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Directorate B - European & International Carbon Markets

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Guidance on Interpretation of Annex I of the EU ETS Directive (excl. aviation activities)

CONTENTS

1 INTRODUCTION

1.1 Status of this Guidance

Opinion of the CCC

This guidance document was drafted by consultants in close cooperation with experts from the Member States and the European Commission. It takes into account the discussions within several meetings of the Task Force III New Sectors and Gases under the Compliance Forum, as well as comments made during several meetings of WGIII of the Climate Change Committee (CCC) and written comments received from stakeholders and experts from Member States. This guidance has been agreed to reflect the opinion of the Climate Change Committee in its meeting on 18 March 2010.

Due to the complete revision of the EU ETS Directive, especially the revision of Annex I, previous guidance documents provided by the Commission regarding the scope of the EU ETS are considered not applicable any more in the third phase of the EU ETS. This guidance takes into account that the Directive has been agreed between the European Parliament and the Council and only the European Court of Justice can give definitive judgements concerning its interpretation.

1.2 Background of this Guidance

This guidance has been prepared in response to requests by Member States for practical further guidance on the interpretation of Annex I of the revised EU ETS Directive, taking effect from 2013 onwards. Also the Commission considers it necessary to achieve more coherence on its interpretation. The guidance is intended as a tool to assist Member States and their competent authorities in implementing the revised scope of the Directive, and to achieve consistency in its interpretation, to promote harmonisation and prevent possible abuse or distortions of competition within the Community.

References to Articles within this document generally refer to the revised EU ETS Directive.

1.3 Use of this Guidance

Use for Art. 9a(2) and Art. 11

This document gives guidance on the interpretation of Annex I of the revised EU ETS Directive, which is the scope of the EU ETS from 2013 onwards.

Member States may use this guidance already when they perform the data collection pursuant to Article 9a(2), which is to be carried out by 30 April 2010.

It should also be used by Member States when determining the complete list of installations to be determined for the National Implementing Measures (NIMs) pursuant to Article 11(1).

1.4 Scope of this Guidance

Permitting unchanged

This guidance paper does *not* go into detail regarding the procedures that Member States apply when issuing greenhouse gas emissions permits. It is acknowledged that the approach to setting the installation boundaries laid down in GHG emissions permits differ between Member States. Therefore no further guidance is given on the definitions of "operator" and "site". In some Member States, industrial sites (e.g. in the chemical industry) receive one overarching GHG emissions permit for the total site and are thus regarded as a single installation, whereas in other Member States, the same site could receive separate GHG emissions permits and thus be seen as more than a single installation.

For example, industrial CHP installations will in one Member State operate under a separate GHG emissions permit, while in other Member States they will operate under an integrated GHG emissions permit together with the industrial installation to which the CHP plant delivers its heat. As a result of these different approaches, which are assumed to remain unchanged in the third phase of the EU ETS, a full harmonisation of permitting procedures between Member States is not expected, and therefore outside the scope of this guidance.

This guidance only deals with the EU ETS scope with regards to stationary installations. For guidance on the scope regarding aviation activities, please see 2009/450/EC[1].

[1] Commission Decision of 8 June 2009 on the detailed interpretation of the aviation activities listed in Annex I to Directive 2003/87/EC of the European Parliament and of the Council.

2 INSTALLATION

2.1 General aspects

The EU ETS Directive refers in several places to "installations". The term "installation" is defined in Article 3(e) as:

> *'installation' means a stationary technical unit where one or more activities listed in Annex I are carried out and any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions and pollution;*

Installation definition

Member States shall ensure that no installation carries out any activity listed in Annex I unless its operator holds a GHG emissions permit (Article 4), or the installation has been excluded from the EU ETS pursuant to Article 27[2].

Relationship of GHG emissions permit and monitoring plan

The GHG emissions permit shall contain a description of the activities and emissions from the installation as well as a monitoring plan. Changes in installation boundaries laid down in existing permits, or new GHG emissions permits could be necessary as a consequence of the changes to Annex I in the revised EU ETS directive. Accordingly also changes in the monitoring plan or new monitoring plans will have to be made as appropriate.

To avoid that the GHG emissions permit must be changed too frequently during the trading period due to changes within the monitoring plan, Member States may allow operators to change the monitoring plan without changing the permit (Article 6(2)c).

Advantage of broad installation boundaries

Where several installations are operated by the same operator at the same site, these installations may be covered by one common GHG emissions permit (Article 6(1)). It should be noted that in applying the Community-wide rules for transitional harmonised free allocation under Article 10a, it might have several advantages to define installations boundaries as broadly as possible. Especially in the case of several installations at the same site transferring heat one to another, application of the Community-wide rules will become simpler if there is a common GHG emissions permit.

2.2 Relation to other classifications of activities

Activity is not a sector classification

When determining the coverage of the EU ETS (and completing the full list of installations covered) the activities listed in Annex I of the EU ETS are the only relevant criteria.

It might however be useful to consult other lists of installations based on other classifications like NACE or Annex I of the IPPC Directive. There are however some caveats.

[2] For small emitters excluded from the EU ETS pursuant to Article 27, and in order to ensure that monitoring and reporting arrangements in accordance with Article 14 still apply for those installations, a Member State may also require that small emitters hold a GHG emissions permit, even when excluded from the EU ETS.

While NACE is used for identification of the sectors or subsectors exposed to a significant risk of carbon leakage, NACE can only give a first rough estimate where to find ETS installations. Most installations covered by the EU ETS will be found in the NACE categories C (Mining and quarrying), D (Manufacturing) and E (Electricity, gas and water supply). However, the activity "combustion of fuels" can occur in all types of NACE categories, not only industrial ones. Examples of such non-industrial installations are combustion units in greenhouses, hospitals, universities and office buildings, booster stations in natural gas transport networks etc. Thus, performing an "industrial activity" is not the determining factor for deciding whether an installation falls under the scope of the ETS, even though the instrument was designed in the first place to limit GHG emissions of industrial installations.

Scope different from IPPC

Several activities of Annex I are not identical to those in Annex I of the IPPC Directive[3]. In several cases the ETS related installation boundaries may deviate from the IPPC related installation boundaries (e.g. regarding waste water plants, on-site landfills,...). Also the aggregation clause for combustion installations (see chapter 4) is different between EU ETS and IPPC. While IPPC installations might give a good first estimate, each installation has to be assessed individually regarding inclusion in the EU ETS.

Another feature of the revised Annex I is the complete absence of headings. While the headings in the original ETS Directive provided a mere grouping of the activities, the headings have sometimes been misinterpreted to make the activities narrower, and are therefore no longer present in the revised EU ETS Directive.

2.3 Various questions

2.3.1 What is "stationary"?

Stationary, but not permanent

Every technical unit that is connected to the installation and serves a purpose, which usually requires the unit to be stationary during operation, is considered part of an installation. For example some types of installation are sometimes stationary only for a few months, then they are moved to another place. However, during operation they are stationary. The GHG emissions permit should clearly identify such combustion units as part of the installation. Furthermore emergency and backup electricity generators may be installed in movable containers, but can't be removed from the installation for safety reasons. Such units are considered "stationary", too.

Testing stands for motors, turbines and the like are considered stationary. Even though the engines to be tested are removed after the test, the equipment such as fuel supply and exhaust stack are stationary[4]. These are necessary for successfully producing such engines, and thus considered integral part of the installation.

[3] Bulk organic chemicals, Ceramics, etc.

[4] Note that such testing stands could be considered as "units" (see section 4.4) if separately useable, and could fall under the 3 MW de-minimis rule of clause 3.

Mobile machinery

Excluded from the EU ETS is “true” mobile machinery (trucks, forklifts, bulldozers…), i.e. machinery which has the purpose of being mobile at the moment of performing its tasks.

2.3.2 Installation boundaries and treatment of associated activities

Use broadest installation boundaries

The installation boundaries should be set as broad as possible. This is supported by clause 5 of Annex I:

> *“When the capacity threshold of any activity in this Annex is found to be exceeded in an installation, all units in which fuels are combusted, other than units for the incineration of hazardous or municipal waste, shall be included in the greenhouse gas emission permit.”*

This also gives an indication that associated activities as mentioned in the definition of installation are primarily combustion units. Other activities, which don’t emit GHGs but may be relevant for IPPC because of the emission of other pollutants, are often irrelevant under the ETS.

Small units like heaters for office buildings belonging to the site should be considered part of the installation and should be included in the GHG emissions permit, unless the monitoring requirements would lead to unreasonable costs.

2.3.3 Testing and research

Annex I states in clause 1:

> *“Installations or parts of installations used for research, development and testing of new products and processes and installations exclusively using biomass are not covered by this Directive.”*

Research

Pure research operations (like pilot scale or even small plants) can usually be identified based on their environmental permits or other types of written opinion given by the competent authority (as far as required by national legislation). The production of goods (even if they are saleable) is not the main purpose of such installation or technical unit. Such installations or parts of installations should not be included when calculating the capacity of an installation for the purpose of deciding upon its inclusion in the EU ETS.

“Testing of new products and processes” is often carried out for a limited period of time (some hours up to several days) in existing, commercial scale installations. This includes e.g. optimisation tests, the test of new raw materials or the production of new grades of products. Such occasional tests are to be understood as business as usual for normal industrial operations, and can therefore not be understood as a reason for exclusion of the whole installation from the EU ETS, nor when calculating the capacity of an installation.

Commissioning

Another type of test is the period of pre-commissioning or start up operations of new installations or after significant technical changes in existing installations. Such pre-commissioning or start up operations are an integral part of the operation of installations, and have therefore to be fully covered by the GHG emissions permit and the monitoring plan. However, precise monitoring may some-

times be difficult as long as the construction of the installation is not finalised. Without prejudice to the upcoming Regulation pursuant to Article 14 of the EU ETS Directive and to the judgment of the competent authority, it may be acceptable if the GHG emissions permit contains a simplified monitoring plan (low tier approaches or the fallback approach should be applicable) until the full regular operation starts. It should of course be ensured that low tier approaches do not lead to an underestimation of emissions.

3 COMBUSTION ACTIVITIES

3.1 Broad definition

Codified broad definition

The scope of the EU ETS is defined by the Directive itself. One main achievement of the ETS review is the legal implementation of the broadest possible definition of combustion activities:

> *"'combustion' means any oxidation of fuels, regardless of the way in which the heat, electrical or mechanical energy produced by this process is used, and any other directly associated activities, including waste gas scrubbing".*

Although not explicitly stated by the Directive, but within the same spirit of unambiguous broadness, "fuel" should be defined as "any solid, liquid or gaseous combustible material".

Gasification is an oxidation process, although less than the stoichiometrical amount of oxygen is used. In pyrolysis heat has to be fed into the process, resulting from a combustion process. The gaseous products of pyrolysis and gasification are usually used as fuel onsite. Thus, in such cases the existence of combustion can be assumed.

Full harmonisation

As a consequence of the broad and harmonised approach laid down in the legislation, the enforcement priorities approved by the Climate Change Committee (CCC) of 31 May 2006 are no longer relevant. All the activities and related emissions covered by these enforcement priorities are anyhow included in the revised EU ETS. Moreover, the revised Directive goes beyond that by including further big emitters. At the same time the aim of reducing administrative burden to small emitters is equally respected in a fully harmonised and transparent way, by providing the possibility to exclude small emitters falling under the scope of the ETS, if they are subject to equivalent measures[5] applied by the Member States (Article 27).

The new combustion definition is applicable to all kind of economic activities, including industrial activities listed in Annex I to the EU ETS Directive as well as non-listed ones (e.g. asphalt mixing, textiles production...), as well as to the service sector (see section 2.2), no matter if there is direct heat use (e.g. in a steel reheating furnace) or if a heat transfer medium (steam, hot water etc.) is used.

[5] Thus, no distortion of competition is to be expected between big and small emitters in the EU ETS, and emitters outside the EU ETS, which are regulated under the ESD.

Even if the generated heat is not used at all (flares and in some post-combustion units[6]), the fact of combustion will lead to an inclusion in the EU ETS, since the new combustion definition clarifies that combustion is found *"regardless of the way in which the heat, electrical or mechanical energy produced by this process is used"*. Furthermore, all combustion units are included, of which only the mechanical energy is used, without use of heat or generation of electricity. This applies e.g. to pipeline booster stations and other compressors directly driven by turbines or engines.

The fact that the definition is very broad is supported by clause 3 of Annex I, which gives a *non-exhaustive* list of types of combustion units, that *includes*

> *"all types of boilers, burners, turbines, heaters, furnaces, incinerators, calciners, kilns, ovens, dryers, engines, fuel cells, chemical looping combustion units, flares, and thermal or catalytic post-combustion units."*

Flue gas treatment

As a further consequence of the new definition of combustion, associated activities are not only relevant in the context of installation boundaries, but also within the activity "combustion of fuels": This clarifies that process emissions may occur as part of combustion activities[7], especially CO_2 emissions from desulphurisation, from deNO_x units (e.g. when urea is used as reductant) etc.

3.2 Combustion vs. more specific activities

3.2.1 Clause 4 of Annex I

Activities with production thresholds

Nine activities are listed in Annex I for which the capacity threshold (if any) is not expressed as total rated thermal input, but as "production capacity", "melting capacity" or just "capacity". These activities are:

Table 1: Activities of which the capacity threshold is not expressed as total rated thermal input

Activities	Relevant capacity	Relevant capacity threshold to be exceeded
Production of pig iron or steel (primary or secondary fusion) including continuous casting	Capacity	2,5 tonnes per hour
Production of cement clinker	Production capacity	500 tonnes per day (when in rotary kilns) 50 tonnes per day (when in other furnaces)
Production of lime or calcination of dolomite or magnesite	Production capacity	50 tonnes per day
Manufacture of glass including glass fibre	Melting capacity	20 tonnes per day
Manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain	Production capacity	75 tonnes per day

[6] Note that no distinction can be justified between the gases flared and the auxiliary fuel.
[7] This is fully in line with what has been required by the MRG Annex II since the first phase.

Activities	Relevant capacity	Relevant capacity threshold to be exceeded
Manufacture of mineral wool insulation material using glass, rock or slag	Melting capacity	20 tonnes per day
Production of paper or cardboard	Production capacity	20 tonnes per day
Production of bulk organic chemicals by cracking, reforming, partial or full oxidation or by similar processes	Production capacity	100 tonnes per day
Production of hydrogen (H_2) and synthesis gas by reforming or partial oxidation	Production capacity	25 tonnes per day

Clause 4 of Annex I stipulates:

> *"If a unit serves an activity for which the threshold is not expressed as total rated thermal input, the threshold of this activity shall take precedence for the decision about the inclusion in the Community scheme."*

This clause stipulates that the activity-specific capacity thresholds mentioned in Table 1 shall take precedence (above the total rated thermal input capacity threshold) for the decision about the inclusion in the Community Scheme. That activity-specific capacity threshold only takes precedence and does not exclude the application of another threshold expressed as total rated thermal input.

In some cases a unit can be assigned to two different categories of activity, such as a furnace used for production of glass, which can be considered as a combustion unit (where the threshold for all combustion units is expressed as total rated thermal input), or as a unit dedicated to the activity "manufacture of glass" (where the threshold is *not* expressed as total rated thermal input, but as daily tonnage). In such case:

1. If both thresholds are exceeded in the installation, then the threshold not expressed as total rated thermal input takes precedence over the other, and the installation is included in the EU ETS as performing the activity corresponding to that threshold (i.e. as performing "manufacture of glass" in the case mentioned above). Under which activity the installation is included in the EU ETS may be relevant for different reasons:

   - regarding the information to be submitted to open the operator holding account;
   - regarding the content of the greenhouse gas emissions permit;
   - regarding the determination of the possibility of exclusion as small emitter (see section 4.5.2).

2. If only one of the thresholds is exceeded in the installation (e.g. the 20 MW total rated thermal input threshold), the installation is included in the EU ETS as performing the related activity (in this example as performing the activity "combustion of fuels").

3. If none of the thresholds are exceeded in the installation, then the installation is not included in the EU ETS.

Example: An installation producing ceramic products operates 3 units, i.e. two ceramics kilns and one CHP plant.

If the ceramics installation exceeds the 75 tonnes per day, the installation is to be included in the EU ETS. In the GHG emissions permit the Annex I activity "Manufacture of ceramic products" must be listed. Regardless the total rated thermal input of the CHP plant, the CHP unit must also be included in the GHG emissions permit (or in the monitoring plan) following clause 5 of Annex I[8]. A special situation occurs if the CHP plant alone exceeds the 20MW capacity threshold. In that case, the Annex I activity "Combustion of fuels" should also be listed in the GHG emissions permit.

If the ceramics installation does not exceed the 75 tonnes per day, the assessment has to continue for confirmation if the activity “combustion of fuels” is carried out at that installation. If it exceeds 20 MW, this installation is included in the EU ETS. The activity listed in the GHG emissions permit is then "Combustion of fuels".

3.2.2 Specific activities with capacity threshold expressed as total rated thermal input exceeding 20 MW

Activities which can be treated like combustion

There are five activities (besides “Combustion of fuels”) listed in Annex I of which the specific activity is combined with a capacity threshold expressed as "where combustion units with a total rated thermal input exceeding 20 MW are operated" (see Table 2).

These activities could have been included in Annex I by the “combustion of fuels” activity only, since the broad combustion definition would be sufficient for their inclusion. However, these activities (e.g. ferrous and non-ferrous metals processing) can also give rise to process emissions (e.g. from reduction agents, graphite electrodes etc.), which would not be included in the EU ETS when these activities would only fall under the “combustion of fuels” activity alone[9]. The separate listing of these activities in Annex I together with the 20 MW capacity threshold makes clear that all emissions stemming from the respective activity are included in the EU ETS, not only those relating to combustion.

Table 2: Specific activities in Annex I combined with a capacity threshold expressed as "where combustion units with a total rated thermal input exceeding 20 MW are operated"

Activities
Production or processing of ferrous metals (including ferro-alloys). Processing includes, inter alia, rolling mills, re-heaters, annealing furnaces, smitheries, foundries, coating and pickling
Production of secondary aluminium

[8] “When the capacity threshold of any activity in this Annex is found to be exceeded in an installation, all units in which fuels are combusted, other than units for the incineration of hazardous or municipal waste, shall be included in the greenhouse gas emission permit.”

[9] As mentioned in the last paragraph of section 3.1, some process emissions can be part of the combustion activity itself, limited to process emissions from flue-gas scrubbing.

Production or processing of non-ferrous metals, including production of alloys, refining, foundry casting, etc.
Drying or calcination of gypsum or production of plaster boards and other gypsum products
Production of carbon black involving the carbonisation of organic substances such as oils, tars, cracker and distillation residues

Example: Metals processing

Another issue arising from these “pseudo-combustion” activities is the aggregation of units belonging to separate activities. As an example we use a foundry which produces parts from cast iron (using combustion units of 15 MW installed capacity) and from brass (again 15 MW installed). Here the two activities “production or processing of ferrous metals” and “production or processing of non-ferrous metals” are carried out, but each stays below the individual capacity threshold. However, in this example the “precedence clause” (clause 4 of Annex I) does not apply, since both activities have capacity thresholds expressed as total rated thermal input. Thus, all units involved in the two activities must be considered units for the activity “combustion of fuels”, and all the capacities should be added together. This gives a rated thermal input of 30 MW, and the installation is included in the EU ETS with the activity “combustion of fuels”.

3.3 Various interpretation issues

3.3.1 What is “thermal input”

Thermal input in the context of GHG emitting processes means all input in the form of fuels. Thus, if a furnace can use both, electrical heating or heating by combustion of fuels, only the fuel related input is used for the calculation. In cases, where various proportions of heat input can be used, the maximum of fuel related input is assumed.

The maximum rated thermal input is normally specified by the manufacturer and is displayed on the technical device with the consent of an inspection body. Where different fuels or fuel mixes can be used, leading to different maximum thermal inputs, the highest possible thermal input should be used.

When no information from the manufacturer is available, the operator of the installation shall provide to the competent authority an estimate based on best available information (for example maximum fuel throughput achieved in 24h during the last calendar year). As in most cases the exhaust gas has a temperature above 100°C, and in line with monitoring requirements defined by the MRG, net calorific values (NCV) are considered most appropriate for determination of the thermal input.

Although a fully harmonised approach should be the aim for the EU ETS, it is recognised that in some Member States gross calorific values (GCV) are used for specifying nameplate capacity. Thus, for practical and simplicity reasons only, the use of GCV in these Member States is considered acceptable.

Where fuels are used as reducing agents in the production or processing of non-ferrous metals[10], the heat input of these fuels is also to be taken into account when calculating the rated thermal input as if they were fuels.

3.3.2 Waste incineration and Co-incineration

Exclusion of hazardous and municipal waste incinerators

The first activity in Annex I is defined as

> *"Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)"*

Installations for the *incineration* of municipal waste or hazardous waste are thus excluded in Annex I to the EU ETS Directive. It is for the competent authority to determine whether a particular installation falls into one of these categories taking account the relevant definitions in the WID (Waste Incineration Directive[11]). Installations falling under the WID have a permit under that Directive which should clearly state the status of the incineration or co-incineration units. This Directive defines an "incineration plant" as a technical unit

> *"dedicated to the thermal treatment of wastes with or without recovery of the combustion heat generated. This includes the incineration by oxidation of waste as well as other thermal treatment processes such as pyrolysis, gasification or plasma processes in so far as the substances resulting from the treatment are subsequently incinerated."*

If a dedicated installation is found by the CA to fall under this definition, and if the waste incinerated falls predominantly under the category "municipal" or "hazardous" (according to the European waste catalogue[12]), then it is not subject to the EU ETS Directive in respect of any incineration that takes place at the installation.

Co-incineration to be included in the EU ETS

A co-incineration plant is defined in the WID as a plant

> "*whose main purpose is the generation of energy or production of material products and:*
> *— which uses wastes as a regular or additional fuel; or*
> *— in which waste is thermally treated for the purpose of disposal.*
> *If co-incineration takes place in such a way that the main purpose of the plant is not the generation of energy or production of material products but rather the thermal treatment of waste, the plant shall be regarded as an incineration plant within the meaning of point 4.*"

If the status of individual units cannot be derived unambiguously from the WID permit, the following considerations may serve as guidance: units burning waste which are situated at sites with industrial production[13] (within the same installa-

[10] Ferro-alloys such as FeMn and FeSi are also considered to be non-ferrous metals.
[11] Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste
[12] Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (2000/532/EC).
[13] Including both, activities listed in Annex I, and other industrial activities.

tion or outsourced to a separate operator) are usually to be classified as *co-incineration*, because the main purpose of such combustion units is the supply of energy to the production of industry goods. This fact is often supported by the substitutability of the waste unit by units fired with conventional fossil fuels. As evidence for such substitutability may serve *inter alia*:

- The waste unit is operated in technical connection with other boilers or CHP units, e.g. by feeding into a steam grid;
- The waste unit has replaced a previous boiler or CHP plant, which was fired by conventional fuels;
- The existence of reserve units which use conventional fuels;
- A significant amount of the thermal input in the waste unit is provided by conventional fuels, or other waste than hazardous or municipal waste.

Wherever the CA classifies the waste unit as co-incineration or as using other wastes than municipal and hazardous wastes, it is to be included in the EU ETS.

3.3.3 Waste (co-)incineration units

The previous section has dealt with whole installations for the incineration or co-incineration of wastes (or installations where only the activity "combustion of fuels" is carried out). Beyond this case, clause 5 of Annex I mandates: "*When the capacity threshold of any activity in this Annex is found to be exceeded in an installation, all units in which fuels are combusted, other than units for the incineration of hazardous or municipal waste, shall be included in the greenhouse gas emission permit.*" In contrast to what has been explained in the previous section, which has dealt with whole installations, here "units" for the incineration of waste are mentioned. As this clause deals primarily with the inclusion of associated activities, a suitable decision making for this case can be outlined like this:

1. Is there a unit part of this installation, which according to the competent authority's opinion is dedicated to the *incineration* (not co-incineration) of hazardous or municipal waste? If no: no unit to be exempt.
2. Is this unit part of another activity listed in Annex I of the ETS Directive (e.g. integral part of a refinery or a bulk organic chemical production[14])? If yes, it is included in the EU ETS anyway as part of that activity.
3. If under 2 the answer is no, this unit can be exempt from the EU ETS.

3.3.4 Units using exclusively biomass

Units using exclusively biomass

Units exclusively using biomass[15] are excluded from the aggregation clause. However, where an installation also operates fossil fuelled combustion units (with aggregated capacity above 20 MW_{th}), the biomass units are included in the EU ETS. But even if all units of the installation use only biomass, i.e. even if

[14] Subject to the judgement of the competent authority, a unit may be regarded as "integral part" of the activity, if the production is technically impossible or not allowed under the relevant permit (IPPC, WID or other), when the unit under consideration is shut down.

[15] For a definition of biomass see MRG 2007, Annex I, section 2 point 4(f) and section 12.

zero emissions can be expected, the Member State may include the installation via opt-in (Article 24).

Start-up burners

When doing the aggregation for deciding upon the inclusion of the installation in the EU ETS, units which use fossil fuels only for start-up or shut-down may be excluded as well. However, this exclusion is only relevant for the decision of including the installation in the ETS. As soon as the whole installation is in the ETS, these units are included as well. Consequently, the fossil emissions from the start-up burners are to be monitored and reported.

Start-up burners are separate ignition/pilot burners used during start-up of a combustion unit, which are necessary for avoiding unstable combustion situations by ensuring re-ignition of the fuel, and for controlled shut-down of the combustion unit. Usually this should be clearly stated by the manufacturer of that unit, and be laid down in the operating and/or GHG emissions permit. The existence of a dedicated start-up burner may serve as indicator for the fact that otherwise exclusively biomass is used within this unit.

If no detailed information is available on the use of fossil fuels, it can be assumed that fossil fuels are used only for start-up if the share of energy input derived from fossil fuels of the units does not exceed 1 % of the total annual energy input.

4 THE AGGREGATION RULE

4.1 Capacity

Further guidance to be developed

For a general definition of capacity, the Commission's non-paper from September 2003 (p.7) stated:

> *"The only technically coherent meaning of "capacity" is, therefore, the capacity at which the installation is capable of being operated. That is to say, it is the rated capacity of the installation to operate 24 hours a day, provided that the equipment is capable of being operated in that way."*[16]

A more detailed guidance on how to determine the capacity of units and installations will be developed in the context of the Community-wide fully harmonised implementing measures pursuant to Article 10a(1).

4.2 The aggregation clause

The aggregation clause in Annex I of the EU ETS Directive uses the same approach as the IPPC Directive. The clause is included in the second sentence of clause 2 of Annex I and states:

[16] The non-paper cites this from COM(2003)354, "Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - On the Road to Sustainable Production - Progress in implementing Council Directive 96/61/EC concerning integrated pollution prevention and control."

"Where several activities falling under the same category are carried out in the same installation, the capacities of such activities are added together."

The clause should lead to equal treatment of installations of the same capacity, even if one carries out this activity in several smaller production units and the other in one bigger unit. However, in order to support the implementation of the broad combustion definition, the EU ETS Directive adds further rules with clause 3 of Annex I:

"When the total rated thermal input of an installation is calculated in order to decide upon its inclusion in the Community scheme, the rated thermal inputs of all technical units which are part of it, in which fuels are combusted within the installation, are added together. These units could include all types of boilers, burners, turbines, heaters, furnaces, incinerators, calciners, kilns, ovens, dryers, engines, fuel cells, chemical looping combustion units, flares, and thermal or catalytic post-combustion units. Units with a rated thermal input under 3 MW and units which use exclusively biomass shall not be taken into account for the purposes of this calculation. 'Units using exclusively biomass' includes units which use fossil fuels only during start-up or shut-down of the unit."

The meaning of clause 3 of Annex I

The purpose of this clause is multi-fold:

- The aggregation clause is repeated with special clarification for all activities which have a capacity threshold expressed as total rated thermal input. All units, in which fuels are combusted (i.e. without differentiation between more specific activities) are to be aggregated. See section 3.2.
- It clarifies (together with the definition of installation (Article 3(e)) the hierarchy of terms: A site is the biggest item, which can consist of several installations. An installation can consist of several units.
- The non-exhaustive list gives further insight in what can be such units: Boilers, turbines, kilns, flares... (see section 4.4)
- An exemption (de-minimis rule) to the aggregation clause is included: Units with a rated thermal input below 3MW are excluded, as well as units using exclusively biomass (see section 3.3.4).

Note that Article 27 does not provide a basis for leaving out biomass units and the 3MW de-minimis units (see section 4.5.2.).

4.3 Reserve and backup units and parallel capacities

Treatment of reserve and back-up units

It is common industry practice that reserve or backup units exist at installations. Such units are used for replacing the main units during maintenance or other shutdowns, or for covering heat demands during peak load situations. Thus, such units are usable in parallel to the main units, and are not in operation during the major part of the year. A similar situation occurs where two intermittent kilns take turns for production batches.

This situation, where parts of installations *usually* do not operate at the same time, is *per se* not a reason for not adding the capacities together. An exception can only be granted if the operator can give evidence to the satisfaction of the competent authority, that there are physical or legal restrictions which effectively

prevent the simultaneous operation of these units. These restrictions must be clearly identified and be mandated by the competent authority in an enforceable way (e.g. by conditions in the GHG emissions permit or IPPC permit) and be subject to regular inspection[17] by the CA. In such cases, the bigger of the two capacities shall be assumed to determine the inclusion in the EU ETS.

4.4 Definition of „Unit“

Combustion units

The term “unit” is defined only indirectly in the EU ETS Directive, by a non-exhaustive list in clause 3 of Annex I:

> *“These units could include all types of boilers, burners, turbines, heaters, furnaces, incinerators, calciners, kilns, ovens, dryers, engines, fuel cells, chemical looping combustion units, flares, and thermal or catalytic post-combustion units.”*

Room for interpretation could exist where one unit contained in this list, e.g. a kiln, has sub-units also contained in the list, e.g. several burners which together supply the heat necessary for a certain production process. In such cases, the more overarching unit (in this example the kiln) should be considered the “unit” when applying the aggregation clause or de-minimis exemption. There are two reasons for this:

Equal treatment

- A kiln with 12 MW thermal input could be equipped with 2 x 6 MW burners, but also with 3 x 4 MW, 4 x 3 MW or 6 x 2MW, and several more options. In order to treat all comparable kilns equal, the burner cannot be considered the appropriate “unit”.
- The Directive states *“‘Units using exclusively biomass’ includes units which use fossil fuels only during start-up or shut-down of the unit.”* Thus, the Directive acknowledges with its own example that a unit is usually the more complex item and can contain several independent burners (the fossil start-up fuel usually requires a separate “start-up burner”).

Unit = equipment serving a particular purpose

From the above it can be concluded that “burner” is in the list of units for completeness reasons, in order to demonstrate the broadness of the definition for the rare case of stand-alone burners. Otherwise, a burner is usually considered to be a sub-part of a bigger unit which as a whole serves a particular purpose, such as kilns, boilers or dryers, chemical reactors, distillation columns, CHP plants, etc.

The exclusion of de-minimis units is only relevant for the decision of including the installation in the ETS. As soon as the whole installation is in the ETS, these units are included as well.

[17] This can be done either by third party verifiers, who are accredited for this type of inspection, or by the competent authority itself.

4.5 Step-by-step approach

Decision tree

4.5.1 Defining installations which fall under the scope of EU ETS

Summarizing the previous chapters, the following decision tree can be followed when determining if an installation falls under the scope of the EU ETS:

1. Apply the broadest possible installation boundaries (chapter 2).
2. Are activities of Annex I other than "combustion of fuels" carried out at the installation? (chapter 3.2).
    a. yes: Activity-specific capacity threshold (if any) exceeded?
        i. yes:
            1. Include all directly related activities (especially combustion units including their waste gas treatment)
            2. check for units for the incineration of municipal and hazardous waste to be excluded following section 3.3.3,
            3. proceed to point 9.
        ii. no: Carry on with point 3 (assessing combustion units).
    b. no: Carry on with point 3 (assessing combustion units).
3. List all combustion units of the installation.
4. Exclude units for the incineration of municipal and hazardous waste (see chapter 3.3.2 and 3.3.3) from the list derived under point 3, but leave units for co-incineration on the list,
5. Exclude biomass units from the list[18],
6. Exclude units with a rated thermal input of less than 3 MW_{th} from the list.
7. Add up all rated thermal inputs of the units remaining on the list of combustion units.
8. Does the sum determined under point 7 exceed 20 MW_{th}?
    a. Yes: Installation is under the EU ETS. Add again all units excluded under point 5 and 6. Proceed to point 9.
    b. No: Installation stays out of the EU ETS. *Exit decision tree.*

4.5.2 Identifying installations which fall under the scope of EU ETS, but could be excluded as "small installations" pursuant to Article 27

9. Does the Member State concerned intend to notify to the Commission an exclusion of small emitters pursuant to Article 27?
    a. No: Installation is included in the EU ETS. *Exit decision tree.*
    b. Yes: proceed to point 10.
10. Is at least one of the following criteria met?
        i. Installation is a hospital (see chapter 6.1)

[18] Units with start-up burners are also excluded, see chapter 3.3.4 for definition.

ii. Installation carries out Annex I-activity other than "combustion of fuels", and annual GHG emissions covered by the EU ETS in the 3rd trading period in each of the years 2008 to 2010 have been <25 000 t CO_2(eq)[19],

iii. Installation carries out Annex I-activity "combustion of fuels", and the aggregate capacity (including the capacity of units mentioned under points 5 and 6) is <35 MW_{th}[20], and annual GHG emissions covered by the EU ETS in the 3rd trading period in each of the years 2008 to 2010 have been <25 000 t CO_2(eq)[21].

a. Yes: Installation may be excluded from EU ETS, if equivalent measures and monitoring and reporting arrangements in accordance with Article 14 are in place and if installation is notified at the latest to the Commission by 30 September 2011[22].

b. No: Installation stays in the EU ETS.

Examples

Example 1: An installation operating:

- 3 units with 4 MW_{th} each,
- 1 unit (boiler) of 9 MW_{th}, and
- 8 units of 2 MW_{th}.

This installation is included in the EU ETS (3x4 + 9 = 21 MW_{th}). As all units excluded under point 5 and 6 have to be added up again, the installation is included with its full capacity of 12 + 9 + 16 = 37 MW_{th}, and cannot be excluded under Article 27 due to its capacity of 37 MW_{th}.

If the 9 MW_{th} unit used exclusively biomass, the whole installation would fall out of the scope of ETS, because only the 3 units with 4 MW_{th} each remain to be aggregated. No decision regarding possible exclusion would be necessary in this case.

Example 2: An installation operates a boiler of 28 MW_{th} fired with natural gas, and a wood based boiler of 12 MW_{th}. While the wood boiler is excluded for the aggregation, it is included for the purpose of checking the capacity threshold for possible exclusion. Since Article 27 does not refer to the same de-minimis rules as clause 3 of Annex I, all combustion units at the installation are to be considered. Thus the relevant capacity is 28 + 12 = 40 MW_{th}, i.e. too high for a possible exclusion.

Example 3: A ceramics plant operates 2 tunnel kilns with an aggregate production capacity exceeding 75 tonnes per day and a boiler feeding steam to a dryer. In this situation the installation can be considered to carry out only the ac-

[19] In order to also give the possibility to exclude small installations that only started up their Annex I-activity in one of the years 2008 to 2010 (and were regarded as new entrants by the Competent Authority in the 2nd trading period), "in each of the years 2008 to 2010" must be interpreted as "in each of the years 2008 to 2010 in which the installation was performing an Annex I-activity".

[20] When assessing the 35 MW and 25 000 t CO2(eq) threshold for possible exclusion from the Community scheme, also the fuel use (and CO2 emissions) from units with a rated thermal input of less than 3 MWth are included. It is therefore clear that the calculation of the 35 MW treshold does not provide the "earlier" exclusion of units below 3 MW thermal input and units using exclusively biomass, as these exclusions are only relevant when assessing whether an installation falls under the scope of the EU ETS.

[21] See footnote 19.

[22] Installations that are notified later then 30 September 2011 can not be excluded as from EU ETS.

tivity “production of ceramics”. For possible exclusion under Article 27, only the emissions threshold of 25 000 t CO_2(eq) per year is relevant.

Member States will have to notify a list of *all* installations under the scope of EU ETS in 3rd trading period (identifying also small emitters to be possibly excluded pursuant to Article 27).

5 NEW ACTIVITIES

Note: This section deals only with questions which the Commission has received so far, and is not intended to give a complete overview about installation boundaries of new activities. It should be recalled that coverage of activities may not completely coincide with the boundaries of certain product benchmarks for free allocation. For example the production of alumina is discussed in the Ecofys/Fraunhofer study in the aluminium sector, but is included in the EU ETS due to the combustion of fuels at such installations.

5.1 What are “bulk organic chemicals”?

Production process as criterion, no exhaustive list available

Bulk organic chemicals are chemicals which are usually produced at large scale and sold as commodities for the purpose of producing other chemicals. Production processes under this activity are “cracking, reforming, partial or full oxidation” and “similar processes” (i.e. processes where severe thermal and/or oxidising conditions prevail). A production process can be assumed to be a “similar process” falling under this activity, if CO_2 emissions are not only result of separate combustion of fuels, but where part of the emitted carbon stems from the feedstock. Other chemical production processes should be assessed regarding inclusion in the EU ETS under the aspect of combustion activities.

There is no exhaustive list of chemicals available that would satisfy the definition of the activity in Annex I of the EU ETS Directive. However, Table 3 can serve as a starting point. The fact that the chemicals produced are not listed in Table 3 does therefore not mean that the installation considered should not be included in the EU ETS. A consideration on a case-by-case basis will therefore be required.

In line with section 4.2, where more than one organic chemical is produced, the aggregation clause requires all production volumes to be added. Also, in line with section 3.2, the production of chemicals which have not been identified as being bulk organic chemicals and which are not individually listed in Annex I (i.e. chemicals such as ammonia, carbon black, etc) must be assessed for inclusion in the EU ETS under the assumption that the activity “combustion of fuels” is relevant.

Table 3: Non-exhaustive list of bulk organic chemicals

Ethylene / Propylene / Butene / Butadiene and other olefins
Acetylene if not produced from calcium carbide
EDC / VCM (Vinyl chloride)
Aromatics (Benzene, Toluene, Xylenes, Styrene, Ethylbenzene, Naphthalene and others)
Terephthalic acid / Dimethyltryptamine
Ethylene oxide and Ethylene glycol, Propylene oxide and other epoxides
Phenol and other phenols
Acetone, Cyclohexanone and other Ketones
Acrylonitrile, Acrylic acid, Methacrylic acid
Cumene
Methanol, Ethanol (if not produced by fermentation) and higher alcohols
Formaldehyde, Acetaldehyde, Acrolein and higher aldehydes
Formic acid, acetic acids (if not from fermentation) and higher carboxylic acids
Phthalic acid, Maleic acid and their anhydrides
Acetic anhydride
Polyethylene, Polypropylene, Polystyrene, Polyvinylchloride
Polycarbonate, Polyamide, Urea derivatives, Silicones

5.2 Glyoxal and glyoxylic acid

A special case of Annex I is the activity “production of glyoxal and glyoxylic acid”. These can be produced by two different routes: (1) Oxidation of ethylene glycol in the presence of a catalyst only leads to CO_2 emissions. (2) Liquid phase oxidation of acetaldehyde with nitric acid leads to emission of both CO_2 and N_2O. MS have to take this into consideration when identifying and permitting respective installations.

5.3 Nitric acid, adipic acid, glyoxal and glyoxalic acid

N_2O and CO_2

For these activities N_2O and CO_2 emissions are to be included. This means N_2O emissions as covered by Annex XIII of the MRG and all CO_2 emissions arising from the production process of these chemicals and from combustion activities at these installations. The Commission will carefully examine if an MRG update is needed in order to achieve full coverage of these emissions.

5.4 Production of primary and secondary aluminium

Aluminium production and processing

In the case of primary aluminium production, CO_2 emissions can occur from fuel combustion and anode consumption, and PFC emissions[23] from anode effects. In secondary aluminium productions CO_2 emissions from fuel consumption can occur. With regards to installation boundaries, at least the following process steps should be taken into consideration:

- Primary smelting operations (CO_2 and PFC)
- Primary aluminium casting
- Combustion of fuels for
    - Secondary remelting operations
    - Secondary refining operations
    - Rolling operations
    - Extrusion operations
    - Casting

Alumina refining and anode production are considered part of the activity “aluminium production” if carried out in the same installation. If the production takes place in a separate installation, these activities must be included in the EU ETS if fuels are combusted with a rated thermal input of more than 20 MW.

For secondary aluminium production or processing see also chapter 3.2.2.

6 VARIOUS ISSUES

6.1 Definition of hospital

Hospitals can be excluded from the EU ETS under Article 27, irrespective of their emissions or thermal capacities. Thus, a definition of hospitals should be applied consistently by all Member States in order to prevent abuse of this exception. For this purpose, the operator of a hospital shall provide evidence to the competent authority, that providing hospital activities is the main purpose of the installation in question. This can be a proof from the statistical office that the installation is classified as NACE 85.11 (NACE rev 1.1) or 86.10 (NACE rev. 2).

6.2 Flue gas desulphurisation

Even though sometimes marketable gypsum is a by-product of flue gas desulphurisation, this cannot be regarded a separate activity of gypsum production as listed *under Annex I. Since waste gas scrubbing is part of the definition of combustion*, only one activity ("combustion of fuels") is carried out per definition in such case.

[23] Gases to be taken into consideration are CF_4 and C_2F_6.

7 ANNEX

7.1 Glossary

CA..... Competent Authority

CCC ..... Climate Change Committee

CIMs ..... Community-wide and fully-harmonised implementing measures pursuant to Article 10a(1)

ESD ..... "Effort Sharing Decision": Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

EU ETS..... EU greenhouse gas Emission Trading Scheme

EU ETS Directive.. Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC

GHG..... Greenhouse gas(es) listed in Annex II to the EU ETS Directive. Only those GHG which are listed in Annex I for each activity are considered within this guidance.

IPPC Directive ..... Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control

MRG 2007 ..... Monitoring and Reporting Guidelines (Commission Decision of 18 July 2007 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council (2007/589/EC))

MS ..... Member State(s). Note that within this guidance, this should be read as "EU Member States and Norway, Iceland and Liechtenstein", i.e. all States participating in the EU ETS, subject to an expected extension of the EEA agreement for including the EU ETS review.

NACE..... Statistical classification of economic activities in the European Community

NIMs ..... National implementation measures pursuant to Article 11

WID..... Waste Incineration Directive (Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste)

7.2 Annex I of the revised ETS-directive (excluding aviation activities)

Categories of activities to which this directive applies

1. Installations or parts of installations used for research, development and testing of new products and processes and installations exclusively using biomass are not covered by this Directive.

2. The thresholds values given below generally refer to production capacities or outputs. Where several activities falling under the same category are carried out in the same installation, the capacities of such activities are added together.

3. When the total rated thermal input of an installation is calculated in order to decide upon its inclusion in the Community scheme, the rated thermal inputs of all technical units which are part of it, in which fuels are combusted within the installation, are added together. These units could include all types of boilers, burners, turbines, heaters, furnaces, incinerators, calciners, kilns, ovens, dryers, engines, fuel cells, chemical looping combustion units, flares, and thermal or catalytic post-combustion units. Units with a rated thermal input under 3 MW and units which use exclusively biomass shall not be taken into account for the purposes of this calculation. "Units using exclusively biomass" includes units which use fossil fuels only during start-up or shut-down of the unit.

4. If a unit serves an activity for which the threshold is not expressed as total rated thermal input, the threshold of this activity shall take precedence for the decision about the inclusion in the Community scheme.

5. When the capacity threshold of any activity in this Annex is found to be exceeded in an installation, all units in which fuels are combusted, other than units for the incineration of hazardous or municipal waste, shall be included in the greenhouse gas emission permit.

	Activities	Greenhouse gases
1	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)	Carbon dioxide
2	Refining of mineral oil	Carbon dioxide
3	Production of coke	Carbon dioxide
4	Metal ore (including sulphide ore) roasting or sintering, including pelletisation	Carbon dioxide
5	Production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2,5 tonnes per hour	Carbon dioxide
6	Production or processing of ferrous metals (including ferro-alloys) where combustion units with a total rated thermal input exceeding 20 MW are operated. Processing includes, inter alia, rolling mills, re-heaters, annealing furnaces, smitheries, foundries, coating and pickling	Carbon dioxide
7	Production of primary aluminium	Carbon dioxide and perfluorocarbons
8	Production of secondary aluminium where combustion units with a total rated thermal input exceeding 20 MW are operated	Carbon dioxide
9	Production or processing of non-ferrous metals, including production of alloys, refining, foundry casting, etc., where combustion units with a total rated thermal input (including fuels used as reducing agents) exceeding 20 MW are operated	Carbon dioxide
10	Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day	Carbon dioxide
11	Production of lime or calcination of dolomite or magnesite in rotary kilns or in other furnaces with a production capacity exceeding 50 tonnes per day	Carbon dioxide
12	Manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
13	Manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day	Carbon dioxide
14	Manufacture of mineral wool insulation material using glass, rock or slag with a melting capacity exceeding 20 tonnes per day	Carbon dioxide

	Activities	Greenhouse gases
15	Drying or calcination of gypsum or production of plaster boards and other gypsum products, where combustion units with a total rated thermal input exceeding 20 MW are operated	Carbon dioxide
16	Production of pulp from timber or other fibrous materials	Carbon dioxide
17	Production of paper or cardboard with a production capacity exceeding 20 tonnes per day	Carbon dioxide
18	Production of carbon black involving the carbonisation of organic substances such as oils, tars, cracker and distillation residues, where combustion units with a total rated thermal input exceeding 20 MW are operated	Carbon dioxide
19	Production of nitric acid	Carbon dioxide and nitrous oxide
20	Production of adipic acid	Carbon dioxide and nitrous oxide
21	Production of glyoxal and glyoxylic acid	Carbon dioxide and nitrous oxide
22	Production of ammonia	Carbon dioxide
23	Production of bulk organic chemicals by cracking, reforming, partial or full oxidation or by similar processes, with a production capacity exceeding 100 tonnes per day	Carbon dioxide
24	Production of hydrogen (H2) and synthesis gas by reforming or partial oxidation with a production capacity exceeding 25 tonnes per day	Carbon dioxide
25	Production of soda ash (Na2CO3) and sodium bicarbonate (NaHCO3)	Carbon dioxide
26	Capture of greenhouse gases from installations covered by this Directive for the purpose of transport and geological storage in a storage site permitted under Directive 2009/31/EC	Carbon dioxide
27	Transport of greenhouse gases by pipelines for geological storage in a storage site permitted under Directive 2009/31/EC	Carbon dioxide
28	Geological storage of greenhouse gases in a storage site permitted under Directive 2009/31/EC	Carbon dioxide