EUROPEAN
COMMISSION

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ANNEXES 1 to 6

ANNEXES

to

COMMISSION DELEGATED REGULATION (EU) …/...

amending Delegated Regulation (EU) 2019/331 as regards transitional Union-wide rules for harmonised free allocation of emission allowances

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Annex I is amended as follows:

(1)   Section 1 is amended as follows:

(a)   the heading is replaced by the following:
'1.   Definition of product benchmarks and system boundaries without collection of data on electricity consumption';

(b)   the second row on sintered ore is replaced by the following:

'Agglomerated iron ore	Agglomerated iron-bearing product containing iron ore fines, fluxes and possibly iron-containing recycling materials with the chemical and physical properties such as the level of basicity, mechanical strength and permeability required to deliver iron and necessary flux materials into iron ore reduction processes. Expressed in tonnes of agglomerated ore as leaving the agglomerated iron ore production plant. Agglomerated iron ore returned to the production process is not to be considered as part of the product.	All processes directly or indirectly linked to the production of agglomerated iron ore are included.	0,171';

(c)   the third row on hot metal is replaced by the following:

'Hot metal	Iron produced from iron ores for primary steelmaking including a) liquid iron saturated with carbon for further processing, considered as product of blast furnaces, and expressed in tonnes of liquid iron at the exit point of the blast furnace, excluding liquid iron produced from sponge iron under b), b) sponge iron at the exit point of a direct reduced iron reactor, and expressed in tonnes of sponge iron at the exit point of the direct reduced iron reactor. Similar products such as ferroalloys are not covered by this product benchmark. Residual material and by-products are not to be considered as part of the product.	All processes directly or indirectly linked to the process units blast furnace, hot metal treatment units, blast furnace blowers, blast furnace hot stoves, direct reduced iron reactor, electric arc furnace and electric smelting furnace for sponge iron, basic oxygen furnace, secondary metallurgy units, vacuum ladles, casting units (including cutting), slag treatment unit, burden preparation, BF and other gas treatment units, dedusting units, scrap pre-heating, coal drying for PCI, vessels preheating stands, casting ingots preheating stands, compressed air production, dust treatment unit (briquetting), sludge treatment unit (briquetting), steam injection in BF unit, steam generation plant, converter BOF gas cooling and miscellaneous are included.	1,328';

(d)   the sixth row on grey cement clinker is replaced by the following:

'Grey cement clinker	Grey cement clinker or alternative hydraulic binders for the production of cement, as total amount of hydraulic binder produced. Products produced within the system boundaries of other product benchmarks or as by-product or waste of other production processes are not covered by this benchmark, including fly ash, blast-furnace slag, steel slag, silica fume, paper sludge.	All processes directly or indirectly linked to the production of grey cement clinker or alternative hydraulic binders are included.	0,766';

(e)   the seventh row on white cement clinker is replaced by the following:

'White cement clinker	White cement clinker or alternative hydraulic binders for use as main binding component in the formulation of materials such as joint filers, ceramic tile adhesives, insulation, and anchorage mortars, industrial floor mortars, ready mixed plaster, repair mortars, and water-tight coatings with maximum average contents of 0,4 mass-% Fe_2O_3, 0,003 mass-% Cr_2O_3 and 0,03 mass-% Mn_2O_3. Expressed in tonnes of hydraulic binders (as 100 % clinker/alternative hydraulic binders). Products produced within the system boundaries of other product benchmarks or as by-product or waste of other production processes are not covered by this benchmark, including fly ash, blast-furnace slag, steel slag, silica fume, paper sludge.	All processes directly or indirectly linked to the production of white cement clinker or alternative hydraulic binders are included.	0,987';

(f)   the twenty-eighth row on tissue is replaced by the following:

'Tissue	Tissue papers, covering a wide range of tissue and other hygienic papers for use in households or commercial and industrial premises such as toilet paper and facial tissues, kitchen towels, hand towels and industrial wipes, the manufacture of baby nappies, sanitary towels, etc. TAD - Through Air Dried Tissue is not part of this group. Expressed as tonnes of net saleable production of parent reel in air dried tonnes, defined as paper with 6 % moisture content.	All processes which are part of the paper production process (in particular paper or board machine and connected energy conversion units (boiler/CHP) and direct process fuel use) are included. Other activities on site that are not part of this process such as sawmilling activities, woodworking activities, production of chemicals for sale, waste treatment (treating waste onsite instead of offsite (drying, pelletising, incinerating, landfilling), PCC (precipitated calcium carbonate) production, treatment of odorous gases, and district heating are not included. The conversion of parent reel to finished products is not part of this product benchmark.	0,334';

(g)   the last row on soda ash is replaced by the following:

'Soda ash	Disodium carbonate, expressed in tonnes of soda ash as total gross production except dense soda ash obtained as by-product in a caprolactam production network.	All processes directly or indirectly linked to the process units brine purification, limestone calcination and milk of lime production, carbon dioxide reactors, absorption of ammonia, precipitation of $NaHCO_3$, filtration or separation of $NaHCO_3$ crystals from mother liquor, decomposition of $NaHCO_3$ to Na_2CO_3, recovery of ammonia and densification or production of dense soda ash are included.	0,843';

(2)   Section 2 is replaced by the following:

'2.   Definition of product benchmarks and system boundaries with collection of data on electricity consumption

Product benchmark	Definition of products covered	Definition of processes and emissions covered (system boundaries)	Starting point for determination of annual reduction rate for benchmark value update (allowances/t)
Refinery products	Mix of refinery products with more than 40 % light products (motor spirit (gasoline) including aviation spirit, spirit type (gasoline type) jet fuel, other light petroleum oils/light preparations, kerosene including kerosene type jet fuel, gas oils) expressed as CO2 weighted tonne (CWT). Refineries with other product mixes are not covered by this product benchmark.	All processes of a refinery matching the definition of one of the CWT process units as well as ancillary non-process facilities operating inside the refinery fence-line such as tankage, blending, effluent treatment, etc. are included. Lube oils and bitumen processing units located in mainstream refineries are also included in the refinery CWT and emissions envelope. Process units pertaining to other sectors, such as petrochemicals, are sometimes physically integrated with the refinery. Such process units and their emissions are excluded from the CWT approach. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,0295
EAF carbon steel	Steel containing less than 8 % metallic alloying elements and tramp elements to such levels limiting the use to those applications where no high surface quality and processability is required and if none of the criteria for the content of the metal alloying	All processes directly or indirectly linked to the process units electric arc furnace, secondary metallurgy, casting and cutting, post-combustion unit, dedusting unit, vessels heating stands, casting ingots preheating stands, scrap drying and scrap preheating are included.	0,283

		elements and the steel quality for high alloy steel are met. Expressed in tonnes of crude secondary steel ex-caster. Steel produced from iron sponge already covered under the hot metal benchmark is not covered by this benchmark.	Processes downstream of casting are not included. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	
EAF high alloy steel	Steel containing 8 % or more metallic alloying elements or where high surface quality and processability is required. Expressed in tonnes of crude secondary steel ex-caster. Steel produced from iron sponge already covered under the hot metal benchmark is not covered by this benchmark.	All processes directly or indirectly linked to the process units electric arc furnace, secondary metallurgy, casting and cutting, post-combustion unit, dedusting unit, vessels heating stands, casting ingots preheating stands, slow cooling pit, scrap drying and scrap preheating are included. The process units FeCr converter and cryogenic storage of industrial gases are not included. Processes downstream of casting are not included. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,352
Iron casting	Casted iron expressed as tonnes of liquid iron ready alloyed, skinned, and ready for casting.	All processes directly or indirectly linked to the process steps melting shop, casting shop, core shop and finishing are included. The process step 'finishing' refers to operations like fettling but not general matching, heat treatment or painting which are not covered by the system boundaries of this product benchmark. For the purpose of data collection, only the electricity consumption of melting processes within the system boundaries shall be considered.	0,325

Mineral wool	Mineral wool insulation products for thermal, acoustic and fire applications manufactured using glass, rock or slag. Expressed in tonnes of mineral wool (saleable product).	All processes directly or indirectly linked to the production steps melting, fiberizing and injection of binders, curing and drying and forming are included. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,682
Plasterboard	The benchmark covers boards, sheets, panels, tiles, similar articles of plaster/compositions based on plaster, (not) faced/reinforced with paper/paperboard only, excluding articles agglomerated with plaster, ornamented (in tonnes of stucco, saleable product). High-density gypsum fibreboards are not covered by this product benchmark.	All processes directly or indirectly linked to the production steps milling, drying, calcining and board drying are included. For the purpose of data collection, only the electricity consumption of heat pumps applied in the drying stage shall be considered. The production of the intermediary product dried secondary gypsum is not covered by this benchmark.	0,131
Carbon black	Furnace carbon black, expressed in tonnes of furnace carbon black, saleable product, purity above 96 %. Gas- and lamp black products are not covered by this benchmark.	All processes directly or indirectly linked to the production of furnace carbon black as well as finishing, packaging and flaring are included. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered. However, only electricity driven devices like pumps and compressors with a rated power of 2 MW or more should be considered.	1,954

Ammonia	Ammonia (NH3), expressed in tonnes produced, 100 % purity. Ammonia produced from hydrogen produced by chloralkali electrolysis or by chlorate production is not covered by this benchmark.	All processes directly or indirectly linked to the production of the ammonia and the intermediate product hydrogen are included. Ammonia production from other intermediate products is not covered. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	1,619
Steam cracking	Mix of high value chemicals (HVC) expressed in tonnes as total mass of acetylene, ethylene, propylene, butadiene, benzene and hydrogen exported out of the cracker perimeter excluding HVC from supplemental feed (hydrogen, ethylene, other HVC) with an ethylene content in the total product mix of at least 30 mass-percent and a content of HVC, fuel gas, butenes and liquid hydrocarbons of together at least 50 mass-percent of the total product mix.	All processes directly or indirectly linked to the production of high value chemicals as purified product or intermediate product with concentrated content of the respective HVC in the lowest tradable form (raw C4, unhydrogenated pygas) are included except C4 extraction (butadiene plant), C4-hydrogenation, hydrotreating of pyrolysis gasoline & aromatics extraction and logistics/storage for daily operation. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,702

Aromatics	Mix of aromatics expressed as CO_2 weighted tonne (CWT).	All processes directly or indirectly linked to the aromatics sub-units pygas hydrotreater, benzene/toluene/xylene (BTX) extraction, TDP, HDA, xylene isomerisation, P-xylene units, cumene production and Cyclo-hexane production are included. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,0295
Styrene	Styrene monomer (vinyl benzene, CAS number: 100-42-5). Expressed in tonnes of styrene (saleable product).	All processes directly or indirectly linked to the production of styrene as well as the intermediate product ethylbenzene (with the amount used as feed for the styrene production) are included. For installations producing both propylene oxide and styrene monomer, the facilities exclusively dedicated to propylene and propylene oxide unit operations are excluded from this benchmark, and shared facilities are covered in proportion to the production in tonnes of the styrene monomer production. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,527

Hydrogen	Pure hydrogen and mixtures of hydrogen and carbon monoxide having a hydrogen content >= 60 % volume fraction of total contained hydrogen plus carbon monoxide based on the aggregation of all hydrogen and carbon-monoxide-containing product streams exported from the sub-installation concerned expressed as tonnes of 100 % pure hydrogen, as net saleable product. Hydrogen used for ammonia production is not covered by this benchmark but under the ammonia benchmark. Hydrogen produced by chloralkali electrolysis or by chlorate production or released from chemical conversion from hydrogen carriers used to transport hydrogen from production facilities is not covered by this benchmark.	All relevant process elements directly or indirectly linked to the production of hydrogen and the separation of hydrogen and carbon monoxide are included. These elements lie between: a) the point(s) of entry of feedstock(s) and, if separate, fuel(s); b) the points of exit of all product streams containing hydrogen and/or carbon monoxide; c) the point(s) of entry or exit of import or export heat. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	8,85
Synthesis gas (syngas)	Mixtures of hydrogen and carbon monoxide having a hydrogen content < 60 % volume fraction of total contained hydrogen plus carbon monoxide based on the aggregation of all hydrogen and carbon-monoxide-containing product streams exported from the sub-installation concerned. Expressed in tonnes of synthesis gas referred to 47 volume-percent hydrogen as net saleable product.	All relevant process elements directly or indirectly linked to the production of syngas and the separation of hydrogen and carbon monoxide are included. These elements lie between: a) the point(s) of entry of feedstock(s) and, if separate, fuel(s) b) the points of exit of all product streams containing hydrogen and/or carbon monoxide c) the point(s) of entry or exit of import or export heat For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,242

Ethylene oxide/ ethylene glycols	The ethylene oxide/ethylene glycol benchmark covers the products ethylene oxide (EO, high purity), monoethylene glycol (MEG, standard grade + fiber grade (high purity)), diethylene glycol (DEG), triethylene glycol (TEG). The total amount of products is expressed in terms of tonnes of EO-equivalents (EOE), which are defined as the amount of EO (in mass) that is embedded in one mass unit of the specific glycol.	All processes directly or indirectly linked to the process units EO production, EO purification and glycol section are included. For the purpose of data collection, the total electricity consumption within the system boundaries shall be considered.	0,512

If no other reference is given, all product benchmarks refer to 1 tonne of product produced expressed as saleable (net) production and to 100 % purity of the substance concerned.

All definitions of processes and emissions covered (system boundaries) include flares where they occur.';

ANNEX II

Annex III is replaced by the following:

'Historical activity level for specific benchmarks referred to in Articles 15(8) and 17(f)

1. The product-related historical activity level for the baseline period for products to which the refinery product benchmark as referred to in Annex I applies on the basis of the different CWT functions, their definitions, the basis for throughput as well as the CWT factors as listed in Annex II, shall be determined according to the following formula:

$$HAL_{CWT} = MEDIAN \left(1,0183 \cdot \sum_{i=1}^{n} \left(TP_{i,k} \cdot CWT_i \right) + 298 + 0,315 \cdot TP_{AD,k} \right)$$

whereby:

HAL_{CWT}:	historical activity level expressed as CWT
$TP_{i,k}$:	throughput of the CWT function i in year k of the baseline period
CWT_i:	CWT factor of the CWT function i
$TP_{AD,k}$:	throughput of the CWT function 'Atmospheric Crude Distillation' in year k of the baseline period

2. The product-related historical activity level for the baseline period for products to which the lime product benchmark as referred to in Annex I applies shall be determined according to the following formula:

$$HAL_{lime,standard} = MEDIAN \left(\frac{785 \cdot m_{CaO,k} + 1\,092 \cdot m_{MgO,k}}{751,7} \cdot HAL_{lime,uncorrected,k} \right)$$

whereby:

$HAL_{lime,standard}$:	historical activity level for lime production expressed in tons of standard pure lime
$m_{CaO,k}$:	content of free CaO in the produced lime in year k of the baseline period expressed as mass-%
$m_{MgO,k}$:	content of free MgO in the produced lime in year k of the baseline period expressed as mass-%
$HAL_{lime,uncorrected,k}$:	uncorrected historical activity level for lime production in year k of the baseline period expressed in tonnes of lime

3. The product-related historical activity level for the baseline period for products to which the dolime product benchmark as referred to in Annex I applies shall be determined according to the following formula:

$$HAL_{dolime,standard} = MEDIAN \left(\frac{785 \cdot m_{CaO,k} + 1\,092 \cdot m_{MgO,k}}{865,6} \cdot HAL_{dolime,uncorrected,k} \right)$$

whereby:

$HAL_{dolime,standard}$:	historical activity level for dolime production expressed in tonnes of standard pure dolime
$m_{CaO,k}$:	content of free CaO in the produced dolime in year k of the baseline period expressed as mass-%
$m_{MgO,k}$:	content of free MgO in the produced dolime in year k of the baseline period expressed as mass-%
$HAL_{dolime,uncorrected,k}$:	uncorrected historical activity level for dolime production in year k of the baseline period expressed in tonnes of lime

4.The product-related historical activity level for the baseline period for products to which the steam cracking product benchmark as referred to in Annex I applies shall be determined according to the following formula:

$$HAL_{HVC,net} = MEDIAN \left(HAL_{HVC,total,k} - HSF_{H,k} - HSF_{E,k} - HSF_{O,k} \right)$$

whereby:

$HAL_{HVC,net}$:	historical activity level for high value chemicals net of high value chemicals produced from supplemental feed expressed in tonnes of HVC
$HAL_{HVC,total,k}$:	historical activity level for total high value chemicals production in year k of the baseline period expressed in tonnes of HVC
$HSF_{H,k}$:	historical supplemental feed of hydrogen in year k of the baseline period expressed in tonnes of hydrogen
$HSF_{E,k}$:	historical supplemental feed of ethylene in year k of the baseline period expressed in tonnes of ethylene
$HSF_{O,k}$:	historical supplemental feed of other high value chemicals than hydrogen and ethylene in year k of the baseline period expressed in tonnes of HVC

5.The product-related historical activity level for the baseline period for products to which the aromatics product benchmark as referred to in Annex I applies on the basis of the different CWT functions, their definitions, the basis for throughput as well as the CWT factors as listed in Annex II shall be determined according to the following formula:

$$HAL_{CWT} = MEDIAN \left(\sum_{i=1}^{n} \left(TP_{i,k} \cdot CWT_i \right) \right)$$

whereby:

HAL_{CWT}:	historical activity level expressed as CWT
$TP_{i,k}$:	throughput of the CWT function i in year k of the baseline period
CWT_i:	CWT factor of the CWT function i

6. Where a mixture of hydrogen and carbon monoxide is produced, the product-related historical activity level for the baseline period for products to which the hydrogen product benchmark as referred to in Annex I applies shall be determined according to the following formula:

$$HAL_{H2} = MEDIAN((HAL_{H2,act} + HAL_{H2,WGS}) \cdot \frac{Em_{act}}{Em_{act} + Em_{WGS}})$$

whereby:

HAL_{H2}:	historical activity level for hydrogen production referred to 100 % hydrogen
$HAL_{H2,act}$:	actual hydrogen production
$HAL_{H2,WGS}$:	additional hydrogen production under theoretical complete water gas shift (WGS) reaction, calculated via the stoichiometric ratio as $HAL_{CO, act}$ x 0,071967 t H_2/tCO for the WGS reaction
$HAL_{CO, act}$	actual carbon monoxide production
Em_{act}:	actual emissions related to hydrogen production
Em_{WGS}:	additional emissions related to hydrogen production from theoretical complete WGS reaction

The actual emissions related to hydrogen production shall be determined as follows:

$$Em_{act} = DirEm_{act} - Heat_{export,act} \cdot BM_{heat}$$

whereby:

Em_{act}:	actual emissions related to hydrogen production
$DirEm_{act}$:	actual direct emissions excluding heat-related emissions, prior to any carbon capture for use or geological storage. For emissions stemming from biomass, the emissions shall be calculated as the energy content from biomass multiplied with the emission factor of natural gas instead of the actual emissions
$Heat_{export,act}$:	actual net heat export
BM_{heat}:	the value of the heat benchmark for measurable heat for the relevant allocation period

The additional emissions related to hydrogen production from theoretical complete water gas shift shall be determined as follows:

$$Em_{WGS} = CO_{WGS} \cdot \frac{M_{CO2}}{M_{CO}} - Heat_{export,WGS} \cdot BM_{heat}$$

whereby:

CO_{WGS}:	the amount of CO produced prior to the additional theoretical conversion into CO_2 via the WGS reaction
M_{CO2}:	molecular mass of CO_2 (44,01 g/mol)

M_{CO}:	molecular mass of CO (28,01 g/mol)
$Heat_{export,WGS}$:	theoretical additional net heat export after full WGS reaction assuming 99,5 % heat recovery, calculated via the reaction enthalpy of the WGS reaction (-20,439 GJ/t H_2 produced) multiplied with $HAL_{H2,WGS}$ and with the 99,5 % efficiency of recovery
BM_{heat}:	the value of the heat benchmark for measurable heat for the relevant allocation period

7. The product-related historical activity level for the baseline period for products to which the synthesis gas (syngas) product benchmark as referred to in Annex I applies shall be determined according to the following formula:

$$HAL_{syngas} = MEDIAN\left(HAL_{H2+CO,k} \cdot \left(1 - \frac{0,47 - VF_{H2,k}}{0,0863}\right) \cdot 0,0007047\frac{t}{Nm^3}\right)$$

whereby:

HAL_{syngas}:	historical activity level for synthesis gas production referred to 47 % hydrogen
$VF_{H2,k}$:	historical production volume fraction of pure hydrogen in the total volume of hydrogen and carbon monoxide in year k of the baseline period
$HAL_{H2+CO,k}$:	historical activity level for synthesis gas production referred to historical hydrogen content expressed as norm cubic meters per year referring to 0°C and 101,325 kPa in year k of the baseline period

8. The product-related historical activity level for the baseline period for products to which the ethylene oxide/ethylene glycols product benchmark as referred to in Annex I applies shall be determined according to the following formula:

$$HAL_{EO/EG} = MEDIAN\left(\sum_{i=1}^{n}\left(HAL_{i,k} \cdot CF_{EOE,i}\right)\right)$$

whereby:

$HAL_{EO/EG}$:	historical activity level for ethylene oxide/ ethylene glycols production expressed in tonnes of ethylene oxide equivalents
$HAL_{i,k}$:	historical activity level for the production of the ethylene oxide or glycol i in year k of the baseline period expressed in tonnes
$CF_{EOE,i}$	conversion factor for the ethylene oxide or glycol i relative to ethylene oxide
	Following conversion factors shall be applied:
	Ethylene oxide: 0,926
	Monoethylene glycol: 0,717
	Diethylene glycol: 1,174
	Triethylene glycol: 1,429'

Annex IV is amended as follows:

(1)   in Section 1.3 the following point is added:

'(d) The total rated thermal input for all relevant activities pursuant to Annex I to Directive 2003/87/EC.';

(2)   Section 1.4 is replaced by the following:

    '1.4. Implementation of the conditionality provisions in Articles 22a and 22b

This item contains at least the following information:

        (a)   Whether an energy audit report has been issued or a certified energy management system has been implemented for the installation under Article 8 of Directive 2012/27/EU;

        (b)   Whether there are outstanding recommendations of the energy audit report or the certified energy management system under Article 8 of Directive 2012/27/EU;

        (c)   Whether the installation is a district heating installation, eligible for additional free allocation pursuant to Article 10b(4) of Directive 2003/87/EC, and its operator intends to apply for the additional free allocation;

        (d)   For all product-benchmark sub-installations, whether the greenhouse gas emission levels were higher than the 80th percentile of emission levels for the relevant product benchmarks in the years 2016 and 2017;

        (e)   Whether a climate-neutrality plan in accordance with Implementing Regulation (EU) 2023/2441 has been submitted, where relevant;

        (f)   Detailed information on the fulfilment of the conditions for free allocation according to Articles 22a and Article 22b.';

(3)   Section 2.3 is amended as follows:

        (a)   point (a) is replaced by the following:

        '(a)   The total amount of energy input used in the installation contained in fuels and in materials (for example exothermic heat from chemical reactions);';

        (b)   point (f) is replaced by the following:

        '(f)   The amount of energy input from fuels attributed to fuel benchmark sub-installations (reported separately for carbon leakage and non-carbon leakage fuel benchmark sub-installation as well as for each of the respective amounts how much is used to produce goods listed in Annex I to Regulation (EU) 2023/956;';

        (c)   point (g) is replaced by the following:

        '(g)   The amount of fuel and electricity input used for the production of measurable heat;';

        (d)   point (j) is replaced by the following:

'(j)   Net amount of measurable heat imported from installations and entities not covered by the EU ETS or included in the EU ETS only for the purposes of Articles 14 and 15 of Directive 2003/87/EC;';

(e)   point (n) is replaced by the following:

'(n)   Net amount of measurable heat exported to installations or entities not covered by the EU ETS or included in the EU ETS only for the purposes of Articles 14 and 15 of Directive 2003/87/EC;';

(f)   point (p) is replaced by the following:

'(p)   Net amount of measurable heat attributable to heat benchmark sub-installations (reported separately for carbon leakage and non-carbon leakage heat benchmark and district heating sub-installations as well as for each of the respective amounts how much is used to produce goods listed in Annex I to Regulation (EU) 2023/956;'

(4)   in Section 2.4, point (a) is replaced by the following:

'(a)   Amount of energy input from fuels, electricity and materials (e.g. exothermic heat from chemical reactions), including their respective emissions factor, to:

–   each product benchmark sub-installation;

–   each heat benchmark and district heating sub-installation;

–   each fuel benchmark sub-installation;';

(5)   Section 2.5 is amended as follows:

(a) point (f) is replaced by the following:

'(f) For electricity consumption within product benchmark sub-installations, which are listed in Section 2 of Annex I, the amount of electricity consumed within the system boundaries.';

(b) the last subparagraph is replaced by the following:

'Points (a) to (d) only have to be reported by installations that produce electricity.';

(6)   Section 2.6 is amended as follows:

(a)   point (a) is replaced by the following:

'(a) The amount of measurable heat attributed to sub-installation imported from non-EU ETS entities or processes or installations included in the EU ETS only for the purposes of Articles 14 and 15 of Directive 2003/87/EC;';

(b)   the following point is inserted:

'(bb) If applicable, for each sub-installation, a list of goods produced within the boundaries of the sub-installation, including their CN codes, and the amount of production;';

(c)   point (c) is replaced by the following:

'(c) By way of derogation from point (b), for the carbon leakage heat benchmark sub-installation, where measurable heat is exported to installations or entities not covered by the EU ETS, the NACE-4 codes (NACE rev. 2) of

those installations or entities and the CN codes for the goods produced by those installations or entities;';

(7)   Section 2.7 is amended as follows:

> (a)   the following point is inserted:

> '(bb) If applicable, for each sub-installation, a list of goods produced within the boundaries of the sub-installation, including their CN codes;';

> (b)   point (d) is replaced by the following:

> '(d) The name and amount of export or import of intermediate products covered by product benchmark sub-installations;';

> (c)   point (h) is replaced by the following:

> '(h) If applicable, for the synthesis gas product benchmark sub-installations, the annual amount of hydrogen or synthesis gas production referred to hydrogen content expressed as norm cubic meters per year referring to 0 °C and 101,325 kPa and the annual production volume fraction of pure hydrogen in the hydrogen/carbon monoxide mixture;';

(8)   Section 3.1 is amended as follows:

> (a)   the following point is inserted:

> '(aa) if applicable, for each sub-installation, a list of goods produced within the boundaries of the sub-installation, including their CN codes;';

> (b)   point (i) is replaced by the following:

> '(i)   Quantity of electricity consumed within the system boundaries, for benchmarks which are listed in Section 2 of Annex I;';

> (c)   the following point is added:

> '(p)   Quantity of hydrogen and carbon monoxide produced, for the hydrogen product benchmark;';

(9)   in Section 3.2, the following point is inserted:

> '(aa) Quantity of net measurable heat produced from electricity within each heat benchmark sub-installation or district heating sub-installation;';

ANNEX IV

Annex VI is amended as follows:

(1)   point 1 is amended as follows:

      (i)   point (d) is replaced by the following:

'(d)   A diagram which contains at least the following information:

–   The technical elements of the installation, identifying emissions sources as well as heat producing and consuming units;

–   All energy and material flows, in particular the source streams, measurable and non-measurable heat, electricity where relevant, and waste gases;

–   The points of measurement and metering devices;

–   Boundaries of the sub-installations, including the split between sub-installations serving sectors deemed to be at risk of carbon leakage and sub-installations serving other sectors, based on NACE rev. 2 or PRODCOM, and the split between sub-installations serving the production of goods listed in Annex I to Regulation (EU) 2023/956 and sub-installations serving the production of other goods, based on CN codes;';

(2)   in point 2, point (a) is replaced by the following:

'(a) For each sub-installation, a reference to the procedure for keeping track of the products and goods produced and their respective PRODCOM and CN codes;';

ANNEX V

Annex VII is amended as follows:

(1) the second subparagraph of Section 4.2 is replaced by the following:

'The competent authority shall consider costs unreasonable where the operator's cost estimation exceeds the benefit of a specific determination methodology. To that end, the benefit shall be calculated by multiplying an improvement factor with a reference price referred to in Article 18, paragraph 1 of Implementing Regulation (EU) 2018/2066* and costs shall include an appropriate depreciation period based on the economic lifetime of the equipment, where applicable.';

* Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012 (OJ L 334, 31.12.2018, p. 1)';

(2) Section 9 is replaced by the following:

'9. PROCEDURE FOR TRACKING PRODCOM CODES AND CN CODES OF PRODUCTS AND GOODS

For the purpose of correct attribution of data to sub-installations, the operator shall maintain a list of all products and goods produced at the installation and their respective applicable PRODCOM codes, based on NACE rev. 2, and CN codes. Based on this list, the operator shall:

– Attribute products and their annual production figures to product benchmark sub-installations in accordance with product definitions provided in Annex I where appropriate;

– Take this information into account for attributing inputs, outputs and emissions separately to sub-installations related to sectors at risk of carbon leakage or not exposed to such risk, in accordance with Article 10.

– Take this information into account for attributing inputs, outputs and emissions separately to sub-installations related to the production of goods listed in Annex I to Regulation (EU) 2023/956.

To this end the operator shall establish, document, implement and maintain a procedure for regular checking whether the products and goods produced in the installation confirm with the PRODCOM codes and CN codes applied when setting up the monitoring methodology plan. This procedure shall furthermore contain provisions to identify if the installation produces a new product for the first time, and to ensure that the operator determines the applicable PRODCOM code for the new product, add it to the list of products and attributes related inputs, outputs and emissions to the appropriate sub-installation.'.

(3) Section 10 is amended as follows:

(i) in paragraph 10.1.5, point (b) is replaced by the following:

'(b) An amount of emissions assigned to the consumption of the waste gas is attributed to the product benchmark sub-installation, heat benchmark sub-installation, district heating sub-installation or fuel benchmark sub-installation, where it is consumed. This amount is determined by multiplying the amount and calorific value of the waste gas with the value of the interim heat or fuel benchmark, as applicable, determined

based on the relevant annual reduction rate from 2007/2008 to the two years specified as the basis for the benchmark values in Article 10a(2) of Directive 2003/87/EC.';

(ii)   the following paragraphs are added:

'10.1.6. Attribution of emission for the production of high value chemicals for the steam cracking benchmark

In consistency with the allocation rules pursuant to Article 19, 1,78 tonnes of carbon dioxide per ton of hydrogen times the historical production of hydrogen from supplemental feed expressed in tons of hydrogen, 0,24 tonnes of carbon dioxide per ton of ethylene times the historical production of ethylene from supplemental feed expressed in tons of ethylene, and 0,16 tonnes of carbon dioxide per ton of HVC times the historical production of other high value chemicals than hydrogen and ethylene from supplemental feed expressed in tons of HVC, shall be deducted from the attributed emissions.

10.1.7. Attribution of emission for hydrogen for the vinyl chloride benchmark

In consistency with the allocation rules pursuant to Article 20, the amount of hydrogen combusted expressed as terajoules times the value of the interim heat benchmark, determined based on the on the relevant two years specified as the basis for the benchmark values in Article 10a(2) of Directive 2003/87/EC, shall be added to the attributed emissions.

10.1.8. Attribution of emission for the hydrogen benchmark

Where carbon monoxide (CO) is contained in the final product gas, the stoichiometric equivalent of the amount of CO in the product gas shall be considered converted in CO_2 and added to the attributed emissions. Assuming a water-gas shift reaction, an equivalent of the recoverable heat for the exothermic reaction of 1.47 GJ / t CO times the value of the interim heat benchmark, determined based on the annual reduction rate from 2007/2008 to the relevant two years specified as the basis for the benchmark values in Article 10a(2) of Directive 2003/87/EC, and assuming an efficiency of 99.5 %, shall be deducted from the attributed emissions. Correspondingly, the stoichiometric equivalent of hydrogen that would be produced from that same amount of CO via a water-gas shift reaction shall be added to the denominator when calculating the greenhouse gas intensity of the sub-installation.';

(iii)   in paragraph 10.2, first paragraph, the following point is added:

'(e) Emissions attributable to special benchmarks determined in accordance with section 10.1.6, 10.1.7 and 10.1.8, as applicable.';

'

ANNEX VI

'ANNEX VIII

Determination of eligible Member States pursuant to Article 22b(3)

Installations in certain Member States may benefit from additional free allocation for district heating pursuant to Article 10b(4) of Directive 2003/87/EC.

1. Methodology

According to Article 10b(4) of Directive 2003/87/EC, the following condition shall be met for the average of the years 2014 to 2018, for Member States to be eligible for additional free allocation pursuant to Article 22b(3):

$$\frac{\text{Emissions from district heating in the concerned MS / Emissions from district heating in all MS}}{\text{GDP of concerned MS / GDP of all MS}} > 5$$

2. Eligible Member States

According to the methodology described in point 1, installations located in the following Member States may benefit from additional free allocation pursuant to Article 22b(3):

      a)   Bulgaria,

      b)   Czechia,

      c)   Latvia,

      d)   Poland.';