method C) or historical emissions which cannot be related to heat production or fuel consumption ("process emissions") (method D). However, in the baseline data collection more historical data from the reference period will have to be reported to the CA in order to perform checks on the plausibility and completeness of data.

Consequently, the average of four reference years will be used as historical activity levels.

4.10.2 Rules for significant capacity increases or reductions in the reference period

Where an installation has had a "significant capacity increase" (*definition to be developed later*) or a "significant reduction of capacity" (*definition to be developed later*) in year x (where $2005 \leq x \leq 2009$), the reference period will be the year $x+1$ to 2009. In that case no year can be deleted from this period. For providing evidence of the capacity increase or reduction, the application of this rule does not exempt the operator from submitting to the CA all relevant historical activity levels during the whole period 2005 to 2009.

Consequently, the average of all years in the period $x+1$ until 2009 will be used as historical activity levels.

In cases of significant capacity increase or significant reduction of capacity taking place in 2008 or 2009, 2010 will be including into the reference period. [*to be developed further*]

The same approach should be used for installations that have started up or reached the threshold for inclusion in the EU ETS¹¹ only after 1 January 2005. Installations fully closed or which have reduced their capacity below the thresholds for inclusion in the EU ETS before 31 December 2009 may be exempt from the baseline data collection.

4.10.3 Rules for significant capacity increases or reductions after the reference period

[*Rules for handling of capacity changes in the period 1 January 2010 to 30 June 2011) will be added later*]

4.10.4 Rules for data gaps in the reference period

If an installation has reported incomplete data or if the baseline data has not been or negatively verified, the CA will use a correction based on a harmonised methodology.

This harmonised methodology might include the following rules [*under discussion*]:

1. For the determination of the historical activity level, the same alternative approach might be used as for new entrants (see point 6.2.1), if the existing verified data belongs to a time period too short for being representative;
2. In order to avoid competitive distortion, installations should be eligible for this alternative approach only if data gaps are result of circumstances beyond the control of the operator of the installation.

¹¹ The thresholds and activities of the revised EU ETS Directive are applicable.

4.11 Exposure factor and carbon leakage status

In the previous sections the correct (preliminary) allocation is calculated by multiplication with the “exposure” factor $EF_{i,k}$. Pursuant to Articles 10a(11) and (12) EF is either 100% for sectors exposed to a significant risk of carbon leakage, or 80% in 2013 going down to 30% in 2020, if not exposed to such risk. The values of $EF_{i,k}$ in the non-CL exposed case for each year k up to 2020 are calculated as

$$EF_{non-CL\,exposed,k} = \frac{0.5}{7} \cdot (2020 - k) + 0.3$$

Equation 8

Rounded values for $EF_{i,k}$ are given in Table 1.

Table 1: Values for the exposure factor $EF_{i,k}$ for sectors deemed and not deemed to be exposed to a significant risk of carbon leakage

Year k	2013	2014	2015	2016	2017	2018	2019	2020
EF for significant CL risk	100%	100%	100%	100%	100%	100%	100%	100%
EF for no significant CL risk	80.0%	72.9%	65.7%	58.6%	51.4%	44.3%	37.1%	30.0%

The Commission has established a list¹² pursuant to Article 10a(13) of the revised EU ETS Directive a list of sectors and sub-sectors deemed to be exposed to a significant risk of carbon leakage that is applicable for the 2013 and 2014 years. During the calculation of the NIMs it may be assumed for calculation reasons that this list of sectors and sub-sectors also applies for the 2015-2020 years.

Subject to future revisions of the Commission Decision, all sectors or subsectors not found on this list shall be considered not to be at such risk. The Commission’s list uses the 4-digit codes based on NACE revision 1.1, and for a few sub-sectors 6 or 8-digit PRODCOM 2007 codes.

The annex (sections 9.1 and 9.2) of this discussion paper lists all product benchmarks together with their carbon leakage status according to Decision 2010/2/EU.

For all products and services covered by fall-back approaches rather than product benchmarks, the operator of the installation has to identify the appropriate NACE and/or PRODCOM codes when determining the boundaries of the sub-installations to be reported for the baseline data collection. For this purpose, NACE 1.1 and PRODCOM 2007 shall be used. The first 4 digits of the PRODCOM code (or where appropriate, 6 or 8 digits) corresponds to the codes used in the Commission’s list.

¹² Commission Decision 2010/2/EU of 24 December 2009 determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage. Download at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010D0002:EN:NOT>

The direct use of NACE instead of PRODCOM can only be justified where many different products (corresponding to more than x [proposal: $x=10$] different PRODCOM codes) falling within the same 4-digit NACE code are produced, or where services other than manufacture of goods are performed. All product processes producing products deemed to be exposed to a significant risk of carbon leakage will be treated as one sub-installation 'fall-back approaches for exposed products' and all product processes producing products not deemed to be exposed to a significant risk of carbon leakage will be treated as one sub-installation 'fall-back approaches for non-exposed products'.

4.12 Rules for specific product benchmarks

4.12.1 Exchangeability of fuel and electricity

In special cases where heat produced from fuels is exchangeable for heat from electricity, product benchmarks are based on total emissions (including indirect emissions from electricity use in the process to which the benchmark relates). In these cases the preliminary free allocation for sub-installation (product) i in year k is calculated as follows:

$$F_{P,pre}(k) = \frac{Em_{dir}}{Em_{dir} + Em_{indir}} BM_{i,k} \cdot HAL_i \cdot EF_{i,k}$$

Equation 9

$F_{P,pre}$: preliminary number of free allowances for product i for year k for a sub-installation with exchangeability of heat to electricity.

Em_{dir} : historical direct emissions for production of product i (i.e. the average annual direct emissions in the reference period as determined and verified in the baseline data collection and attributed to the sub-installation under consideration).

Em_{indir} : historical indirect emissions for production of product i (historical electricity consumption for production for product i times 0.465 t CO₂/MWh). "Historical electricity consumption" is the average annual electricity consumption in the reference period attributable to the exchangeability to fuel-based heat in the sub-installation under consideration.

This approach is used only for product benchmarks clearly identified in the annex (9.1).

4.12.2 CO₂ used as a feedstock

[This section is subject to discussion. The approach presented here is in line with the current proposal for MRG for Ammonia production, which is also under discussion.]

In the chemical industry carbon introduced in a production process in the form of fuels or other carbon containing process inputs is sometimes not completely emitted to the atmosphere as CO₂, but stored in the manufactured end-product.

If this end-product is chemically stable (also when used for its intended purpose), it can be considered as long-lived (i.e. permanently stored). Emissions from the application of such carbon containing products are accounted for in

other installations or sectors. In order to achieve consistency between benchmarking curves and allocation in sectors, where some installations use CO₂ streams for production of chemicals, the following allocation formula should be used:

$$F_{P,pre}(k) = \frac{Em}{Em + B} BM_{i,k} \cdot HAL_i \cdot EF_{i,k}$$

Equation 10

with

Em: Average annual direct CO₂ emissions to the atmosphere (i.e. the amount of CO₂ produced in the installation minus the amount of CO₂ bound in products) in the reference period;

B: Average annual amount of CO₂ bound in products in the reference period.

This approach may only be chosen in cases clearly indicated in the annex(9.1). The approach is applicable where the CO₂ consuming step is part of the installation under consideration, as well in cases where the CO₂ is transferred to another installation. In the latter case, appropriate measures for data sharing between the installations involved have to be ensured for the baseline data collection.

[A list of production processes where this calculation is applicable will be presented after more discussion. Examples for potentially relevant products are: Ammonia/urea, bulk organic chemicals, PCC. Short lived products or applications of CO₂ not subject to emissions reporting are not eligible for such allocation corrections.]

The final list of substances or applications is to be agreed also for use in the future Regulation pursuant to Article 14 of the ETS Directive.]

4.12.3 Refineries benchmark

For the application of the refineries benchmark the historical activity level is expressed as CWT (complexity weighted tonnes) calculated as follows:

[to be added later]

5 SPECIFIC RULES FOR INCUMBENTS

[To be added if needed].

Definition of incumbent s. section 3.2

6 SPECIFIC RULES FOR NEW ENTRANTS

6.1 Definition of new entrant

[to be added later]

6.2 Calculation of the free allocation

6.2.1 Alternative approach for determination of "historical activity levels"

6.2.2 Application of the linear factor

[to be added later]

6.3 Administrative issues

[to be added later]

If relevant: Queuing system, tracking the left-over amount in the NER..

Defining date of start-up, determining real capacity, determining load factors...

7 SPECIFIC RULES FOR PARTIAL AND FULL CLOSURES

7.1 Definition

including definition of "significant capacity decrease"

7.2 Calculation of changes to the free allocation

7.3 Administrative issues

[to be added later]

8 BASELINE DATA COLLECTION AS PART OF THE CIMS

8.1 Process of data collection

[MRV rules are outside the scope of this paper.]

Competent Authorities (CAs) will have to identify all installations falling under the EU ETS as the first step of establishing their National Implementing Measures (NIMs) pursuant to Article 11 of the revised EU ETS Directive. In order for the CA to be able to apply the harmonised allocation methods, the identified installations will be required to collect appropriate monitoring data regarding emissions, production levels and (if relevant) heat transfers of the years defined as the reference period, to have these data verified and to report them to the CA.

[Subject to further discussion,] the baseline period will be the years 2005 to 2009 for all installations and all parameters to be reported. Each installation will be allowed to identify one year of this period to be removed from the baseline

data. Consequently, the arithmetic average of four reference years will be used as baseline data. All references in this discussion paper referring to “historic emissions”, “historic activity levels” etc. are meant to refer to the baseline data.

An overview of the required data is given in the annex (9.3).

8.2 Attribution of data to sub-installations

The aim of the baseline data collection is to get all relevant data for each installation in a format as presented in Table 2 (of course only fields relevant for the installation should be filled in). Where only one sub-installation is defined (because only one benchmark is relevant, or because only fall-back approaches are to be applied), only totals for the installation have to be reported. Although not all parameters are relevant for calculating the amount of free allocation, a full data set is required for each installation in order to perform plausibility checks and ensure that neither gaps nor double counting occurs. Further explanations are given in the remark column in Table 2.

Special care is to be taken for identification of all involved installations (using the installation ID used in the registry system) where connections exist which are relevant for allocation. These are especially cross-boundary heat transfers, transfer of CO₂ and transfer of waste gases.

Table 2: Summary of the baseline data as reported by operators. Annual average figures of the reference period for each parameter (for more details see annex section 9.3).

	Sub- inst. 1	Sub- inst. n	Total inst.	Remarks
Product name				as defined in annex section 9.1 (based on the sector rule book)
PRODCOM codes of product(s)				Identification to the same level of detail (number of digits) as in the CL list Decision
Production level (t per year)				Only for benchmarked products
t CO ₂ (eq) emitted				Direct emissions only. The distinction between fuel and process emissions is optional for products with benchmarks, if compatible with the sector rule book. Where the emissions can't be attributed directly to a
t CO ₂ from fuels				

	Sub-inst. 1	Sub-inst. n	Total inst.	Remarks
t CO ₂ (eq) from processes				sub-installation, the installation's overall emissions are given precisely, and the attribution to sub-installations with benchmarks is done by estimation based on best available data or expert judgement. The difference between the total emissions and the sum of all benchmark-related emissions is attributed to the fall-back sub-installation.
Total energy input from fuels within the installation [TJ]				Calculated from amount of fuel times the net calorific value (NCV). If the attribution to sub-installation is difficult, the remarks made for emissions apply mutatis mutandis. All kinds of fuels are to be considered (including waste gases).
Measurable heat produced [TJ]				Only if not all emissions in the installation stem from benchmarked products, i.e. where fall-back approaches are to be applied
Energy input from fuels within the installation not used for production of measurable heat [TJ]				
heat imported from other installations [TJ]				In most cases this information will only be available on installation level. However, where available, the data should be reported at sub-installation level in order to apply the correct CL status.
heat exported to other installations [TJ]				Installation level data will be sufficient
Electricity produced [MWh]				
Electricity exported (sold) [MWh]				

	Sub- inst. 1	Sub- inst. n	Total inst.	Remarks
Electricity consumed [MWh]				Installation level data will be sufficient, unless a sub-installation belongs to a benchmark where the exchangeability of heat and electricity is relevant.
Waste gases imported [TJ NCV and t CO ₂]				Installation level data will be sufficient
Waste gases exported to other installations [TJ NCV and t CO ₂]				
t CO ₂ transferred into installation as feedstock				
t CO ₂ transferred out of installation as feedstock				
t CO ₂ stored geologically				Probably not relevant before 2013

Requirements for data quality and verification as well as detailed rules for attribution of data to sub-installations will be set out by the CIMs. Additional guidance will be provided by guidance papers where necessary. Methodologies used should be in line with the principles for the data collection carried out to determine benchmark curves (see Commission non-paper of 27 January 2010).

The following points serve as guidance when the baseline data is filled into Table 2:

- Separation of process emissions and fuel emissions is only relevant for sub-installations representing fall-back approaches (*A definition of process emissions is currently under development as a separate discussion paper. As long as it is not yet available, the distinction of fuel and process emissions should follow the approaches laid down in the relevant activity specific Annexes of the MRG 2007.*)
- For the identification of measurable heat flows as compared to heat input treated with a fuel mix benchmark see section 4.3. Figures needed for correction of allocation for cross-boundary heat flows always have to be based on measured (or invoiced) amounts of heat.

Principles of attribution of heat, fuels and emissions to sub-installations: Will be included in next version. In the meantime please use non-paper of 27 January 2010.

9 NORMATIVE ANNEXES

9.1 Annex I: List of product benchmarks and description of system boundaries

No.	Product name	PRODCOM code	Product definition	CL expo- sure*	Definition of system boundaries

* according to Decision 2010/2/EU

To be added as soon as available

9.2 Annex II: List of product benchmarks to be used for the years 2013 to 2020

No.	Product name	2013	2014	2015	2016	2017	2018	2019	2020

To be added as soon as available

9.3 Annex III: Data needed for the calculation of free allocation

[to be added later]

10 INFORMATIVE ANNEXES

10.1 Annex IV: Procedure of calculation of free allocation

Flow chart of calculation of free allocation for an installation – To be added later

10.2 Annex V: Example for defining Sub-installations

An installation is carrying out the following activities¹³:

- A kiln for cement clinker production – waste heat from the exhaust gas is feed to a district heating network
- A cement grinding plant (which has a directly fired dryer for some raw materials)
- A kiln for lime production, in which during some months of the year magnesite is burnt

Such plant would have to be split into the following sub-installations:

1. Cement clinker production (product benchmark),
2. lime production (product benchmark),
3. Fall-back approaches:
 - a. Magnesite burning: Note that the split from the lime production is a temporary data disaggregation, not one in terms of technical production units. The activity magnesia burning leads to two types of emissions:
 - i. fuel emissions,
 - ii. process emissions (decomposition of carbonates).
 - b. Fuel mix benchmark for the fuels used in the grinding plant;
 - c. Heat benchmark for the district heating. Note that in this case – depending on the definitions in the sector rule book – three situations are possible:
 - i. The sector rule book considers the use of the heat contained in the waste gases as normal practice in the sector – the heat would be part of the clinker benchmark, and no fall-back to be applied.
 - ii. The rule book deducts an amount of emissions from the clinker-related emissions (e.g. based on a natural gas equivalent): The fall-back sub-installation would dispose of exactly this amount of emissions. Allocation for the district heating delivered would be based on a heat production benchmark.
 - iii. The rule book makes no special provisions for use of waste heat, as it is unusual in the sector/ The sub-installation “fall-back” has no emissions, but gets allocation based on the heat production benchmark.

Note that here all fall-back approaches related to magnesite burning and cement production would be in the category “exposed to significant risk of carbon leakage”, while the district heating would be non-exposed.

¹³The Example is based on the current status (Mid-February 2010) of discussion regarding product benchmarks. The inclusion of parts of the installation such as the grinding plant follows the Commission’s guidance paper on the Scope of the EU ETS from 2013 onwards.

10.3 Annex VI: Examples for calculating historical activity levels

10.3.1 General rule

HAL = arithmetic average of all years except the lowest (marked yellow)

	installation A	installation B
2005	200	200
2006	190	190
2007	230	220
2008	290	180
2009	230	185
HAL	238	199

10.3.2 Significant capacity increase or reduction in the reference period

year of change = x (marked yellow)

HAL = arithmetic average of all years after x

	significant capacity increase in 2007	significant reduction of capacity in 2008
2005	100	190
2006	140	200
2007	230	170
2008	290	70
2009	230	40
HAL	250	55

10.4 Annex VII: Correction methods for allocation to Installations with cross-boundary heat flows

Discussions on which method to be use are ongoing; for the purpose of testing of allocation rules different correction approaches are described here.

10.4.1 Allocation using the "simplified method 1":

According to this method the heat consumer receives free allocation based on one of the allocation methods (product benchmark or fall-back approaches), and the heat producer does not receive free allowances for the heat delivered to

that producer¹⁴. Free allocation is granted to the heat producer in case the heat consumer is not part of the EU ETS, as only ETS installations can receive free allowances. In the latter case the CL-exposure factor for non-exposed sectors (80...30%) is used as default value (unless evidence on CL-exposure of the consumer is provided).

No free allocation is given to heat produced in non-ETS installations. In such cases, the allocation to the heat consumer is to be corrected.

Necessary steps:

1. Calculation of preliminary allocation as outlined in sections 4.4 to 4.9. A potential correction for heat flows uses equation 1.
2. Check if cross-boundary heat flows occur, and if yes identify all involved installations (*Note: The identification of individual installations could be replaced by the attribution of incoming heat flows to the categories "Heat delivered by ETS installations" and "Heat delivered by non-ETS installations" and for outgoing heat flows to the categories "Heat delivered to ETS installations", "Heat delivered to CL-exposed installations outside the ETS" and "Heat delivered to non-CL-exposed installations outside the ETS"*).
3. If outgoing heat flows go to consumers within the ETS, the allocation to the producer of the heat has to be corrected compared to the result following sections 4.4 to 4.9. In Equation 1, $F_{H,corr}$ of the producer is negative and the exposure factor for heat production (0.8...0.3) is used.
4. If outgoing heat flows go to consumers outside in the ETS, no correction has to be made for the producer unless evidence on the CL-exposure of the consumer is provided. In such cases, Equation 12 is applied. The allocation to the consumer is zero anyway.
5. If incoming heat flows are coming from non-ETS heat producers (e.g. incinerators of municipal and hazardous waste or boilers/ CHPs using exclusively biomass), the allocation to sub-installations representing product benchmarks is to be corrected. In Equation 1, $F_{H,corr}$ of the consumer is negative and the exposure factor of the sub-installation is applied.
6. If incoming heat flows are coming from ETS heat producers and going to sub-installations "fall-back approaches", the allocation to the consumer is to be corrected. In Equation 1, $F_{H,corr}$ of the consumer is positive and the exposure factor of the sub-installation is applied (Equation 13).

In both cases (3 and 5), the following formula is used for determining $F_{H,corr}$ for equation 1:

$$F_{H,corr}(k) = -BM_H \cdot Q \times EF_{h,k} \quad \text{Equation 11}$$

If the total amount of allocation to one of the installations becomes negative, it is set to zero.

¹⁴ However, some allocation may be given to the heat producer if heat is delivered to other clients outside the EU ETS, such as a district heating network.

$F_{H,corr}(k)$: Correction for cross-boundary heat flows in year k

BM_H : heat-production benchmark

Q : historic heat flow between the two installations (average of the reference period)

$EF_{j,k}$: exposure factor for heat flow j in year k (0.8...0.3 is used as default value)

In case 4, the following formula is used for determining $F_{H,corr}$ for equation 1:

$$F_{H,corr}(k) = BM_H \cdot Q \times (1 - EF_{h,k}) \quad \text{Equation 12}$$

In case 6, the following formula is used for determining $F_{H,corr}$ for equation 1:

$$F_{H,corr}(k) = BM_H \cdot Q \times EF_{h,k} \quad \text{Equation 13}$$

10.4.2 Allocation using the "method 2b":

[to be added later]

10.4.3 Allocation using the "simplified method 3b":

[to be added later]

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