[^{F1}ANNEX I

CATEGORIES OF ACTIVITIES TO WHICH THIS DIRECTIVE APPLIES

Textual Amendments

- **F1** Substituted by Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community (Text with EEA relevance).
- 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 [^{F2}EU ETS], 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.

Textual Amendments

- **F2** Substituted by Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 (Text with EEA relevance).
- 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 [^{F2}EU ETS].
- 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.
- 6. From 1 January 2012 all flights which arrive at or depart from an aerodrome situated in the territory of a Member State to which the Treaty applies shall be included.

Activities	Greenhouse gases
Combustion of fuels in installations with a total rated thermal input exceeding 20 MW	Carbon dioxide

(except in installations for the incineration of hazardous or municipal waste)	
Refining of mineral oil	Carbon dioxide
Production of coke	Carbon dioxide
Metal ore (including sulphide ore) roasting or sintering, including pelletisation	Carbon dioxide
Production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2,5 tonnes per hour	Carbon dioxide
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
Production of primary aluminium	Carbon dioxide and perfluorocarbons
Production of secondary aluminium where combustion units with a total rated thermal input exceeding 20 MW are operated	Carbon dioxide
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
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
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
Manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
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

Manufacture of mineral wool insulation material using glass, rock or slag with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
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
Production of pulp from timber or other fibrous materials	Carbon dioxide
Production of paper or cardboard with a production capacity exceeding 20 tonnes per day	Carbon dioxide
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
Production of nitric acid	Carbon dioxide and nitrous oxide
Production of adipic acid	Carbon dioxide and nitrous oxide
Production of glyoxal and glyoxylic acid	Carbon dioxide and nitrous oxide
Production of ammonia	Carbon dioxide
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
Production of hydrogen (H_2) and synthesis gas by reforming or partial oxidation with a production capacity exceeding 25 tonnes per day	Carbon dioxide
Production of soda ash (Na ₂ CO ₃) and sodium bicarbonate (NaHCO ₃)	Carbon dioxide
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
Transport of greenhouse gases by pipelines for geological storage in a storage site permitted under Directive 2009/31/EC	Carbon dioxide
Geological storage of greenhouse gases in a storage site permitted under Directive 2009/31/EC	Carbon dioxide
Aviation	Carbon dioxide]

Flights which depart from or arrive in an aerodrome situated in the territory of a MemberState to which the Treaty applies. This activity shall not include:

- (a) flights performed exclusively for the transport, on official mission, of a reigning Monarch and his immediate family, Heads of State, Heads of Government and Government Ministers, of a country other than a Member State, where this is substantiated by an appropriate status indicator in the flight plan;
- (b) military flights performed by military aircraft and customs and police flights;
- (c) flights related to search and rescue, fire-fighting flights, humanitarian flights and emergency medical service flights authorised by the appropriate competent authority;
- (d) any flights performed exclusively under visual flight rules as defined in Annex 2 to the Chicago Convention;
- (e) flights terminating at the aerodrome from which the aircraft has taken off and during which no intermediate landing has been made;
- (f) training flights performed exclusively for the purpose of obtaining a licence, or a rating in the case of cockpit flight crew where this is substantiated by an appropriate remark in the flight plan provided that the flight does not serve for the transport of passengers and/or cargo or for the positioning or ferrying of the aircraft;
- (g) flights performed exclusively for the purpose of scientific research or for the purpose of checking, testing or certifying aircraft or equipment whether airborne or ground-based;
- (h) flights performed by aircraft with a certified maximum take-off mass of less than 5 700 kg;
- (i) flights performed in the framework of public service obligations imposed in accordance with

Regulation (EEC) No 2408/92 on routes within outermost regions, as specified in Article 299(2) of the Treaty, or on routes where the capacity offered does not exceed 30 000 seats per year[^{F3};]

(j) flights which, but for this point, would fall within this activity, performed by a commercial air transport operator operating either:

- fewer than 243 flights per period for three consecutive four-month periods, or
- flights with total annual emissions lower than 10 000 tonnes per year.

[^{F4}Flights referred to in point (l) or performed exclusively for the transport, on official mission, of a reigning Monarch and his immediate family; Heads of State, Heads of Government and Government Ministers, of a Member State may not be excluded under this point;]

- (k) [^{F4}from 1 January 2013 to 31 December 2030, flights which, but for this point, would fall within this activity, performed by a noncommercial aircraft operator operating flights with total annual emissions lower than 1 000 tonnes per year (including emissions from flights referred to in point (l));]
 (l) [^{F5}flights from aerodromes situated
- in Switzerland to aerodromes situated in the EEA.]

Textual Amendments

- **F3** Substituted by Regulation (EU) No 421/2014 of the European Parliament and of the Council of 16 April 2014 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in view of the implementation by 2020 of an international agreement applying a single global market-based measure to international aviation emissions (Text with EEA relevance).
- **F4** Substituted by Commission Delegated Decision (EU) 2020/1071 of 18 May 2020 amending Directive 2003/87/EC of the European Parliament and of the Council, as regards the exclusion of incoming flights from Switzerland from the EU emissions trading system (Text with EEA relevance).

F5 Inserted by Commission Delegated Decision (EU) 2020/1071 of 18 May 2020 amending Directive 2003/87/EC of the European Parliament and of the Council, as regards the exclusion of incoming flights from Switzerland from the EU emissions trading system (Text with EEA relevance).

ANNEX II

GREENHOUSE GASES REFERRED TO IN ARTICLES 3 AND 30

Carbon dioxide (CO₂)

Methane (CH₄)

Nitrous Oxide (N₂O)

Hydrofluorocarbons (HFCs)

Perfluorocarbons (PFCs)

Sulphur Hexafluoride (SF₆)

[^{F6}ANNEX IIa

Increases in the percentage of allowances to be auctioned by Member States pursuant to Article 10(2)(a), for the purpose of [^{F2}Union] solidarity and growth in order to reduce emissions and adapt to the effects of climate change

Textual Amendments

F6 Inserted by Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community (Text with EEA relevance).

	Member State share	
[^{F7}]		
Bulgaria	53 %	
Czech Republic	31 %	
Estonia	42 %	
Greece	17 %	
Spain	13 %	
[^{F8} Croatia	26 %]	
[^{F7}]		
Cyprus	20 %	
Latvia	56 %	

Lithuania	46 %
[^{F7}]	
Hungary	28 %
Malta	23 %
Poland	39 %
Portugal	16 %
Romania	53 %
Slovenia	20 %
Slovakia	41 %
[^{F7}]	,

Textual Amendments

- **F7** Deleted by Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 (Text with EEA relevance).
- F8 Inserted by Treaty between the Kingdom of Belgium, the Republic of Bulgaria, the Czech Republic, the Kingdom of Denmark, the Federal Republic of Germany, the Republic of Estonia, Ireland, the Hellenic Republic, the Kingdom of Spain, the French Republic, the Italian Republic, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Grand Duchy of Luxembourg, the Republic of Hungary, the Republic of Malta, the Kingdom of the Netherlands, the Republic of Austria, the Republic of Poland, the Portuguese Republic, Romania, the Republic of Slovenia, the Slovak Republic, the Republic of Finland, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland (Member States of the European Union) and the Republic of Croatia concerning the accession of the Republic of Croatia to the European Union.

[^{F2}ANNEX IIb

DISTRIBUTION OF FUNDS FROM THE MODERNISATION FUND UNTIL 31 DECEMBER 2030

	Share of Modernisation Fund
Bulgaria	5,84 %
Czech Republic	15,59 %
Estonia	2,78 %
Croatia	3,14 %
Latvia	1,44 %
Lithuania	2,57 %
Hungary	7,12 %

Poland	43,41 %
Romania	11,98 %
Slovakia	6,13 %]]

^{F9}ANNEX III

Textual Amendments

F9 Deleted by Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community (Text with EEA relevance).

ANNEX IV

PRINCIPLES FOR MONITORING AND REPORTING REFERRED TO IN ARTICLE 14(1)

[F10PART A —

Monitoring and reporting of emissions from stationary installations] Monitoring of carbon dioxide emissions

Emissions shall be monitored either by calculation or on the basis of measurement. Calculation

Calculations of emissions shall be performed using the formula:

Activity data × Emission factor × Oxidation factor

Activity data (fuel used, production rate etc.) shall be monitored on the basis of supply data or measurement.

Accepted emission factors shall be used. Activity-specific emission factors are acceptable for all fuels. Default factors are acceptable for all fuels except non-commercial ones (waste fuels such as tyres and industrial process gases). Seam-specific defaults for coal, and EU-specific or producer country-specific defaults for natural gas shall be further elaborated. IPCC default values are acceptable for refinery products. The emission factor for biomass shall be zero.

If the emission factor does not take account of the fact that some of the carbon is not oxidised, then an additional oxidation factor shall be used. If activity-specific emission factors have been calculated and already take oxidation into account, then an oxidation factor need not be applied.

Default oxidation factors developed pursuant to Directive 96/61/EC shall be used, unless the operator can demonstrate that activity-specific factors are more accurate.

A separate calculation shall be made for each activity, installation and for each fuel. Measurement

Measurement of emissions shall use standardised or accepted methods, and shall be corroborated by a supporting calculation of emissions. Monitoring of emissions of other greenhouse gases

[^{F2}Standardised or accepted methods, developed by the Commission in collaboration with all relevant stakeholders and adopted pursuant to Article 14(1), shall be used.] Reporting of emissions

Each operator shall include the following information in the report for an installation:

- A. Data identifying the installation, including:
 - Name of the installation;
 - Its address, including postcode and country;
 - Type and number of Annex I activities carried out in the installation;
 - Address, telephone, fax and email details for a contact person; and
 - Name of the owner of the installation, and of any parent company.
- B. For each Annex I activity carried out on the site for which emissions are calculated:
 Activity data;
 - Emission factors;
 - Oxidation factors;
 - Total emissions; and
 - Uncertainty.
- C. For each Annex I activity carried out on the site for which emissions are measured:
 - Total emissions;
 - Information on the reliability of measurement methods; and
 - Uncertainty.
- D. For emissions from combustion, the report shall also include the oxidation factor, unless oxidation has already been taken into account in the development of an activity-specific emission factor.

Member States shall take measures to coordinate reporting requirements with any existing reporting requirements in order to minimise the reporting burden on businesses.

Textual Amendments

F10 Inserted by Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community (Text with EEA relevance).

[^{F10}PART B —

Monitoring and reporting of emissions from aviation activities

Monitoring of carbon dioxide emissions

Emissions shall be monitored by calculation. Emissions shall be calculated using the formula:

Fuel consumption × **emission factor**

Fuel consumption shall include fuel consumed by the auxiliary power unit. Actual fuel consumption for each flight shall be used wherever possible and shall be calculated using the formula:

Amount of fuel contained in aircraft tanks once fuel uplift for the flight is complete – amount of fuel contained in aircraft tanks once fuel uplift for subsequent flight is complete + fuel uplift for that subsequent flight.

If actual fuel consumption data are not available, a standardised tiered method shall be used to estimate fuel consumption data based on best available information.

Default IPCC emission factors, taken from the 2006 IPCC Inventory Guidelines or subsequent updates of these Guidelines, shall be used unless activity-specific emission factors identified by independent accredited laboratories using accepted analytical methods are more accurate. The emission factor for biomass shall be zero.

A separate calculation shall be made for each flight and for each fuel. Reporting of emissions

Each aircraft operator shall include the following information in its report under Article 14(3):

- A. Data identifying the aircraft operator, including:
 - name of the aircraft operator,
 - its administering Member State,
 - its address, including postcode and country and, where different, its contact address in the administering Member State,
 - the aircraft registration numbers and types of aircraft used in the period covered by the report to perform the aviation activities listed in Annex I for which it is the aircraft operator,
 - the number and issuing authority of the air operator certificate and operating licence under which the aviation activities listed in Annex I for which it is the aircraft operator were performed,
 - address, telephone, fax and e-mail details for a contact person, and
 - name of the aircraft owner.
- B. For each type of fuel for which emissions are calculated:
 - fuel consumption,
 - emission factor,
 - total aggregated emissions from all flights performed during the period covered by the report which fall within the aviation activities listed in Annex I for which it is the aircraft operator,
 - aggregated emissions from:
 - all flights performed during the period covered by the report which fall within the aviation activities listed in Annex I for which it is the aircraft operator and which departed from an aerodrome situated in the territory of a Member State and arrived at an aerodrome situated in the territory of the same Member State,
 - all other flights performed during the period covered by the report which fall within the aviation activities listed in Annex I for which it is the aircraft operator,
 - aggregated emissions from all flights performed during the period covered by the report which fall within the aviation activities listed in Annex I for which it is the aircraft operator and which:

departed from each Member State, and

arrived in each Member State from a third country,

– uncertainty.

Monitoring of tonne-kilometre data for the purpose of Articles 3e and 3f

For the purpose of applying for an allocation of allowances in accordance with Article 3e(1) or Article 3f(2), the amount of aviation activity shall be calculated in tonne-kilometres using the following formula:

tonne-kilometres = distance × payload

where:

'distance' means the great circle distance between the aerodrome of departure and the aerodrome of arrival plus an additional fixed factor of 95 km; and

'payload' means the total mass of freight, mail and passengers carried.

For the purposes of calculating the payload:

- the number of passengers shall be the number of persons on-board excluding crew members,
- an aircraft operator may choose to apply either the actual or standard mass for passengers and checked baggage contained in its mass and balance documentation for the relevant flights or a default value of 100 kg for each passenger and his checked baggage.

Reporting of tonne-kilometre data for the purpose of Articles 3e and 3f

Each aircraft operator shall include the following information in its application under Article 3e(1) or Article 3f(2):

- A. Data identifying the aircraft operator, including:
 - name of the aircraft operator,
 - its administering Member State,
 - its address, including postcode and country and, where different, its contact address in the administering Member State,
 - the aircraft registration numbers and types of aircraft used during the year covered by the application to perform the aviation activities listed in Annex I for which it is the aircraft operator,
 - the number and issuing authority of the air operator certificate and operating licence under which the aviation activities listed in Annex I for which it is the aircraft operator were performed,
 - address, telephone, fax and e-mail details for a contact person, and
 - name of the aircraft owner.
- B. Tonne-kilometre data:
 - number of flights by aerodrome pair,
 - number of passenger-kilometres by aerodrome pair,
 - number of tonne-kilometres by aerodrome pair,
 - chosen method for calculation of mass for passengers and checked baggage,
 - total number of tonne-kilometres for all flights performed during the year to which the report relates falling within the aviation activities listed in Annex I for which it is the aircraft operator.]

ANNEX V

CRITERIA FOR VERIFICATION REFERRED TO IN ARTICLE 15

[^{F10}PART A —

Verification of emissions from stationary installations]

General Principles

- 1. Emissions from each activity listed in Annex I shall be subject to verification.
- 2. The verification process shall include consideration of the report pursuant to Article 14(3) and of monitoring during the preceding year. It shall address the reliability, credibility and accuracy of monitoring systems and the reported data and information relating to emissions, in particular:
- (a) the reported activity data and related measurements and calculations;
- (b) the choice and the employment of emission factors;
- (c) the calculations leading to the determination of the overall emissions; and
- (d) if measurement is used, the appropriateness of the choice and the employment of measuring methods.
- 3. Reported emissions may only be validated if reliable and credible data and information allow the emissions to be determined with a high degree of certainty. A high degree of certainty requires the operator to show that:
- (a) the reported data is free of inconsistencies;
- (b) the collection of the data has been carried out in accordance with the applicable scientific standards; and
- (c) the relevant records of the installation are complete and consistent.
- 4. The verifier shall be given access to all sites and information in relation to the subject of the verification.
- 5. The verifier shall take into account whether the installation is registered under the $[^{F2}$ Union] eco-management and audit scheme (EMAS).

Methodology

Strategic analysis

- 6. The verification shall be based on a strategic analysis of all the activities carried out in the installation. This requires the verifier to have an overview of all the activities and their significance for emissions.
- Process analysis
- 7. The verification of the information submitted shall, where appropriate, be carried out on the site of the installation. The verifier shall use spot-checks to determine the reliability of the reported data and information.

Risk analysis

8. The verifier shall submit all the sources of emissions in the installation to an evaluation with regard to the reliability of the data of each source contributing to the overall emissions of the installation.

- 9. On the basis of this analysis the verifier shall explicitly identify those sources with a high risk of error and other aspects of the monitoring and reporting procedure which are likely to contribute to errors in the determination of the overall emissions. This especially involves the choice of the emission factors and the calculations necessary to determine the level of the emissions from individual sources. Particular attention shall be given to those sources with a high risk of error and the abovementioned aspects of the monitoring procedure.
- 10. The verifier shall take into consideration any effective risk control methods applied by the operator with a view to minimising the degree of uncertainty.
- Report
- 11. The verifier shall prepare a report on the validation process stating whether the report pursuant to Article 14(3) is satisfactory. This report shall specify all issues relevant to the work carried out. A statement that the report pursuant to Article 14(3) is satisfactory may be made if, in the opinion of the verifier, the total emissions are not materially misstated.

Minimum competency requirements for the verifier

- 12. The verifier shall be independent of the operator, carry out his activities in a sound and objective professional manner, and understand:
- (a) the provisions of this Directive, as well as relevant standards and guidance adopted by the Commission pursuant to Article 14(1);
- (b) the legislative, regulatory, and administrative requirements relevant to the activities being verified; and
- (c) the generation of all information related to each source of emissions in the installation, in particular, relating to the collection, measurement, calculation and reporting of data.

[^{F10}PART B —

Verification of emissions from aviation activities

13. The general principles and methodology set out in this Annex shall apply to the verification of reports of emissions from flights falling within an aviation activity listed in Annex I.

For this purpose:

- (a) in paragraph 3, the reference to operator shall be read as if it were a reference to an aircraft operator, and in point (c) of that paragraph the reference to installation shall be read as if it were a reference to the aircraft used to perform the aviation activities covered by the report;
- (b) in paragraph 5, the reference to installation shall be read as if it were a reference to the aircraft operator;
- (c) in paragraph 6 the reference to activities carried out in the installation shall be read as a reference to aviation activities covered by the report carried out by the aircraft operator;

- (d) in paragraph 7 the reference to the site of the installation shall be read as if it were a reference to the sites used by the aircraft operator to perform the aviation activities covered by the report;
- (e) in paragraphs 8 and 9 the references to sources of emissions in the installation shall be read as if they were a reference to the aircraft for which the aircraft operator is responsible; and
- (f) in paragraphs 10 and 12 the references to operator shall be read as if they were a reference to an aircraft operator.

Additional provisions for the verification of aviation emission reports

- 14. The verifier shall in particular ascertain that:
- (a) all flights falling within an aviation activity listed in Annex I have been taken into account. In this task the verifier shall be assisted by timetable data and other data on the aircraft operator's traffic including data from Eurocontrol requested by that operator;
- (b) there is overall consistency between aggregated fuel consumption data and data on fuel purchased or otherwise supplied to the aircraft performing the aviation activity.

Additional provisions for the verification of tonne-kilometre data submitted for the purposes of Articles 3e and 3f

- 15. The general principles and methodology for verifying emissions reports under Article 14(3) as set out in this Annex shall, where applicable, also apply correspondingly to the verification of aviation tonne-kilometre data.
- 16. The verifier shall in particular ascertain that only flights actually performed and falling within an aviation activity listed in Annex I for which the aircraft operator is responsible have been taken into account in that operator's application under Articles 3e(1) and 3f(2). In this task the verifier shall be assisted by data on the aircraft operator's traffic including data from Eurocontrol requested by that operator. In addition, the verifier shall ascertain that the payload reported by the aircraft operator corresponds to records on payloads kept by that operator for safety purposes.]