工業技術研究院
Industrial Technology
Research Institute

因應歐盟CBAM過渡期申報說明會

CBAM申報指南與案例解析

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工研院 綠能所

2023.10.16~23

解說之前

本次重點說明事項

- 歐盟為何要管制產品碳排量
- 了解進口商/貿易商/製造者之角色與責任
- 著重於2024.01第一次申報注意事項
- 如何計算管制產品碳排量(不是碳足跡)
- 認識申報表欄位和須填具資料
- 申報表填具案例說明

本次不包括事項

- 進口商之碳差額憑證與費用及其購買之相關程序
- 未來碳申報之監測、報告和驗證系統（ MRV ）(誰是第三方)
- 製造商之各項碳排量測或推估方式是否合宜
- 減碳或淨零技術未來如何精進
- 進口後加工、出口加工後運回之各項執行程序或細節

報告大綱

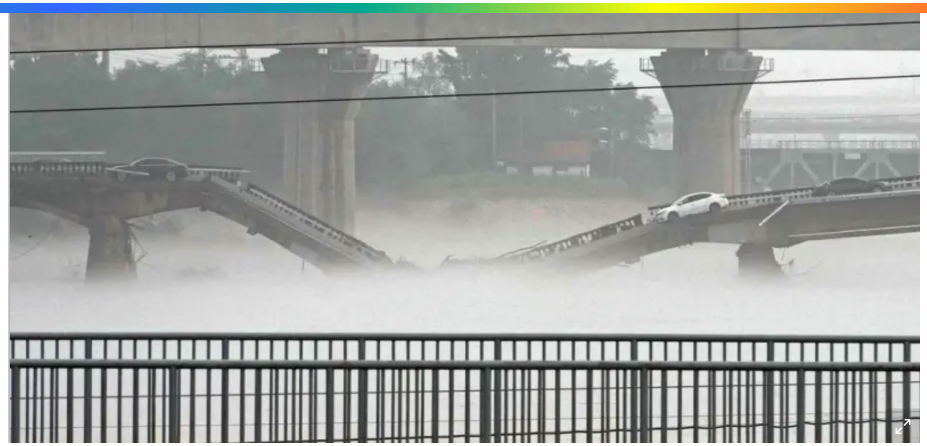
1.前言
2.CBAM管制重點說明
3.程序與注意事項
4.申報作業說明
5.模擬案例介紹
6.結語

暖化時代終結 沸騰時代到臨

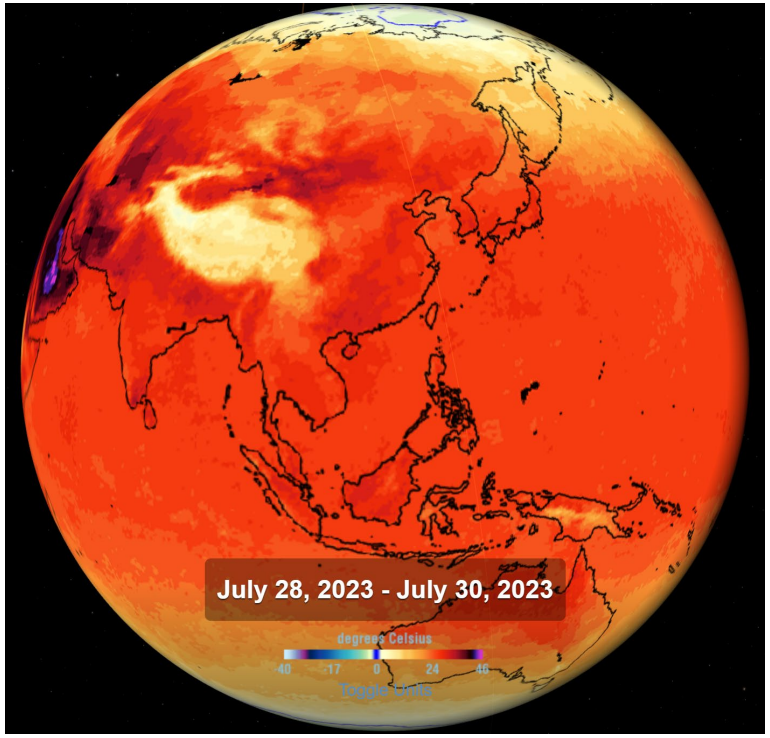
https://www.theguardian.com/world/video/2023/jul/27/the-era-of-global-boiling-has-arrived-warns-the-un-video

2023年7月28日 週五 下午2:30
北美、歐亞地區酷暑持續，繼史上最熱6月後，科學家7月27日證實，今年7月即將成為史上最高溫的月份；聯合國(UN)秘書長古特瑞斯(Antonio Guterres)27日也警告，地球已脫離全球暖化時代，進入「**全球沸騰的時代**」(**the era of global boiling**)。

https://tw.stock.yahoo.com/news/

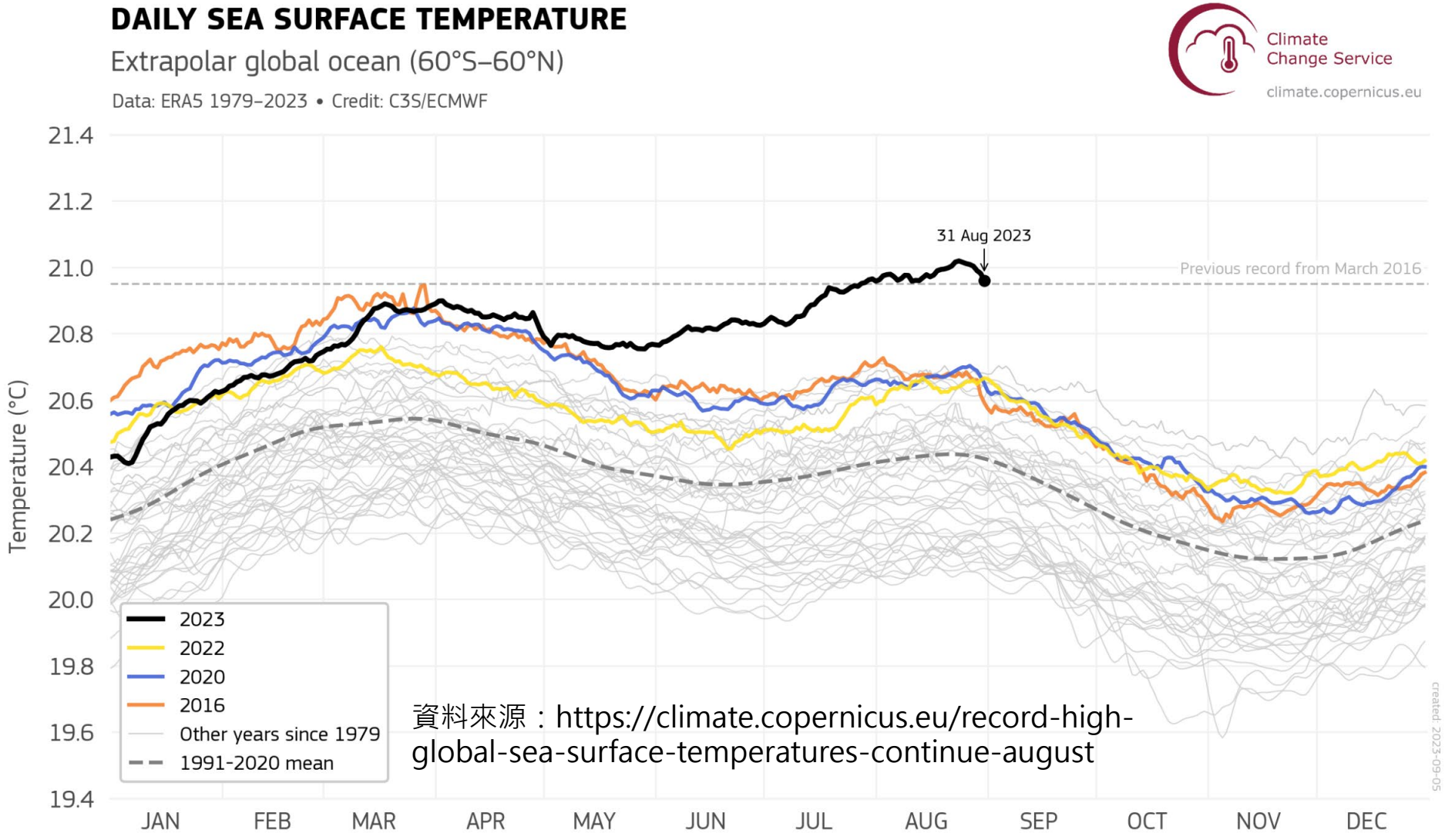


2023.0731~08.01
杜蘇芮颱風的影響之下，北京破記錄之暴雨成災。
資料來源：
https://www.nownews.com/news/6216513



https://climate.nasa.gov/earth-now/

海溫持續升溫 影響未來



資料來源：https://climate.copernicus.eu/record-high-global-sea-surface-temperatures-continue-august

PROGRAMME OF THE EUROPEAN UNION
Copernicus Europe's eyes on Earth
IMPLEMENTED BY ECMWF

前言：人類經濟活動讓氣候發生明顯改變

「科學數據」的真實呈現 讓人無法漠視

2023/05 424.76 ppm
2022/06 420.99 ppm
2021/09 413.30 ppm
2020/09 411.52 ppm
2019/09 408.76 ppm
2018/09 405.71 ppm
https://www.co2.earth/

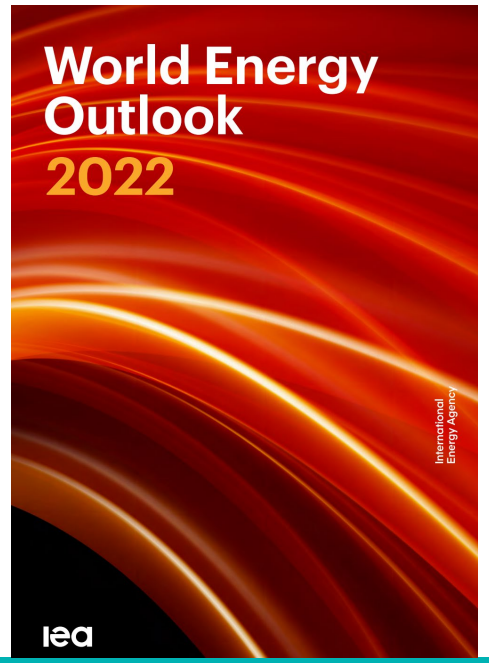
資料來源：https://climate.nasa.gov/

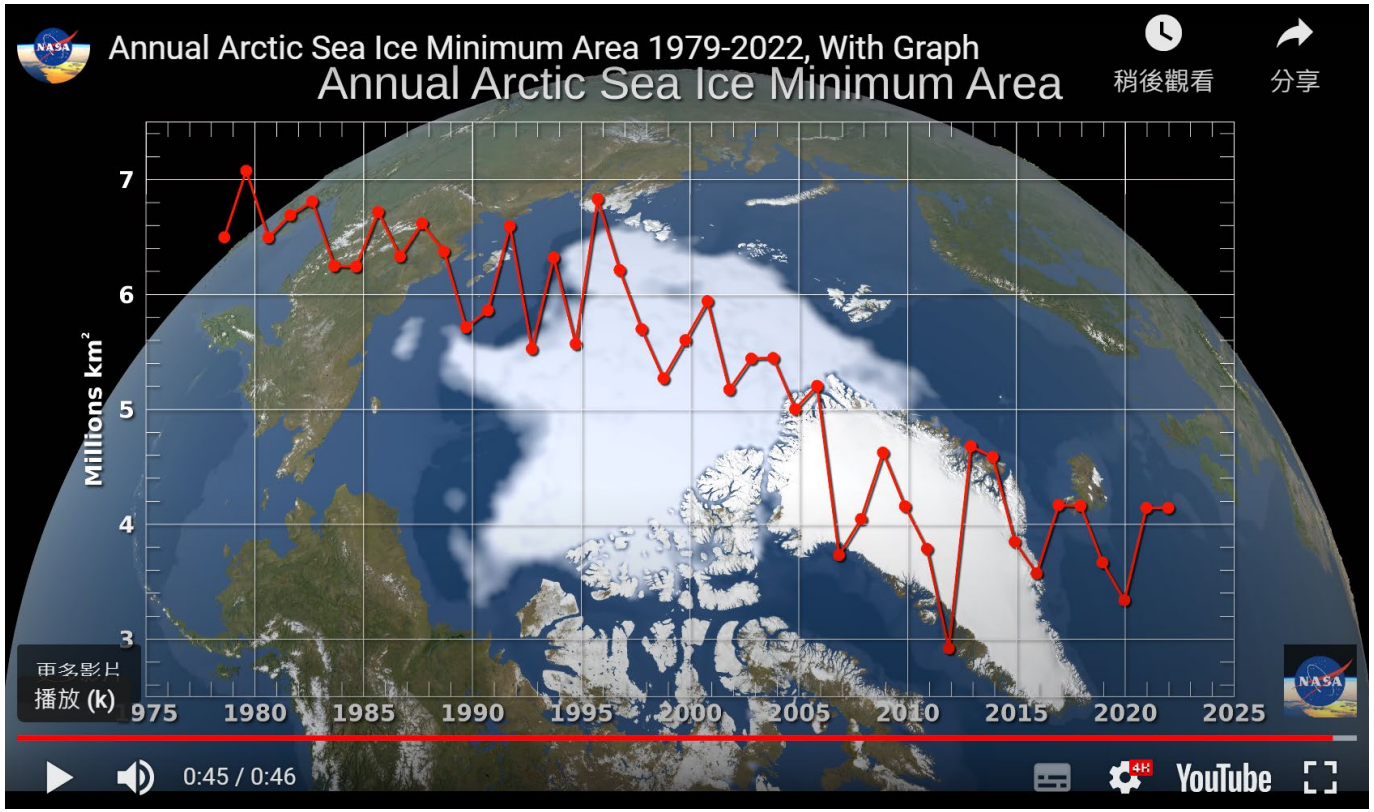
隨時間愈趨嚴重

依據IEA發布2022年統計數據

https://www.iea.org/reports/co2-emissions-in-2022

- 溫室氣體排放量創歷史新高(368億噸)
- 燃煤排放增加,達歷史新高(155億噸)
- 燃氣排放減少1.18億噸(烏俄戰爭)
- 燃油排放增加,達歷史新高(112億噸)
- 再生能源(風力+太陽能), 各新增約275 TWh, 達歷史新高





資料來源：https://climate.nasa.gov/climate_resources/155/video-annual-arctic-sea-ice-minimum-1979-2022-with-area-graph/

碳排的重大來源是什麼?
(以台灣為例)

碳輸入

石油(中東, 東南亞, 其他)
煤(印尼, 澳洲, 其他)
天然氣(中東, 東南亞, 其他)

碳輸出

含碳產品輸出
- 半導體
- 紡織
- 鋼材
- 石化製品
- 化學品
- 機電產品
- 零組件

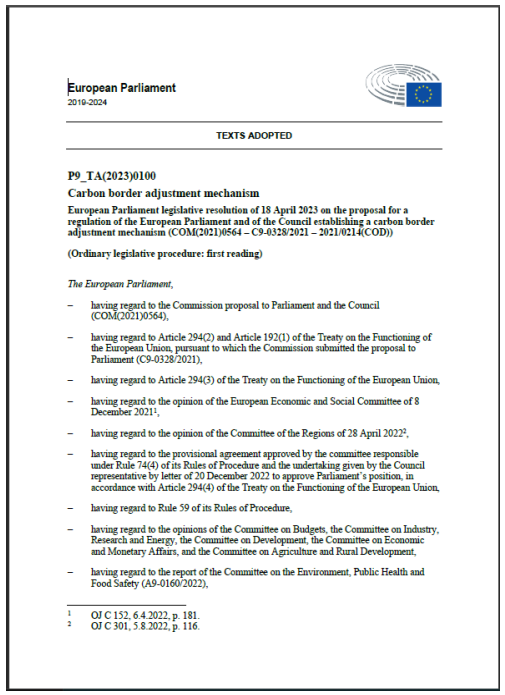
「淨零排放」關鍵：不再使用化石原料

用未來30年時間，藉由創新變革 改變現況

重要名詞說明

- **溫室氣體 (Greenhouse Gas，GHG)**
  - 二氧化碳（CO_2）、甲烷（CH_4）、氧化亞氮（N_2O）、氫氟碳化物（HFCs）、全氟碳化物（PFCs）、六氟化硫（SF_6）及三氟化氮（NF_3）。
- **碳洩漏 (Carbon Leakage)**
  - 實施溫室氣體管制，將導致產業外移至其他碳管制寬鬆國家，反而增加全球排碳量。**本次CBAM的管制即為了防止碳洩露發生。**
- **前驅物 (Precursors) (上游原料)**
  - 係指複雜產品於製造過程之主要使用的**上游原料**。
- **特定碳排量(Specific Embedded Emissions, SEE)**
  - 亦指「每噸特定貨物含有的噸-二氧化碳排放當量」數量。**(CBAM要求者)**
- **產品碳足跡(Carbon Footprint; CFP)**
  - 產品由「原料取得、製造、配送銷售、使用及廢棄處理」等生命週期各階段產生之碳排放量，經換算為二氧化碳當量之總和。

歐盟CBAM管制概要說明



European Parliament
2019-2024

TEXTS ADOPTED

P9_TA(2023)0100

Carbon border adjustment mechanism

European Parliament legislative resolution of 18 April 2023 on the proposal for a regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism (COM(2021)0564 – C9-0328/2021 – 2021/0214(COD))

(Ordinary legislative procedure: first reading)

The European Parliament,

– having regard to the Commission proposal to Parliament and the Council (COM(2021)0564),

– having regard to Article 294(2) and Article 192(1) of the Treaty on the Functioning of the European Union, pursuant to which the Commission submitted the proposal to Parliament (C9-0328/2021),

– having regard to Article 294(3) of the Treaty on the Functioning of the European Union,

– having regard to the opinion of the European Economic and Social Committee of 8 December 2021[1],

– having regard to the opinion of the Committee of the Regions of 28 April 2022[2],

– having regard to the provisional agreement approved by the committee responsible under Rule 74(4) of its Rules of Procedure and the undertaking given by the Council representative by letter of 20 December 2022 to approve Parliament's position, in accordance with Article 294(4) of the Treaty on the Functioning of the European Union,

– having regard to Rule 59 of its Rules of Procedure,

– having regard to the opinions of the Committee on Budgets, the Committee on Industry, Research and Energy, the Committee on Development, the Committee on Economic and Monetary Affairs, and the Committee on Agriculture and Rural Development,

– having regard to the report of the Committee on the Environment, Public Health and Food Safety (A9-0160/2022),

[1] OJ C 152, 6.4.2022, p. 181.
[2] OJ C 301, 5.8.2022, p. 116.

- **法令管制狀況**：於今年5月10日正式生效
- **依稅則號列進行列管**：鋼鐵, 鋁, 水泥, 肥料, **氫**, 電力－**新增金屬前導物(燒結礦)與金屬扣件(螺釘螺栓)**
- **排放管制範疇**：**直接排放（含製冷製熱）與間接排放（僅算電力消費）**
- **過渡期期程**：2023.10.01起進入過渡期（2024年1月1日起建立CBAM申報者制度），至2025年12月31日止
- **正式施行**：2026年1月1日起（或仍視過渡期評估結果後予以調整）
- **CBAM次階段對象**：**運輸業、有機化學、塑膠**；預計2030年左右配合EUETS進行改革檢討，並將討論**間接排放**納入計價

https://www.europarl.europa.eu/doceo/document/TA-9-2023-0100_EN.pdf

資料來源：歐盟CBAM申報與碳邊境稅履約作業程序, 工研院綠能所 連振安

列管貨品對象

- **管制進口產品**：水泥、電力、氫、肥料、**鋼鐵、鋁**
- **單一產品衝擊最大者**：鋼鐵製扣件（螺釘與螺栓），占出口比例逾28%

產品	水泥	氫	肥料	鋼鐵	鋁
稅則號列	2507 高嶺土 2523 各種水泥	2804 氫	2804 硝酸 2814 無水氨/氨水 2834 亞硝酸鹽 3102 氮肥 3105 氮磷鉀肥 (磷鉀肥排除)	2601 鐵礦石 72 各式鋼鐵**材料** (排除7202部分項目) 7301~7311 各式鋼鐵**製品**：板材、管材、容器 **7318 螺釘/栓 (扣件)** 7326 其他鋼鐵製品	7601 未塑型加工鋁 7603 鋁粉、鋁薄片 7604 鋁條等 7605 鋁線 7606 鋁板片、扁條 7607 鋁箔 7608 鋁管 7610 鋁結構物 7611~7613 鋁容器 7614 鋁絞線、電纜 7616 其他鋁製品
衝擊	我國水泥目前無輸歐	我國目前無氫產品輸歐	我國目前少量氨水輸歐(進口為主)	2021年我國輸歐鋼鐵材料與製品約**246萬噸** **(約佔1/5外銷重量)**	2021年我國輸歐鋁及其製品**約 1 萬噸** **(約佔 3% 外銷重量)**

參考資料：經濟部工業局、經濟部統計處資料

資料來源：歐盟CBAM申報與碳邊境稅履約作業程序, 工研院綠能所 連振安

列管貨品對象：Iron & Steel sector

Aggregated goods category	Product CN Code	Description
Sintered Ore	2601 12 00	Agglomerated iron ores and concentrates, other than roasted iron pyrites
Pig iron	7201	Pig iron and spiegeleisen in pigs, blocks or other primary forms
	7205	Some products under 7205 (Granules and powders, of pig iron, spiegeleisen, iron, or steel)
Ferro-alloy: FeMn	7202 1	Ferro-manganese (FeMn)
Ferro-alloy: FeCr	7202 4	Ferro-chromium (FeCr)
Ferro-alloy: FeNi	7202 6	Ferro-nickel (FeNi)
DRI	7203	Ferrous products obtained by direct reduction of iron or and other spongy ferrous products
Crude steel	7206, 7207, 7218 and 7224	7206 Iron and non-alloy steel in ingots or other primary forms (excluding iron of heading 7203) 7207 Semi-finished products of iron or non-alloy steel 7218 Stainless steel in ingots or other primary forms 7224 Other alloy steel in ingots or other primary forms

Aggregated goods category	Product CN Code	Description
Iron or steel products	Includes: 7205, 7208–7217, 7219–7223, 7225–7229, 7301–7311, 7318 and 7326	7205 Granules and powders, of pig iron, spiegeleisen, iron or steel 7208 Flat-rolled products of iron or non-alloy steel 7209 Flat-rolled products of iron or non-alloy steel 7210 Flat-rolled products of iron or non-alloy steel 7211 Flat-rolled products of iron or non-alloy steel 7212 Flat-rolled products of iron or non-alloy steel 7213 Bars and rods, hot-rolled, in irregularly wound coils, of iron or non-alloy steel 7214 Other bars and rods of iron or non-alloy steel 7215 Other bars and rods of iron or non-alloy steel 7216 Angles, shapes and sections of iron or non-alloy steel 7217 Wire of iron or non-alloy steel 7219 Flat-rolled products of stainless steel 7220 Flat-rolled products of stainless steel 7221 Bars and rods, hot-rolled, in irregularly wound coils, of stainless steel 7222 Other bars and rods of stainless steel; angles, shapes 7223 Wire of stainless steel 7225 Flat-rolled products of other alloy steel 7226 Flat-rolled products of other alloy steel 7227 Bars and rods, hot-rolled, in irregularly wound coils, of other alloy steel 7228 Other bars and rods of other alloy steel; angles, shapes and sections, of other alloy steel 7229 Wire of other alloy steel 7301 Sheet piling of iron or steel, 7302 Railway or tramway track construction material of iron or steel, 7303 Tubes, pipes and hollow profiles, of cast iron 7304 Tubes, pipes and hollow profiles, seamless, of iron or steel 7305 Other tubes and pipes (for example, welded, riveted or similarly closed) 7306 Other tubes, pipes and hollow profiles 7307 Tube or pipe fittings (for example, couplings, elbows, sleeves), of iron or steel 7308 Structures (excluding prefabricated buildings of heading 9406) and parts of structures 7309 Reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas) 7310 Tanks, casks, drums, cans, boxes and similar containers 7311 Containers for compressed or liquefied gas, of iron or steel 7318 Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers 7326 Other articles of iron or steel

資料來源：IRON & STEEL SECTOR, EU CBAM官方簡報, 2023.10.05

產品是否是CBAM列管品目

您查詢的貨品，已納入列管之貨品清單如下：

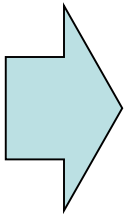
※表格中與CBAM涵蓋貨品相同分類之產品，以同樣網底顏色顯示

貨品分類	歐盟稅號 (CN Code)	歐盟英文產品名	臺灣前6碼相同稅則	臺灣前6碼相同稅則之中文產品名
鋁	7614*	Stranded wire, cables, plaited bands and the like, of aluminium, not electrically insulated	76149000005	其他鋁製絞股線、纜、編帶及類似品，非電絕緣者
鋁	7616*	Other articles of aluminium	76161000000	鋁製釘、平頭釘、肘釘（第8305節者除外），螺釘、螺栓、螺帽、螺旋鉤、鉚釘、橫梢、開口梢、墊圈及類似品
鋁	7616*	Other articles of aluminium	76169100002	鋁線製布、柵格、網及籬網

資料來源：https://www.greentrade.org.tw/CBAM/search

角色/定位/職責

EU CBAM
授權主管
機關



進口商
- 歐盟法令管制對象
- 負責進口產品碳排量申報
- 依規定購買碳差額憑證

要求

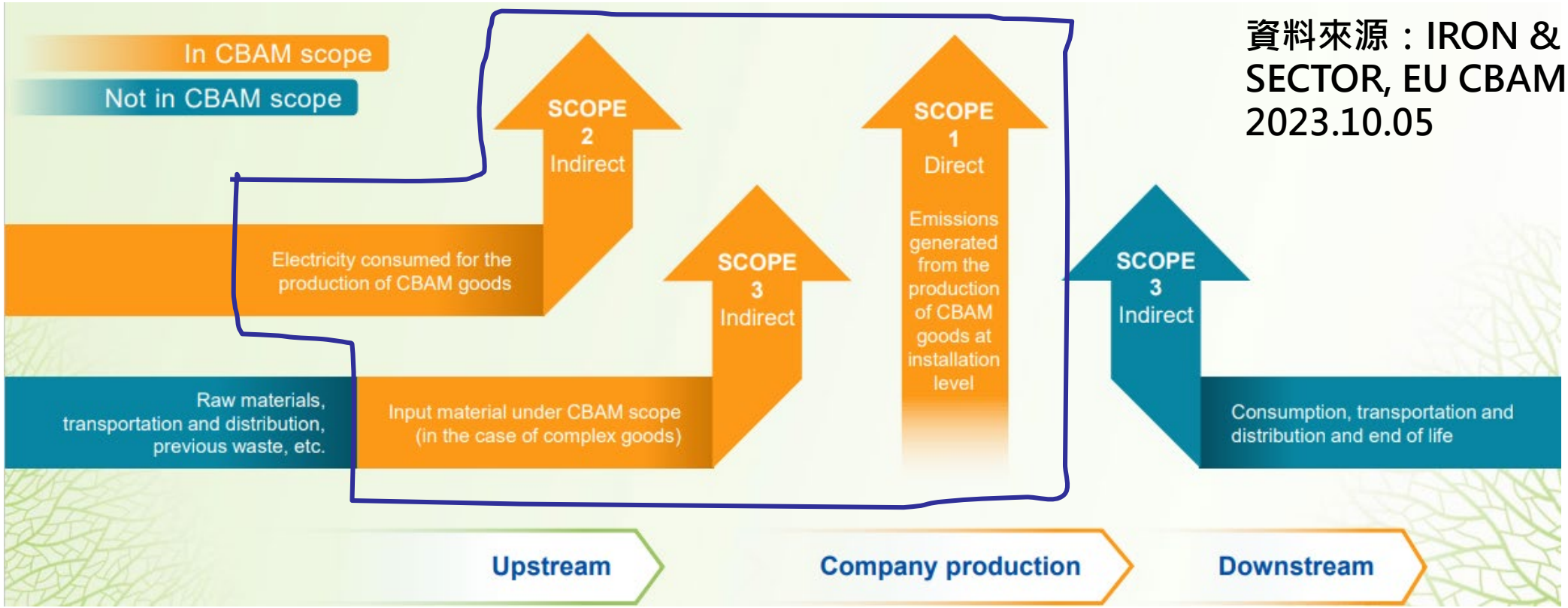
貿易商
- 提供符合申報規定資料
- 負責申報資料的正確性
- 配合EU進口商要求做必要擔保

要求

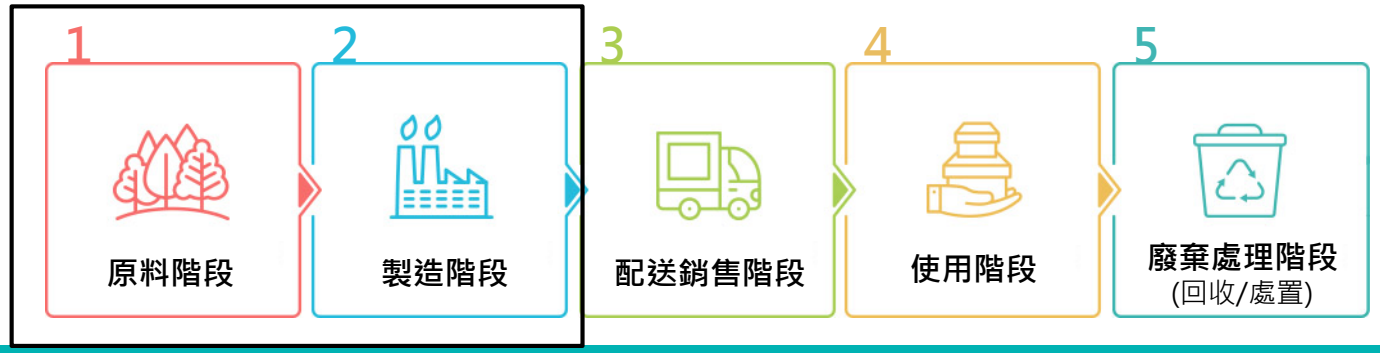
製造商
- 須了解如何計算碳排量
- 依規定進行第三方查證
- 依商業需求進行產品減碳

今天的
重點

CBAM 過渡期之碳排量計算範圍



資料來源：IRON & STEEL SECTOR, EU CBAM官方簡報, 2023.10.05



產品碳排量計算方式

- 產品碳排量核算區分**簡單貨物（指生產程序中純粹加入物料與燃料，並為零碳排放量者）**與**複雜貨物（簡單貨物者以外）**；目前僅直接排放計價。
- **特定碳排量(Specific Embedded Emissions, SEE)**：即指「**每噸特定貨物生產排放的二氧化碳當量數(t CO_2e)**」數量。

簡單貨物(Simple Goods)之特定碳排量

- **計算式：** $SEE_g = AttrEm_g / AL_g$
- SEE_g：特定產品碳排量 (tCO_2e/t)
- $AttrEm_g$：生產該貨品所產生之碳排總量

  $AttrEm_g$ = Dir Em + Indir Em

  (**計算直接排放為主，納電力之間接排放**)
- AL_g：該設施所生產貨品數量（噸）

複雜貨物(Complex Goods)之特定碳排量

- **計算式：** $SEE_g = [AttrEm_g + EE_{InpMat}] / AL_g$
- SEE_g：特定產品碳排含量(tCO_2e/t)
- $AttrEm_g$：生產該貨品所產生之碳排總量
  (**計算直接排放為主，納電力之間接排放**)
- EE_{InpMat}：生產過程中使用原物料(input materials，如前驅物「**上游原料**」) 的內含碳排量總合

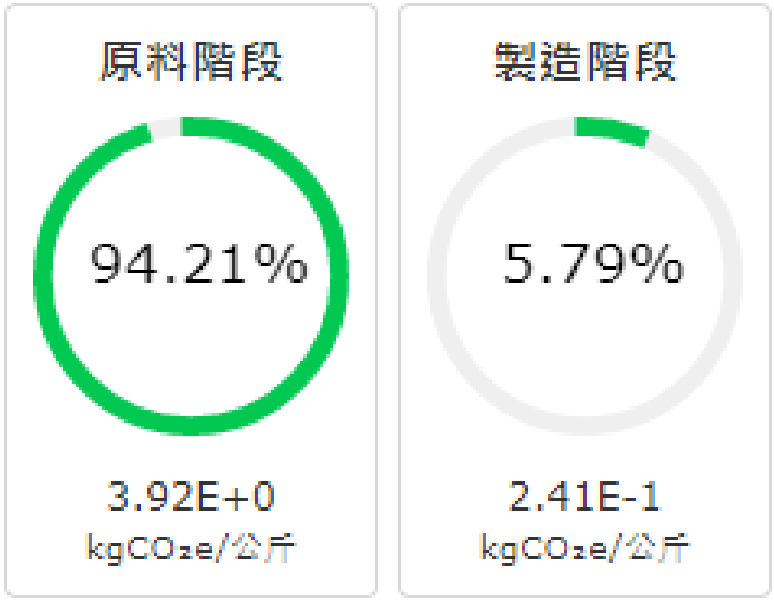
$$EE_{ImpMat} = \sum_{i=1}^{n} M_i \cdot SEE_i$$

- ALg：該設施所生產貨品數量（噸）

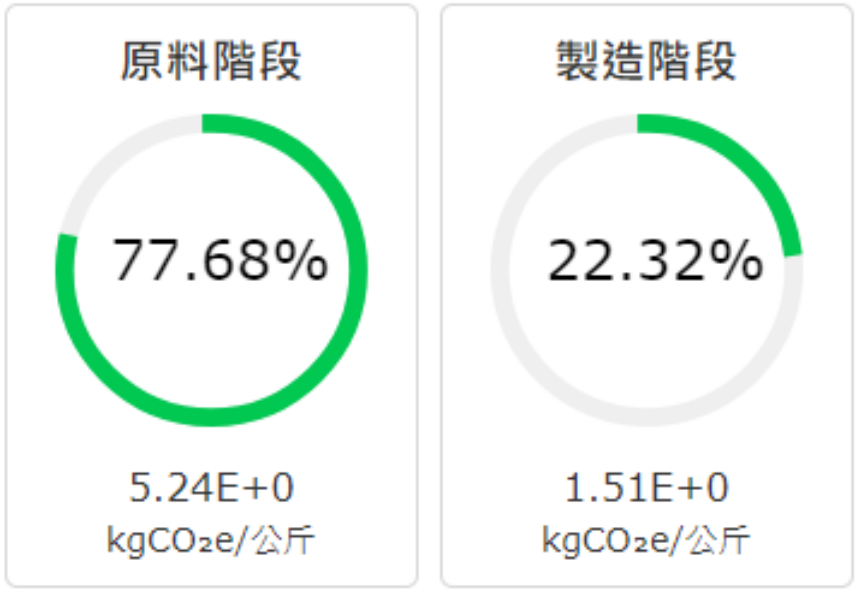
* 間接排放的計算方式將由 CBAM 施行細則中進一步規定，包括預設值的設定方式

複雜產品將上游原料納管緣由

國內某金屬製品業 產品碳足跡分析結果



國內某塑膠製品業 產品碳足跡分析結果



未來低碳原料(前驅物)取得將是綠色競爭力決勝的關鍵

EU CBAM申報模板
(CBAM communication template for installations)

B	C	D	E	F	G	H	I	J	K	L	M
Table of contents			Navigation Area:		Table of contents		Further Guidance		Summary_Processes		Summary_Pro

Sheet "Table of contents"

a_Contents | b_Guidelines&Conditions | c_CodeLists | A_InstData | B_EmInst | C_Emissions&Energy | D_Processes | E_P ...

資料來源：CBAM communication template for installations, 2023.08.22

填寫之前須注意事項

產品碳排量的計算不是只有針對CO_2，其涵蓋各類溫室氣體，如：二氧化碳（CO_2）、甲烷（CH_4）、氧化亞氮（N_2O）、~~氫氟碳化物（HFCs）~~、~~全氟碳化物（PFCs）~~、六氟化硫（SF_6）、~~三氟化氮（NF_3）~~等。

CBAM申報模板
(CBAM communication template for installations)

前置說明

- a_Contents
  內容目錄
- b_Guidelines&Conditions
  使用指南
- c_CodeLists
  代碼清單

主要填報內容

- A_InstData
  製造商資訊
- B_EmInst
  製造商排放源資料
- C_Emissions & Energy
  排放與能源
- D_Processes
  生產製程
- E_PurchPrec
  購買之前驅物(上游原料)
- F_Tools
  工具
- G_Further Guidance
  進階指引

總結內容

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向申報人說明
總結資料

A_InstData 製造商資訊

A. Sheet "A_InstData" - General information, production processes and purchased precursors

1 Reporting period Start: 2023/1/1 End: 2023/12/31

以季當單位

2 About the installation

3 Verifier of the report – only if available and not required during transitional period

4 Aggregated goods categories and relevant production processes

(a) List of aggregated goods categories, relevant precursors and corresponding production routes

Please list here ALL aggregated goods categories, including any relevant precursor types produced WITHIN the installation.
Where relevant, please list all production routes through which the aggregated goods are produced.

ID	Aggregated goods category	Route	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
G1	Iron or steel products	All production routes						
G2	Crude steel	Please select...	Basic oxygen steelmaking					
G3	Alloys (FeMn, FeCr, FeNi)	All production routes						
	Relevant precursors:	Crude steel	Direct reduced	Pig iron	Alloys (FeMn,	Sintered Ore	Hydrogen	

(b) Relevant production processes

ID	Production process	Included goods categories listed under (a) 1	2	3	4	5	6	Name	Error message
P1	Iron or steel products	Only direct production						test	
P2	Crude steel	Alloys (FeMn, FeCr, FeNi)						test2	

5 Purchased precursors

Please list here all precursors that are produced OUTSIDE the installation (e.g. purchased) and consumed within the installation.
Please also list the country in which the relevant precursor was produced (see sheet "c_CodeLists" to find the correct country codes) and the relevant production routes, if known.

ID	Production process	Country code	Route 1	Route 2	Route 3	Route 4	Route 5	Name	Error
PP1	Alloys (FeMn, FeCr, FeNi)	AS						rtets	
PP2									
PP3									

一般資訊、生產流程、購買的前驅物

- ✓報告期間 (以季為單位)
- ✓生產設施資訊
- ✓報告查證資訊(過渡期不需填報)
- ✓商品類別與相關生產流程
- ✓購買的前驅物(上游原料)

B_EmInst 製造商排放源資料

B. Sheet "B_EmInst" - Installation's emission at source stream and emission source level

生產設施之排放源與排放源層級資料

1 Source streams and emission sources

Please click on this link for further guidance on how to complete this section.

Source Streams (excluding PFC emissions)

#	Method	Source stream name	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)	OxF Unit	Conversion factor (ConvF)	ConvF Unit
Ex.1	Combustion	Heavy fuel oil	252,000.00	t	45.00	GJ/t	73.00	tCO2/TJ			100.00	%		%
Ex.2	Process Emissions	Raw meal for clinker	121,000.00	t			0.09	tCO2/t				%		%
Ex.3	Mass balance	Steel	-1,808,226.00	t			0.00		0.39	tC/t		%	100.00	%
1												%		%

PFC Emissions

#	Method	Type of anode	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)	OxF Unit	Conversion factor (ConvF)	ConvF Unit
Ex.	Overvoltage method	Centre Worked Pre-Bake	5,000.00	t										
1				t										

Emissions Sources (Measurement-Based Approaches)

#	Name	Type of GHG	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)	OxF Unit	Conversion factor (ConvF)	ConvF Unit
Ex.1	N2O	N2O												
Ex.2	CO2 transfer	CO2												
1														
2														

C_Emissions & Energy 排放與能源

C. Sheet "C_Emissions&Energy" - Installation-level GHG emissions and energy consumption

1 Fuel balance

Please enter in the table below the amount of energy consumed for each use type:
- Fuel input to all CBAM production processes (including precursors produced within the installation), either directly or via the production of measurable heat (e.g. steam) with the exception of fuel for electricity.
- Fuel input for electricity production
- Fuel input to all non-CBAM production processes, either directly or via the production of measurable heat (e.g. steam).

	Fuel balance:	Unit	Total fuel input	Direct fuel for CBAM goods	Fuel for electricity	Direct fuel for non-CBAM goods	Rest
i.	from sheet "B_EmInst"	TJ	0.00				
ii.	manual entries	TJ					
iii.	**Results:**	**TJ**	**0.00**				**0.00**

2 Greenhouse gas emissions balance & information on data quality

(a) GHG balance by type of GHG

Values below are taken automatically from entries in sheet "B_EmInst". If entries made in that sheet are incomplete, please enter the total emissions figures manually under ii. to override automatic results displayed under i.

	Installation level data:	Unit	Total CO2 emissions	Biomass emissions	Total N2O emissions	Total PFC emissions	Total direct emissions	Total indirect emissions	Total emissions
i.	from sheet "B_EmInst"	tCO2e	0	0	0	0	0		
ii.	manual entries	tCO2e	358,009	250				28,951	
iii.	**Results:**	**tCO2e**	**358,009**	**250**	**0**	**0**	**358,009**	**28,951**	**386,960**

(b) GHG balance by type of monitoring methodology

Values below are taken automatically from entries in sheet "B_EmInst" and point (a) above.

	Unit	based (excl. PFC emissions)	Total PFC emissions	Measurement - based	Other
Emissions	tCO2e	0	0	0	358,009

(c) Information on the data quality and quality assurance

General information on data quality:	Please select from the hierarchical order (descending order) in the drop-down list the predominant approach for determining the installation's direct emissions.
Justification for use of default values (if	If the predominant method was to use default values published by the European Commission, please select from the drop-down list the most appropriate justification for not achieving higher data quality.
Information on quality assurance:	Please select from the hierarchical order (descending order) in the drop-down list the approach for quality assurance of emissions data.

i.	General information on data quality:	Mostly measurements & national standard factors for e.g. the emission factor
ii.	Justification for use of default values (if relevant):	
iii.	Information on quality assurance:	Four eyes principle

生產設施之溫室氣體排放與能源消耗

- ✓燃料平衡
- ✓溫室氣體排放平衡與數據品質資料

D_Processes 生產流程 (1/2)

D. Sheet "D_Processes" - Production level and attributed emissions for SEE calculation

Data input for the determination of the specific embedded emissions

1	Production process 1:	test	Iron or steel products

Please click on this link for further guidance on how to complete this section.

(a)	Total production levels:	Production route	Unit	Amounts
1	test | Iron or steel products	All production routes	t	1,054,927
2		n.a.		
3		n.a.		
4		n.a.		
5		n.a.		
6		n.a.		
7		n.a.		
8		n.a.		
	Total production within installation (= denominator for SEE calculation):		**t**	**1,054,927**

(b)	Production details	Unit	Amounts
i.	**Produced for the market**	t	1,054,927
ii.	Share of total under (a) produced for the market		100.0%
iii.	Total production only for the market?		TRUE

(c)	Consumed in other 'production processes' within the installation:	Unit	Amounts
1	test2	t	
2		t	
3		t	
4		t	
5		t	
6		t	
7		t	
8		t	
9		t	
(d)	Consumed for non-CBAM goods within the installation:	t	
(e)	**Control:**	t	0

活動強度與歸屬於單位產品碳排量(SEE)分配計算

◘ 生產流程1

- ✓ 總生產層級
- ✓ 生產細節
- ✓ 在設施內的其他「生產流程」中之消耗
- ✓ 設施內非CBAM產品的消耗

D_Processes 生產流程 (2/2)

◘ 歸屬於單位產品碳排量(SEE)分配計算

Calculation of the attributed emissions: test

Please click on this link for further guidance on how to complete this section.

		Measurable heat	Waste gases	Indirect emissions
(f)	**Please select which elements are applicable**	TRUE	TRUE	TRUE

Based on your selection, related sections below might become irrelevant and greyed out below.

		Unit	Value
(g)	**Directly attributable emissions (DirEm*)**	tCO2e	285,461

	(h) **Import and export of measurable heat**	Unit	Imported	Exported
i.	Amount of net measurable heat	TJ	0	756
ii.	Emissions factor	tCO2/TJ	0.00	65.00

	(i) **Waste gases**	Unit	Imported	Exported
i.	Amount of waste gas	TJ	0	846
ii.	Emission factor	tCO2/TJ		

	(j) **Indirect emissions from electricity consumption**	Unit	Value
i.	Electricity consumption	MWh	15,585
ii.	Emission factor of the electricity	tCO2/MWh	0.800
iii.	Source of the emission factor	-	D.2.3

	(k) **Electricity exported from the production process**	Unit	Value
i.	Amounts exported	MWh	0
ii.	Emission factor of the electricity	tCO2/MWh	

- ✓選擇適用項目
- ✓直接歸屬排放量
- ✓可量測熱值的投入與產出
- ✓廢氣
- ✓電力消耗的間接排放
- ✓生產流程中的電力輸出

E_PurchPrec 購買之前驅物 (1/2)

E. Sheet "E_PurchPrec" - Purchased precursors for SEE calculation

購買前驅物的SEE計算

Data input for the determination of the specific embedded emissions

1	Purchased precursor 1:	rtets	Alloys (FeMn, FeCr, FeNi)

	(a) Total purchased levels:	Production route	Unit	Amounts
1	rtets | Alloys (FeMn, FeCr, FeNi)	All production routes	t	
2		n.a.		
3		n.a.		
4		n.a.		
5		n.a.		
6		n.a.		
7		n.a.		
8		n.a.		
	Total consumption within installation:		t	0

	(b) Consumed in "production processes" within the installation:	Unit	Amounts
1	test	t	85.613
2	test2	t	0
3			
4			
5			
6			
7			
8			
9			
10			
	(c) Consumed for non-CBAM goods within the installation:	t	
	(d) Control:	t	-85613

◘ 購買前驅物1

- ✓總購買層級
- ✓在設施內「生產過程」中之消耗
- ✓設施內非CBAM產品的消耗

E_PurchPrec 購買之前驅物 (2/2)

前驅物之碳排量(SEE)

Specific embedded emissions: rtets

(e) Emissions embedded in this purchased precursor

Please enter here the values and sources for the specific embedded direct and indirect emissions, as obtained from the supplier.
For the SEE (direct), the 'Type of value' relates to whether the direct emissions are measured, or whether a default value provided by the European Commission was applied.
In order to obtain these data and information, you may want to ask your supplier to fill in an empty copy of this communication template.

	Parameter:	Unit	Value	Source
i.	Specific embedded direct emissions (SEE (direct))	tCO2e/t	3.548	Default
ii.	Specific embedded indirect emissions (SEE (indirect))	tCO2e/t	0.864	D.2.4
iii.	Justification for use of default values (if relevant):	Unreasonable costs for more accurate monito		

- ✓該購買前驅物的碳排量
- ✓直接排放量(SEE直接)
- ✓間接排放量(SEE間接)
- ✓使用預設值的理由

F_Tools 工具 (1/2)

F. Sheet "F_Tools" - Tools for facilitating reporting

1 Cogeneration Tool

This is a tool for attributing fuels and emissions of CHPs to heat and electricity output.
This tool exists twofold in this template and each tool should only be used for one CHP. If more CHPs are relevant, you must aggregate energy amounts and emissions from multiple CHPs.
Periods during which the CHP is operated in heat-only or electricity-only generation mode (i.e. periods during which only one of the two products was produced) should be excluded and assignment of fuels and emissions should be calculated separately.

1 Tool to calculate the emissions attributable to heat production in combined heat and power units (CHP)

(a) Total amount of fuel input into CHP units

Please enter here the annual fuel input into the CHP unit, the net amount of heat produced and the net amount of electricity (or mechanical energy, where applicable) produced by the CHP.

	Parameter	Fuel input into CHP	Heat output from CHP	Electricity output from CHP	Electricity output from CHP
	Unit	TJ	TJ	MWh	TJ
Inputs and outputs	Value				

(b) Total emissions from CHP

Values should distinguish between emissions from fuel input and from flue gas cleaning.

	Unit	From fuel input to CHP	From flue gas cleaning	Total emissions
GHG emissions	tCO2			

(c) Default efficiencies: Heat: 55.00% Electricity: 25.00%

(d) Efficiencies for heat and electricity

These values are dimensionless and automatically calculated from inputs in (a) to (c) above.
If no values are displayed here but total emissions under (b) above, default efficiencies from (c) will be used here. Please note that this should only be done if the determination of the efficiencies is technically not feasible or would incur unreasonable costs, and values based on technical documentation (design values) of the installation are not available as well.

	Unit	Heat production	Electricity production	Total
Efficiencies	-			

(e) Reference efficiencies

These are the reference efficiency for heat production in a stand-alone boiler, and the reference efficiency of electricity production without cogeneration.
For the reference efficiencies the appropriate fuel-specific values from Annex IX of the Commission Implementing Regulation pursuant to Article 35(7) of the CBAM Regulation.
Default efficiencies below are for hard coal CHPs producing electricity and hot water.

	Unit	Heat production	Electricity production
Reference efficiencies	-	88.00%	44.20%

協助報告工具之一

- 汽電共生(CHP)—產熱排放量估算工具
  - ✓投入燃料量
  - ✓CHP排放量
  - ✓預設效率
  - ✓參考效率...

F_Tools 工具 (2/2)

協助報告工具之二

- 碳價估算工具

2 Tool to calculate the carbon price due

This tool aims to help you with the calculation of the carbon price due. Similar to the calculation of the specific embedded emissions in sheets D + E, please only enter the carbon price due and any rebate received in respect of the system boundaries of the production process.

The results obtained here in columns L and M have to be manually entered into the respective fields in sheet "Summary_Products".

The following conditions apply:
- the carbon price used for each production process has to be converted into one common currency.
- the system boundaries of carbon pricing have to be consistent with the boundaries of the production process and precursors.

If the conditions above are not satisfied, this tool can only be used to support you with the calculation of the carbon price, but results cannot be used directly.

SE (total)	Specific direct + indirect emissions of the production process, i.e. excluding any embedded emissions from any precursors consumed in the process.
Share of emissions covered by the carbon price	Please enter here the share of the TOTAL (direct + indirect) specific emissions that are subject to carbon pricing. For instance, if only direct emissions are covered by a carbon pricing system, the share to be provided here would be exactly the share of the dir… he total emissions.
Carbon price (CP) due	Please enter here the carbon price due per tonne of CO2e in the relevant currency. This value sh… allowance or financial compensation. It shall also not include any carbon price due for any precursors outside the production pro… counting.
Amount of rebate (local currency)	Please enter here the rebate per tonne of CO2e covered by the rebate in the relevant currency. It shall also not include … precursors outside the production process to avoid double counting.

經換算涵蓋碳排量　名目碳價　折扣補償　總結有效碳價

該段碳含量　碳價涵蓋碳排比例

產品製程　分類

Currency: TWD New Taiwan Dollar

	Production process	Aggregated goods category	SE (total) tCO2e/t	Share of emissions covered by the carbon price	Covered SE tCO2e/t	Carbon price (CP) due (local currency) TWD/tCO2e	Amount of rebate (local currency) TWD/tCO2e	CP due (per t or MWh)	Rebate (per t or MWh)	Result: Effective CP due
P1	test	Iron or steel proc	0.206	100.0%	0.206	5.00	4.00	**16.96**	**0.82**	16.14
P2	test2	Crude steel	0.291	100.0%	0.291	5.00	4.00	**10.80**	**1.16**	9.63
P3										
P4										
P5										
P6										
P7										
P8										
P9										
P10										
PP1	rtets	Alloys (FeMn, Fe	4.412	80.0%	3.530	50.00				
PP2										
PP3										
PP4										

自己的製程
P1、P2、P3

前段原料製程
PP1、PP2

資料來源：工研院綠能所 連振安工程師

工業技術研究院
Industrial Technology Research Institute

G_Further Guidance 進階指引

G. Sheet "G_FurtherGuidance" - Further guidance on specific sections in this template

1 General guidance

Each section of this template contains guidance on how to complete the required inputs in that section. However, for some sections the amount of guidance needed could distract the user from relevant inputs and make the format of the template less user-friendly. Where this is the case, the sections below provide the said further detailed guidance.

You do however not have to read the sections below from top to bottom. It is better if you go through the template from start to end (as also recommended in sheet "b_Guidelines&Conditions") and relevant sections will contain a hyperlink that will direct you to the relevant guidance in this sheet anyway.

You can also find further guidance, including examples, in the guidance document published on the European Commission's website, which can be found here:
https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

2 Source streams and emission sources

In sheet "B_EmInst" the energy content and the greenhouse gas (GHG) emissions are calculated for each source stream and emission source.
At the top of each block in that sheet you can find examples on how to complete data inputs in order to calculate the corresponding emissions for each source stream and emission source.
Guidance on each parameter below aims to help you with filling all input fields in sheet "B_EmInst".

Please click on this link if you want to go back to the relevant section for data entry.

Source streams (excluding PFC emissions)	
Method	Please select from the drop-down list the monitoring method applied for the relevant source stream: "combustion", "process emissions" or "mass balance".
Source stream name	Please enter here the name of the source stream, e.g. coal, natural gas, clinker raw meal, limestone, iron ore, steel, scrap iron,
Activity data (AD)	The activity data is the data on the amount of fuels or materials consumed or produced by a process as relevant for the calculation-based monitoring methodology, expressed mass in tonnes (t), or for gases as volume in normal cubic metres (Nm³), as appropriate.

3 Attribution of emissions to production processes

In sheet "D_Processes" the data inputs required are needed in order to calculate the specific emissions of each production processes, based on which the specific embedded emissions are calculated in this template.

Entries in sheet "E_PurchPrec" require similar entries. Further guidance is provided there.

Please click on this link if you want to go back to the releva

a)	Total production	SEE Denominator	Please provide here the total amount of goods produced in the relevant production route. This is the denominator for the calcu
b)	Production for the market		Please provide here the total amount of goods that are placed further processed into goods within another production proces
c)	Consumed in other 'production processes'		Please provide here the total amount of goods that are consun processed into the goods produced in those processes. Pleas good is not consumed by the specific process. Where all of the section will be greyed out and no inputs are required here.

4 Summary of products

Please find below the detailed guidance on how to complete the sheet "Summary_Products".

Sheet "Summary_Products" will be crucial for the communication with the 'reporting declarant' as it contains the main information required in order to correctly fill in the 'CBAM report' for importing the goods into the European Union.

The information provided there should be for each type of good imported into the EU. The type of goods should be listed as disaggregated as possible, i.e. splitting type of goods by their CN codes using as many digits as possible.

All information provided (specific embedded emissions, carbon price due, etc.) shall relate to the same reference period as entered in sheet A, section 1.

An example for how to complete a row is provided at the top of the table in sheet "Summary_Products".

Please click on this link if you want to go back to the relevant section for data entry.

General parameters	
Production process from which the products arise	This contains a drop-down list with all production processes listed in sheet A, section 4.b. The type of aggregated good will be displayed automatically and the drop-down list for the relevant CN codes (see below) will only contain the codes relevant for this

針對填報表單提供進階說明

- ✓ 排放源各欄位如何填入 (ex:名稱,活動數據等)
- ✓ 生產製程排放貢獻度如何估算 (ex: CBAM產品與非CBAM產品區別)
- ✓ 產品總結各欄位說明與注意事項

Summary_Processes 製程總結

1 Summary of the installation, processes and production routes

1 Summary of the installation

Name of the installation (English name):	test
Street, Number:	
Economic activity:	
Country:	United States
UNLOCODE:	
Coordinates of the main emission source (latitude):	
Coordinates of the main emission source (longitude):	

Reporting period start: 2023/1/1
Reporting period end: 2023/12/31

2 Summary of the production processes, included precursors and production routes, where relevant

2 Greenhouse gas emissions balance and specific embedded emissions (SEE)

1 GHG emissions balance of the installation and all production processes

	(a) Production process	Aggregated goods category	Unit	DirEm*	Heat emissions	Waste gas emissions	Total direct emissions	Indirect, if relevant
P1	test	Iron or steel products	tCO2e	285,461	-49,140	-31,656	204,665	12,468
P2	test2	Crude steel	tCO2e	81,092	0	-10,028	71,064	3,116
P3			tCO2e					
P4			tCO2e					
P5			tCO2e					
P6			tCO2e					

3 Detailed overview of each production processes

1	test	Aggregated goods category	Mass share t/t	(Share of) Default value	SEE (direct) tCO2e/t	SEE (indirect) tCO2e/t	SEE (total) tCO2e/t	EmbEm (direct) tCO2e	EmbEm (indirect) tCO2e	EmbEm (total) tCO2e	Source of electricity EF	Specific electricity MWh/t	Country code	CP due (per t or MWh)	Rebate (per t or MWh)
	Total production process	**Iron or steel products**	-	64%	**0.542**	**0.103**	**0.644**	571,670	108,188	679,857	-	**0.015**	-	**17.53**	**1.28**
	test	Iron or steel products	1.000	-	0.194	0.012	0.206	204,665	12,468	217,133	D.2.3	0.015		1.60	1.28
1	*rtets*	Alloys (FeMn, FeCr, FeNi)	0.081	TRUE	0.288	0.070	0.358	303,755	73,970	377,725	D.2.4		**AS**	14.32	0.00
2	*PP19*	Crude steel	0.024	TRUE	0.060	0.021	0.081	63,250	21,750	85,000	D.2.4		**BI**	1.61	0.00
3															
4															

- 生產設施/製程/生產路徑
- 溫室氣體排放平衡/製程碳排量
- 每項生產流程的詳細概述

✓ Excel檔自動帶入前述填寫表單

工業技術研究院
Industrial Technology Research Institute

Summary_Products 產品總結

	Production process from which the products arise	Type of aggregated good or precursor	CN Codes	SEE (indirect)	SEE (total)	Unit	Share of emissions by default value	Source for electricity EF	Embedded electricity (MWh/t)
Ex.	Example process A	Iron or steel products	72071919	0.396	1.311	tCO2e/t		D.2.1	0.281
1									
2									
3									
4									
5	test	Iron or steel products	72082500	0.103	0.644	tCO2e/t	64%	D.2.3	0.015
6									

The main reducing agent of the precursor, if known	Steel mill identification number	% Mn	% Cr	% Ni	% other alloys	% carbon	t scrap per t steel	% other materials	% pre-consumer scrap
Coal or coke	623108	13.95%	8.41%	2.10%	3.00%	0.35%		0.01%	

t scrap per t aluminium	% non-aluminium elements	Clinker factor	Calcined or not	Concentration, if hydrous solution	% nitric acid	% urea	% N contained	% N as ammonium (NH4+)	% N as nitrate (NO3–)	% N as Urea

Form of carbon price	Share of total embedded emissions covered by the carbon price	Embedded emissions covered by the carbon price		Currency		Carbon price (CP)		Form of rebate	Share of embedded emissions covered by the rebate	Embedded emissions covered by rebate		Amount of rebate		Result: Effective CP due	
Tax or levy	69.8%	0.915	tCO2e/t	USD	US Dollar	50.00	USD/t	Tax deduction	90.0%	1.180	tCO2e/t	20.00	USD/t	35.41	USD/t
Tax or levy	100.00%	0.644	tCO2e/t	USD	US Dollar	16.96	USD/t	Tax deduction	100.00%	0.644	USD/t	0.82	USD/t	16.14	USD/t

- 各項產品碳含量
- 各項產品額外補充說明資訊
  (每類商品規定不同補充資訊)

例如：
- ✓ 前驅物的主要還原劑
- ✓ 鋼廠識別碼
- ✓ Mn, Cr, Ni,與其他合金的重量%
- ✓ 回收廢鋼鐵...

- 各項產品之有效碳價

Summary_Communication 通報總結

彙集前兩項“製程總結”與“產品總結”

1 Summary of the installation and production processes

1 Installation details

Parameter	Value
Name of the installation (English name):	test
Street, Number:	
Economic activity:	
Country:	US
UNLOCODE:	
Coordinates of the main emission source (latitude):	
Coordinates of the main emission source (longitude):	
Reporting period start:	2023/1/1
Reporting period end:	2023/12/31

2 Summary of the production processes and production routes, where relevant

(a)	Aggregated good produced	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
G1	Iron or steel pro						
G2	Crude steel	Basic oxygen s					
G3	Alloys (FeMn,						
G4							
G5							
G6							
G7							
G8							
G9							
G10							

3 Summary of emissions by monitoring methodology and data quality

Calculation - based (excl. PFC emissions)	Total PFC emissions	Measurement - based	Other
tCO2e	tCO2e	tCO2e	tCO2e
0	0	0	358,009

Total direct emissions during reporting period:	tCO2e	358,009
Total indirect emissions during reporting period:	tCO2e	28,951
Total emissions during reporting period:	tCO2e	386,960

General information on data quality:	Mostly measurements & national standard factors for e.g. the emission factor
Justification for use of default values (if relevant):	
Information on quality assurance:	Four eyes principle

2 Summary of products

	Production process from which the products arise	Type of aggregated good or precursor	CN Codes	CN Name	Product name (used for communication with reporting declarant, e.g. on invoices)	SEE (direct)	SEE (indirect)	SEE (total)	Unit	Share of emissions by default value	Source for electricity EF	Embedded electricity (MWh/t)	The main reducing agent of the precursor, if known	Steel mill identification number	% Mn	% Cr	% Ni	% other alloys	% carbon
1																			
2																			
3																			
4																			
5	test	Iron or steel products	72082500	Flat-rolled produc	lalala	0.542	0.103	0.644	tCO2e/t	64%	D.2.3	0.015	Coal or coke		3.00%				
6																			

模擬案例 1：鋁製品

鋁製品

1

產品名稱：鋁棒 (aluminum billets)

2

產品出口概況：80% 外銷歐盟

3

申報期間：2023/10~2023/12

4

生產概況：

□ 全廠產品概況

- 鋁棒生產量為1,000公噸(申報期間),
- 鋁棒佔全廠生產量約 70%
  (假設其餘為其他鋁製品，且不銷往歐盟)

□ 全廠溫室氣體排放項目說明

□ 範疇一：天然氣, 柴油
□ 範疇二：電力
□ 範疇三：鋁錠(回收料佔30%)
(僅需納入上游原料且在CBAM管制內之項目)

A_InstData 製造商資訊

A. Sheet "A_InstData" - General information, production processes and purchased precursors

1 Reporting period Start: 2023/10/1 End: 2023/12/31

2 About the installation

3 Verifier of the report – only if available and not required during transitional period

4 Aggregated goods categories and relevant production processes

(a) List of aggregated goods categories, relevant precursors and corresponding production routes

Please list here ALL aggregated goods categories, including any relevant precursor types produced WITHIN the installation.
Where relevant, please list all production routes through which the aggregated goods are produced.

ID	Aggregated goods category	Route	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
G1	Aluminium products	All production routes						

For information, emissions from the following precursors are relevant for the embedded emissions of the types of aggregated goods listed above. Where those precursors are actually relevant for your production processes, please make sure those are also listed either in the table above (if produced within your installation) or under chapter 5 "purchased precursors" below (where produced in other installations).

Relevant precursors:	Unwrought alu 未鍛軋鋁					

(b) Relevant production processes

ID	Production process	Included goods categories listed under (a) 1	2	3	4	5	6	Name	Error message
P1	Aluminium products	Aluminium pro	n.a.	n.a.	n.a.	n.a.	n.a.	aluminum billets	

5 Purchased precursors

Please list here all precursors that are produced OUTSIDE the installation (e.g. purchased) and consumed within the installation.
Please also list the country in which the relevant precursor was produced (see sheet "c_CodeLists" to find the correct country codes) and the relevant production routes, if known.

ID	Production process	Country code	Route 1	Route 2	Route 3	Route 4	Route 5	Name	Error
PP1	Unwrought aluminium	TW	Primary (electrolytic	Other production routes	Other productio	Other productio	Other productio	Semi-finished products	

➡ 請填入工廠基本資料

➡ 過渡期不須第三方查證
(此項可不填)

➡ 產品類型:鋁製品
(下拉式選單)

系統自動帶出相關前驅物供參考

➡ 相關前驅物(上游原料)

➡ 若該產品有不同製程可分別列出

➡ 前驅物(未鍛軋鋁)製程填寫

B_EmInst 製造商排放源資料

B. Sheet "B_EmInst" - Installation's emission at source stream and emission source level

1 Source streams and emission sources

Please click on this link for further guidance on how to complete this section.

Source Streams (excluding PFC emissions)

#	Method	Source stream name	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)
Ex.1	Combustion	Heavy fuel oil	252,000.00	t	45.00	GJ/t	73.00	tCO2/TJ			100.00
Ex.2	Process Emissions	Raw meal for clinker	121,000.00	t			0.09	tCO2/t			
Ex.3	Mass balance	Steel	-1,808,226.00	t			0.00		0.39	tC/t	
1	Process emissions	Natural gas	6,200.00	1000Nm3	33.60	GJ/1000Nm3	2.60	tCO2/1000Nm3			
2	Process emissions	Diesel oil	1,500.00	1000Nm3	35,280.00	GJ/1000Nm3	3,300.00	tCO2/1000Nm3			

➡ 填入範疇一之天然氣與柴油

數據為假設, 僅供範例使用

PFC Emissions

#	Method	Type of anode	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)
Ex.	Overvoltage method	Centre Worked Pre-Bake	5,000.00	t							
1				t							

➡ 其他未排放者不需填寫

Emissions Sources (Measurement-Based Approaches)

#	Name	Type of GHG	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)
Ex.1	N2O	N2O									
Ex.2	CO2 transfer	CO2									
1											
2											

➡ 其他未排放者不需填寫

C_Emissions & Energy 排放與能源

C. Sheet "C_Emissions&Energy" - Installation-level GHG emissions and energy consumption

1 Fuel balance

Please enter in the table below the amount of energy consumed for each use type:

- Fuel input to all CBAM production processes (including precursors produced within the installation), either directly or via the production of measurable heat (e.g. steam) with the exception of fuel for electricity.
- Fuel input for electricity production
- Fuel input to all non-CBAM production processes, either directly or via the production of measurable heat (e.g. steam).

	Fuel balance:	Unit	Total fuel input	Direct fuel for CBAM goods	Fuel for electricity	Direct fuel for non-CBAM goods	Rest
i.	from sheet "B_EmInst"	TJ	53,128.32				
ii.	manual entries	TJ					
iii.	**Results:**	**TJ**	**53,128.32**				**53,128.32**

2 Greenhouse gas emissions balance & information on data quality

(a) GHG balance by type of GHG

Values below are taken automatically from entries in sheet "B_EmInst". If entries made in that sheet are incomplete, please enter the total emissions figures manually under ii. to override automatic results displayed under i.

	Installation level data:	Unit	Total CO2 emissions	Biomass emissions	Total N2O emissions	Total PFC emissions	Total direct emissions	Total indirect emissions	Total emissions
i.	from sheet "B_EmInst"	tCO2e	4,966,120	0	0	0	4,966,120		
ii.	manual entries	tCO2e						509,000	
iii.	**Results:**	**tCO2e**	**4,966,120**	**0**	**0**	**0**	**4,966,120**	**509,000**	**5,475,120**

(c) Information on the data quality and quality assurance

General information on data quality:	Please select from the hierarchical order (descending order) in the drop-down list the predominant approach for determining the installation's direct emissions.
Justification for use of default values (if	If the predominant method was to use default values published by the European Commission, please select from the drop-down list the most appropriate justification for not achieving higher data quality.
Information on quality assurance:	Please select from the hierarchical order (descending order) in the drop-down list the approach for quality assurance of emissions data.

i.	General information on data quality:	Mostly measurements & analyses
ii.	Justification for use of default values (if relevant):	
iii.	Information on quality assurance:	Four eyes principle

手動填入間接排放(電力)
(須配合表單D生產流程資料,
但為全廠排放量)

數據品質(下拉式選單)

D_Processes 生產流程

D. Sheet "D_Processes" - Production level and attributed emissions for SEE calculation

Data input for the determination of the specific embedded emissions

1	Production process 1:	aluminum billets	Aluminium products

Please click on this link for further guidance on how to complete this section.

(a) Total production levels:	Production route	Unit	Amounts
1 aluminum billets | Aluminium products	All production routes	t	1,000

(b) Production details	Unit	Amounts
i. Produced for the market	t	800
ii. Share of total under (a) produced for the market		80.0%
iii. Total production only for the market?		FALSE

(c) Consumed in other 'production processes' within the installation:	Unit	Amounts
1 et	t	200

Calculation of the attributed emissions: aluminum billets

Please click on this link for further guidance on how to complete this section.

	Measurable heat	Waste gases	Indirect emissions
(f) Please select which elements are applicable	FALSE	FALSE	TRUE

Based on your selection, related sections below might become irrelevant and greyed out below.

	Unit	Value
(g) Directly attributable emissions (DirEm*)	tCO2e	2,781,027

(h) Import and export of measurable heat	Unit	Imported	Exported
i. Amount of net measurable heat	TJ		
ii. Emissions factor	tCO2/TJ		

(i) Waste gases	Unit	Imported	Exported
i. Amount of waste gas	TJ		
ii. Emission factor	tCO2/TJ		

(j) Indirect emissions from electricity consumption	Unit	Value
i. Electricity consumption	MWh	56,000
ii. Emission factor of the electricity	tCO2/MWh	0.509
iii. Source of the emission factor	-	D.2.4

2021年電力係數

(k) Electricity exported from the production process	Unit	Value
i. Amounts exported	MWh	0
ii. Emission factor of the electricity	tCO2/MWh	

➡ 鋁棒產品之全廠產量

➡ 鋁棒產品輸歐比例

➡ 鋁棒產品之直接排放貢獻量

考量全廠產量比例與輸歐比例

➡ 鋁棒產品之間接排放貢獻量

考量全廠產量比例與輸歐比例

E_PurchPrec 購買之前驅物

E. Sheet "E_PurchPrec" - Purchased precursors for SEE calculation

Data input for the determination of the specific embedded emissions

1	Purchased precursor 1:	Semi-finished products	Unwrought aluminium

(a) Total purchased levels:	Production route	Unit	Amounts
1 Semi-finished products | Unwrought aluminium	Primary (electrolytic) smelting	t	1,000
2 Semi-finished products | Unwrought aluminium	Secondary melting (recycling)	t	0
3 Semi-finished products | Unwrought aluminium	Other production routes	t	0
4 Semi-finished products | Unwrought aluminium	Unknown production routes	t	0
5	n.a.		
6	n.a.		
7	n.a.		
8	n.a.		
Total consumption within installation:		t	1,000

➡ 鋁棒原料購買量

(b) Consumed in "production processes" within the installation:	Unit	Amounts
1 aluminum billets	t	1,000
2 et	t	0

➡ 鋁棒原料使用量

Specific embedded emissions: Semi-finished products

(e) Emissions embedded in this purchased precursor

Please enter here the values and sources for the specific embedded direct and indirect emissions, as obtained from the supplier.
For the SEE (direct), the 'Type of value' relates to whether the direct emissions are measured, or whether a default value provided by the European Commission was applied.
In order to obtain these data and information, you may want to ask your supplier to fill in an empty copy of this communication template.

Parameter:	Unit	Value	Source
i. Specific embedded direct emissions (SEE (direct))	tCO2e/t	0.090	Default
ii. Specific embedded indirect emissions (SEE (indirect))	tCO2e/t	0.090	D.2.4
iii. Justification for use of default values (if relevant):	Other		

➡ 鋁棒原料之直接與間接碳排量

數據為假設, 僅供範例使用

Summary_Processes 製程總結

1 Summary of the installation, processes and production routes

1 Summary of the installation

Name of the installation (English name):	A company
Street, Number:	
Economic activity:	
Country:	Taiwan
UNLOCODE:	
Coordinates of the main emission source (latitude):	
Coordinates of the main emission source (longitude):	

Reporting period start:	2023/10/1
Reporting period end:	2023/12/31

➡ 製程總結為自動帶入

2 Summary of the production processes, included precursors and production routes, where relevant

	(a) Aggregated good produced	Routes	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
G1	Aluminium products	All production routes						

	(b) Production process	Aggregated goods category	1	2	3	4	5	6
P1	aluminum billets	Aluminium products	Aluminium pr	n.a.	n.a.	n.a.	n.a.	n.a.

	(c) Purchased precursor	Aggregated goods category	Route 1	Route 2	Route 3	Route 4	Route 5	Country code
PP1	Semi-finished products	Unwrought aluminium	Primary (elec	Other produc	Other product	Other product	Other product	TW

2 Greenhouse gas emissions balance and specific embedded emissions (SEE)

1 GHG emissions balance of the installation and all production processes

	(a) Production process	Aggregated goods category	Unit	DirEm*	Heat emissions	Waste gas emissions	Total direct emissions	Indirect, if relevant
P1	aluminum billets	Aluminium products	tCO2e	2,781,027	0	0	2,781,027	28,504
P2			tCO2e					

Summary_Products 產品總結

Please click on this link for further guidance on how to complete this section.

	Production process from which the products arise	Type of aggregated good or precursor	CN Codes	CN Name	Product name (used for communication with reporting declarant, e.g. on invoices)	SEE (direct)	SEE (indirect)	SEE (total)	Unit	Share of emissions by default value	Source for electricity EF	Embedded electricity (MWh/t)
Ex.	Example process A	Iron or steel products	720719	Semi-finished products of iron or non-alloy s	Example name A	0.915	0.396	1.311	tCO2e/t		D.2.1	0.281
1	aluminum billets	Aluminium products	7604	Bars, rods and profiles, of aluminium, n.e.s.	aluminum billets	2781.117	28.594	2809.711	tCO2e/t	0%	D.2.4	56.000

輸入產品名稱與CN code

t scrap per t steel	% other materials	% pre-consumer scrap	t scrap per t aluminium	% non-aluminium elements	Clinker factor	Calcined or not	Concentration, if hydrous solution
	0.01%						
		0.00%	30.00%	0.00%			

30%回收鋁

模擬案例 2：
金屬扣件(螺絲螺帽等)

金屬扣件(螺絲螺帽等)

1. 產品名稱：金屬扣件 (fasteners)

2. 產品出口概況：30% 外銷歐盟

3. 申報期間：2023/10~2023/12

4. 生產概況：

□ 全廠產品概況

- 金屬扣件生產量為2,300公噸(申報期間),
- 金屬扣件佔全廠生產量約60%
  (假設其餘為其他鋼鐵製品且不銷往歐盟)

□ 全廠溫室氣體排放項目說明

□ 範疇一：天然氣, 柴油
□ 範疇二：電力
□ 範疇三：線材盤元
(僅需納入上游原料且在CBAM管制內之項目)

A_InstData 製造商資訊

A. Sheet "A_InstData" - General information, production processes and purchased precursors

1 Reporting period Start: 2023/10/1 End: 2023/12/31

2 About the installation

3 Verifier of the report – only if available and not required during transitional period

4 Aggregated goods categories and relevant production processes

(a) List of aggregated goods categories, relevant precursors and corresponding production routes

Please list here ALL aggregated goods categories, including any relevant precursor types produced WITHIN the installation.
Where relevant, please list all production routes through which the aggregated goods are produced.

ID	Aggregated goods category	Route	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
G1	Iron or steel products	All production routes						

below (where produced in other installations):

Relevant precursors:	Crude steel	Direct reduced iron	Pig iron	Alloys (FeMn,	Sintered Ore	Hydrogen		

(b) Relevant production processes

ID	Production process	Included goods categories listed under (a) 1	2	3	4	5	6	Name	Error message
P1	Iron or steel products	Iron or steel pr	n.a.	n.a.	n.a.	n.a.	n.a.	fasteners	

5 Purchased precursors

Please list here all precursors that are produced OUTSIDE the installation (e.g. purchased) and consumed within the installation.
Please also list the country in which the relevant precursor was produced (see sheet "c_CodeLists" to find the correct country codes) and the relevant production routes, if known.

ID	Production process	Country code	Route 1	Route 2	Route 3	Route 4	Route 5	Name	Error
PP1	Iron or steel products	TW	Primary (elect	Secondary melting (recycl	Unknown produ	Unknown produ	Unknown prod	steel wire	
PP2									

線材盤元

前驅物為”線材盤元”, 非系統自動帶出項目, 可自行選填

- 請填入工廠基本資料
- 過渡期不須第三方查證 (此項可不填)
- 產品類型:鋼鐵製品 (下拉式選單)
  - 系統自動帶出相關前驅物供參考
- 相關前驅物(上游原料)
- 若該產品有不同製程可分別列出
- 前驅物(線材盤元)製程填寫

B_EmInst 製造商排放源資料

1 Source streams and emission sources

Please click on this link for further guidance on how to complete this section.

Source Streams (excluding PFC emissions)

#	Method	Source stream name	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit
Ex.1	Combustion	Heavy fuel oil	252,000.00	t	45.00	GJ/t	73.00	tCO2/TJ		
Ex.2	Process Emissions	Raw meal for clinker	121,000.00	t			0.09	tCO2/t		
Ex.3	Mass balance	Steel	-1,808,226.00	t			0.00		0.39	tC/t
1	Process emissions	Natural gas	8,100.00	1000Nm3	33.60	GJ/1000Nm3	2.60	tCO2/1000Nm3		
2	Process emissions	Diesel oil	1,800.00	1000Nm3	35,280.00	GJ/1000Nm3	3,300.00	tCO2/1000Nm3		

➡ 填入範疇一之天然氣與柴油

數據為假設, 僅供範例使用

PFC Emissions

#	Method	Type of anode	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)
Ex.	Overvoltage method	Centre Worked Pre-Bake	5,000.00	t							
1				t							

➡ 其他未排放者不需填寫

Emissions Sources (Measurement-Based Approaches)

#	Name	Type of GHG	Activity data (AD)	AD Unit	Net calorific value (NCV)	NCV Unit	Emission factor (EF)	EF Unit	Carbon content	C-Content Unit	Oxidation factor (OxF)
Ex.1	N2O	N2O									
Ex.2	CO2 transfer	CO2									
1											
2											

➡ 其他未排放者不需填寫

C_Emissions & Energy 排放與能源

C. Sheet "C_Emissions&Energy" - Installation-level GHG emissions and energy consumption

1 Fuel balance

Please enter in the table below the amount of energy consumed for each use type:

- Fuel input to all CBAM production processes (including precursors produced within the installation), either directly or via the production of measurable heat (e.g. steam) with the exception of fuel for electricity.
- Fuel input for electricity production
- Fuel input to all non-CBAM production processes, either directly or via the production of measurable heat (e.g. steam).

	Fuel balance:	Unit	Total fuel input	Direct fuel for CBAM goods	Fuel for electricity	Direct fuel for non-CBAM goods	Rest
i.	from sheet "B_EmInst"	TJ	63,776.16				
ii.	manual entries	TJ					
iii.	**Results:**	**TJ**	**63,776.16**				**63,776.16**

2 Greenhouse gas emissions balance & information on data quality

(a) GHG balance by type of GHG

Values below are taken automatically from entries in sheet "B_EmInst". If entries made in that sheet are incomplete, please enter the total emissions figures manually under ii. to override automatic results displayed under i.

	Installation level data:	Unit	Total CO2 emissions	Biomass emissions	Total N2O emissions	Total PFC emissions	Total direct emissions	Total indirect emissions	Total emissions
i.	from sheet "B_EmInst"	tCO2e	5,961,060	0	0	0	5,961,060		
ii.	manual entries	tCO2e						35,630	
iii.	**Results:**	**tCO2e**	**5,961,060**	**0**	**0**	**0**	**5,961,060**	**35,630**	**5,996,690**

(c) Information on the data quality and quality assurance

General information on data quality:	Please select from the hierarchical order (descending order) in the drop-down list the predominant approach for determining the installation's direct emissions.
Justification for use of default values (if	If the predominant method was to use default values published by the European Commission, please select from the drop-down list the most appropriate justification for not achieving higher data quality.
Information on quality assurance:	Please select from the hierarchical order (descending order) in the drop-down list the approach for quality assurance of emissions data.

i.	General information on data quality:	Mostly measurements & analyses
ii.	Justification for use of default values (if relevant):	
iii.	Information on quality assurance:	Four eyes principle

➡ 手動填入間接排放(電力)
(須配合表單D生產流程資料,
但為全廠排放量)

➡ 數據品質(下拉式選單)

D_Processes 生產流程

D. Sheet "D_Processes" - Production level and attributed emissions for SEE calculation

Data input for the determination of the specific embedded emissions

1	Production process 1:	fasteners	Iron or steel products

Please click on this link for further guidance on how to complete this section.

(a) Total production levels:	Production route	Unit	Amounts
1 fasteners | Iron or steel products	All production routes	t	2,300

(b) Production details	Unit	Amounts
i. Produced for the market	t	690
ii. Share of total under (a) produced for the market		30.0%
iii. Total production only for the market?		FALSE

(c) Consumed in other 'production processes' within the installation:	Unit	Amounts
1 et	t	1,610

Calculation of the attributed emissions: fasteners

Please click on this link for further guidance on how to complete this section.

	Measurable heat	Waste gases	Indirect emissions
(f) Please select which elements are applicable	FALSE	FALSE	TRUE

Based on your selection, related sections below might become irrelevant and greyed out below.

	Unit	Value
(g) Directly attributable emissions (DirEm*)	tCO2e	1,072,991

(h) Import and export of measurable heat	Unit	Imported	Exported
i. Amount of net measurable heat	TJ		
ii. Emissions factor	tCO2/TJ		

(i) Waste gases	Unit	Imported	Exported
i. Amount of waste gas	TJ		
ii. Emission factor	tCO2/TJ		

(j) Indirect emissions from electricity consumption	Unit	Value
i. Electricity consumption	MWh	12,600
ii. Emission factor of the electricity	tCO2/MWh	0.509
iii. Source of the emission factor	-	D.2.4

(k) Electricity exported from the production process	Unit	Value
i. Amounts exported	MWh	0

➡ 金屬扣件產品之全廠產量

➡ 金屬扣件產品輸歐比例

➡ 金屬扣件產品之直接排放貢獻量

考量全廠產量比例與輸歐比例

2021年電力係數

➡ 金屬扣件產品之間接排放貢獻量

考量全廠產量比例與輸歐比例

E_PurchPrec 購買之前驅物

E. Sheet "E_PurchPrec" - Purchased precursors for SEE calculation

Data input for the determination of the specific embedded emissions

1	Purchased precursor 1:	steel wire	Iron or steel products

(a) Total purchased levels:		Production route	Unit	Amounts
1	steel wire | Iron or steel products	All production routes	t	2,300
2		n.a.		0
3		n.a.		
4		n.a.		
5		n.a.		
6		n.a.		
7		n.a.		
8		n.a.		
	Total consumption within installation:		t	2,300

(b) Consumed in "production processes" within the installation:		Unit	Amounts
1	fasteners	t	2,300
2	et	t	0

➡ 金屬扣件原料(線材盤元)購買量

➡ 金屬扣件原料(線材盤元)使用量

Specific embedded emissions: steel wire

(e) Emissions embedded in this purchased precursor

Please enter here the values and sources for the specific embedded direct and indirect emissions, as obtained from the supplier.
For the SEE (direct), the 'Type of value' relates to whether the direct emissions are measured, or whether a default value provided by the European Commission was applied.
In order to obtain these data and information, you may want to ask your supplier to fill in an empty copy of this communication template.

	Parameter:	Unit	Value	Source
i.	Specific embedded direct emissions (SEE (direct))	tCO2e/t	1.000	Default
ii.	Specific embedded indirect emissions (SEE (indirect))	tCO2e/t	1.780	D.2.4
iii.	Justification for use of default values (if relevant):	Other		

➡ 金屬扣件原料(線材盤元)之直接與間接碳含量

數據為假設, 僅供範例使用

工業技術研究院
Industrial Technology Research Institute

Summary_Processes 製程總結

1 Summary of the installation, processes and production routes

1 Summary of the installation

Name of the installation (English name):	B company	Reporting period start:	2023/10/1
Street, Number:		Reporting period end:	2023/12/31
Economic activity:			
Country:	Taiwan		
UNLOCODE:			
Coordinates of the main emission source (latitude):			
Coordinates of the main emission source (longitude):			

➡ 製程總結為自動帶入

2 Summary of the production processes, included precursors and production routes, where relevant

	(a) Aggregated good produced	Routes	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
G1	Iron or steel products	All production routes						

	(b) Production process	Aggregated goods category	1	2	3	4	5	6
P1	fasteners	Iron or steel products	Iron or steel p	n.a.	n.a.	n.a.	n.a.	n.a.

	(c) Purchased precursor	Aggregated goods category	Route 1	Route 2	Route 3	Route 4	Route 5	Country code
PP1	steel wire	Iron or steel products	Primary (elec	Secondary m	Unknown pro	Unknown pro	Unknown pro	TW

2 Greenhouse gas emissions balance and specific embedded emissions (SEE)

1 GHG emissions balance of the installation and all production processes

	(a) Production process	Aggregated goods category	Unit	DirEm*	Heat emissions	Waste gas emissions	Total direct emissions	Indirect, if relevant
P1	fasteners	Iron or steel products	tCO2e	1,072,991	0	0	1,072,991	6,413

Summary_Products 產品總結

Please click on this link for further guidance on how to complete this section.

	Production process from which the products arise	Type of aggregated good or precursor	CN Codes	CN Name	Product name (used for communication with reporting declarant, e.g. on invoices)
Ex.	Example process A	Iron or steel products	72071919	Semi-finished products of iron or non-alloy steel, containing by weight < 0,25% carbon, of circular or polygon	Example name A
1	fasteners	Iron or steel products	7318	rews, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers, incl. spring washers, and similar articles, of iron or steel (excl. lag	

輸入產品名稱與CN code

The main reducing agent of the precursor, if known	Steel mill identification number	% Mn	% Cr	% Ni	% other alloys	% carbon	t scrap per t steel	% other materials
Coal or coke	623108	13.95%	8.41%	2.10%	3.00%	0.35%		0.01%
Coal or coke	110000	10.00%	4.00%	2.00%	1.00%			0.05%

鋼鐵製品需填入前驅物之還原劑、鋼廠編號、Mn、Cr、Ni與其他合金的重量%

少量產品不受管制

Q7 **聽說小量貨物輸歐可以不用申報 CBAM，請問有相關規範嗎?**

CBAM 法案中提及兩種情況的貨品，可以不用提供 CBAM 申報報告(豁免 Exemptions)：

1. 低於 150 歐元的貨物。
2. 在軍事活動中使用的貨物。

但是經過人為分割貨物運輸、對商品進行修改以及改變其歐盟海關規則分類等，都不包含在豁免範圍裡。

資料來源：CBAM精選問答30題, 綠色貿易網: 歐盟CBAM專區

碳排量之預設值 / 申報時間表

Q1 **CBAM 過渡期 2023 年 10 月就開始了，臺灣業者仍無法掌握碳含量數據怎麼辦?**

CBAM 過渡期實行細則提及，在 2024 年 7 月 31 日之前(也就是 CBAM 的第三季度結束前)提供彈性措施，包括可以使用歐盟所公布的預設值涵蓋 100%的產品碳含量進行申報；但在 2024 年 7 月 31 日之後，預設值最大應用比例為複雜產品的 20%產品總排放量。

資料來源：CBAM精選問答30題, 綠色貿易網: 歐盟CBAM專區

REPORTING PERIOD	SUBMISSION DUE BY	MODIFICATION POSSIBLE UNTIL*
2023: October – December	**2024:** January 31	**2024:** July 31
2024: January – March	**2024:** April 30	**2024:** July 31
2024: April – June	**2024:** July 31	**2024:** August 30
2024: July – September	**2024:** October 31	**2024:** November 30
2024: October – December	**2025:** January 31	**2025:** February 28
2025: January – March	**2025:** April 30	**2025:** May 31
2025: April – June	**2025:** July 31	**2025:** August 31
2025: July – September	**2025:** October 31	**2025:** November 30
2025: October – December	**2026:** January 31	**2026:** February 28

資料來源：IRON & STEEL SECTOR, EU CBAM官方簡報, 2023.10.05

不可不知的「碳權」知識

未來可以購買碳權來降低外銷產品的碳排量嗎?

減碳必須要做到
MRV (量測/報告/查證)
Measurable,
Reportable and
Verifiable

資料來源：https://www.epa.gov.tw/

美國CCA法案

真議題或假議題?

- 國際對進出口貨物的管制規則：「**國民平等原則**」。
- 各國要將法案立法成功，其進行程序和原則為何?
- 世界貿易組織(WTO)對該議題的看法為何?

美國訂制現況

- 美國參議院於2022.06.07，提出美版碳關稅《清潔競爭法案》（Clean Competition Act，簡稱CCA）
- 目前尚未有新進展...
- 美國明年亦為總統大選年，短期內應不會有明顯的進展。

資料來源：
https://www.congress.gov/bill/117th-congress/senate-bill/4355/text

圖片來源：Unsplash

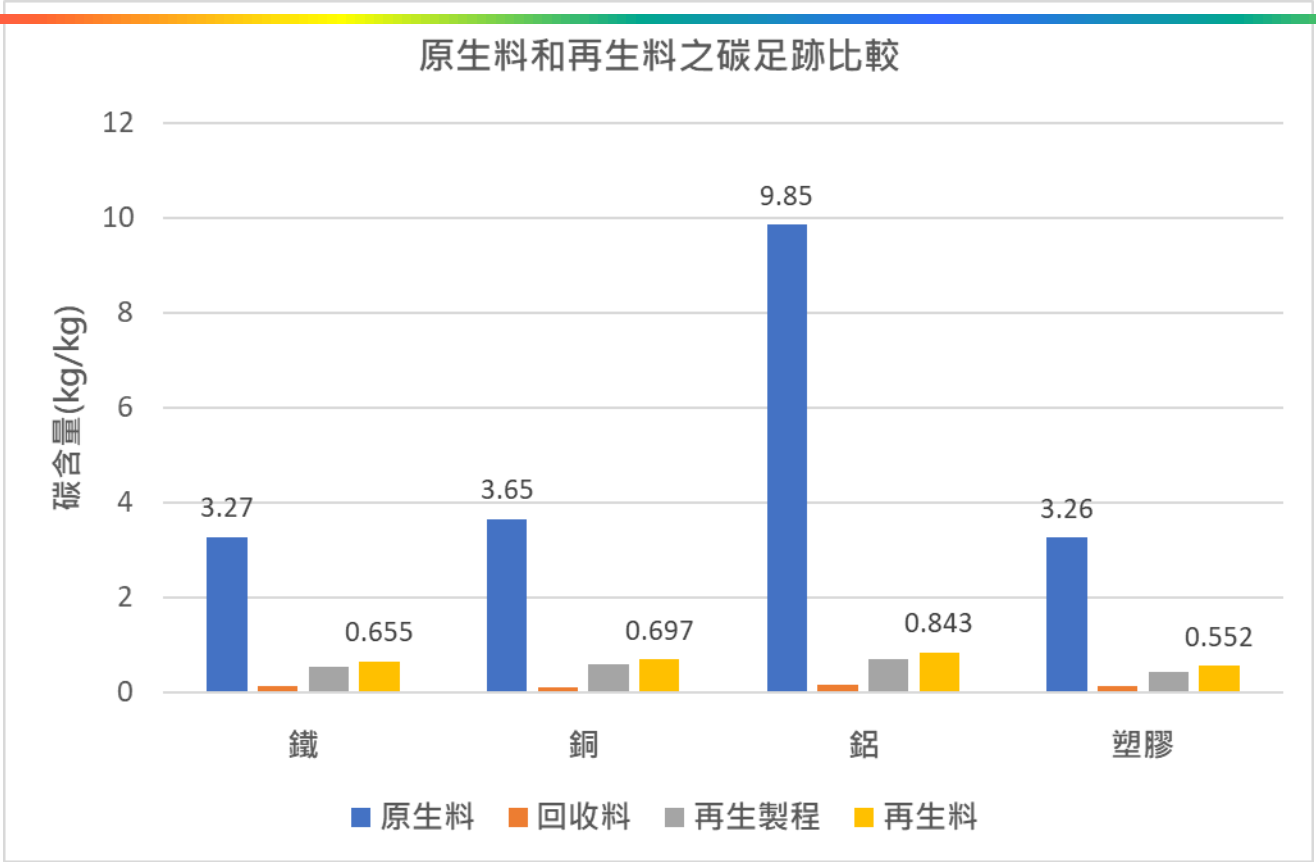
文．編譯 / 王茜穎
2022-09-05
18374

歐盟CBAM碳關稅才剛一讀通過，美國國會也加緊推動美版碳關稅法案，合計占台灣直接出口21.8%、金額逾千億美元。兩大市場的碳關稅有何異同？對台灣的影響為何？

美國氣候立法頻頻出招，除了通過美國史上最大的氣候投資法案：《降低通膨法案》

資料來源：https://csr.cw.com.tw/article/42725

推動循環經濟加速淨零行動力



原生料與**再生料**之
碳足跡差異比較

- **鐵**　(約5倍)
- **銅**　(約5.2倍)
- **鋁**　(約11.7倍)
- **塑膠**(約5.9倍)

註1：DoITPro資料庫(2015)編號16035，為國內業者一貫作業鋼胚平均值
註2：日本JEMAI CFP Program，編號B-JP317077，電器銅 (電器銅)
註3：環保署碳足跡計算服務平台公用資料庫，鋁錠
註4：經濟部工業局製造業產品環境足跡與資源永續資訊專區，ABS塑膠 (資訊產品用，防火級)
註5：環保署碳足跡計算服務平台公用係數資料庫，碳鋼鋼胚(電弧爐製程)
註6：Menikpura et al. (2014)等人之研究發表
註7：環保署碳足跡計算服務平台公用係數資料庫，再生鋁錠

我的心得與建議

貿易商

- CBAM碳議題會隨著時間逐漸擴散，**早學早掌握**商機。
- 明年1月底前須完成第一次申報，未來的申請將以「**季**」作為單位。
- 申報並不是一個數字，而是像**報稅**一樣有一連串的資料要填，要提醒和注意。
- 由於還在試行階段，未來一定會有**很大的變動**，要隨時關心和注意。
- 未來歐盟進口商有可能將**填報不實**責任轉嫁，貿易商須和製造商進行**權利義務**的協商。

製造商

- CBAM使用**2年示範期**，收集特定輸歐產品的碳排量資料，業者仍有時間和空間，用以調整低碳產品產線。
- 盤點受CBAM影響的製程和產品，可進行製程**集中或整合**，以利資料或數據之彙集。
- 建議將**能源效率較高製程**用來生產銷歐產品，以減少該類產品碳排量。
- 須於填報以了解產品**碳排量熱點**，可逐步編列預算進行低碳調整。
- 要有**專人**熟悉申報Excel表單，以利後續獨立作業完成申報表單。

結語之前：如何提升碳識能

經濟部產業發展署

國際貿易署官網

綠色貿易資訊網

準備好了嗎?

試填看看

不填無法過關
填錯了可以改

計算產品碳排量

- 心裡要有譜
- 單位產品合理值為何?

例：不鏽鋼鋼胚 1.13 kg-CO_2e
馬口鐵 2.43 kg-CO_2e
資源來源：產品碳足跡資訊網

納入常態性工作

- 第一次最難
- 熟能生巧

產品低碳化

- 碳排熱點改善
- 低碳上游原料替代

政府會協助

產品碳足跡資訊網

回首頁 | 最新消息 | 碳足跡資料庫 | 標籤產品查詢 | 統計資訊 | 資料下載專區 | 資訊互動專區

目前所在位置：首頁

會員資訊

帳號: aball

密碼: ••••••••••••••••

請輸入下方驗證碼:

67025

重新整理

加入會員 | 忘記密碼 | 登入

金屬

不鏽鋼

冷軋鋼捲 盤元/直棒鋼 鋼胚

合金鋼

盤元/直棒鋼 鋼胚

碳鋼

冷軋鋼捲 熱浸鍍鋅鋼捲 熱軋鋼捲 生鐵 盤元/直棒鋼 鋼板 鋼胚 電鍍鋅鋼捲 馬口鐵

金屬製品

不鏽鋼管 焊條/焊線 無鉛銲錫 線材 螺絲/螺帽 銅箔基板 鋼筋 鑄鐵管 陽極磷銅 車用鍛造件

碳係數名稱	生產區域名稱	數值	宣告單位	公告年份
不鏽鋼冷軋鋼捲	臺灣	1.46E+0 kgCO2e	公斤(kg)	2013

結語

- 因應CBAM管制，不論是貿易商或製造廠皆應積極了解該作業規定，尤其在碳管制將成為「普世價值」的新時代議題時，此已將未來生存必懂的關鍵課題。
- 如何藉由CBAM管制，製造業藉由**「數位轉型」**和**「淨零減碳」**的雙軸變革，建立公司**「數位碳管理」**模式，惟有了解碳排來源，才知未來減碳重點，在綠色競爭力評比時代，找到新契機。
- 剖析企業在「**減碳新思維**」推行策略上，建議企業建立**基本流**(各類物質流、能源流及碳流)及**資訊流**，採「**抓大放小**」和「**先簡後繁**」的順序，分階段逐漸累積執行成果，再形成**故事**以利行銷推廣。

  (這是一個要**會做**, 更要**會說**的時代)

感謝聆聽

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資料來源： IPCC Press Conference for CLIMATE CHANGE 2022: Mitigation of Climate Change