



臺灣碳權交易所

TAIWAN CARBON SOLUTION EXCHANGE

臺灣碳權交易所業務簡介

2023年10月

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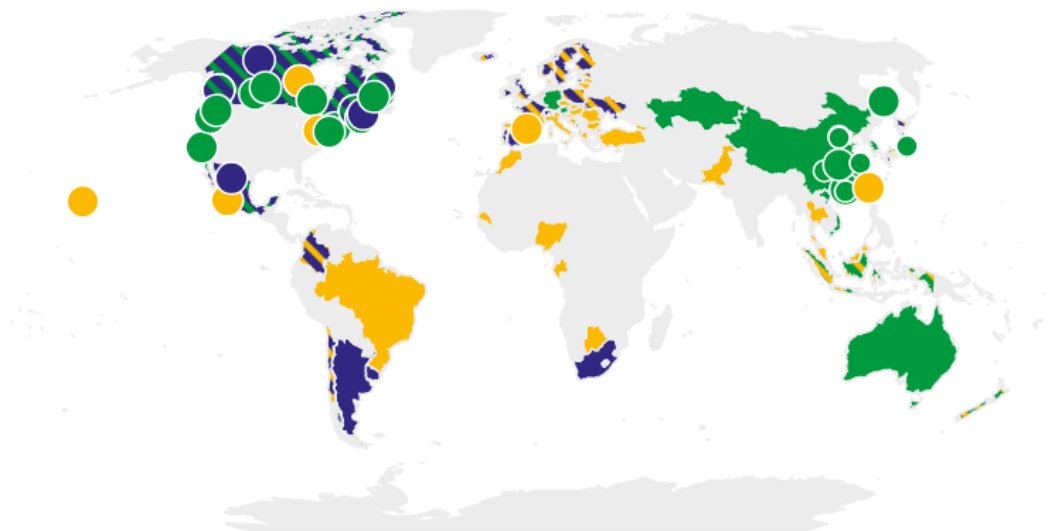
Conclusion

# 全球碳定價趨勢

## Global Trend of Carbon Pricing Initiatives

世界銀行及國際碳行動夥伴公布的「碳價現況與趨勢報告」統計，截至2023年3月底止：

Summary map of regional, national and subnational carbon pricing initiatives



- ETS implemented or scheduled for implementation
- ETS or carbon tax under consideration
- ETS implemented or scheduled, ETS or carbon tax under ...

- Carbon tax implemented or scheduled for implementati...
- ETS and carbon tax implemented or scheduled
- Carbon tax implemented or scheduled, ETS under consid...

全球共**39個**地區實施碳定價

涵蓋**116.6億噸**CO<sub>2</sub>e

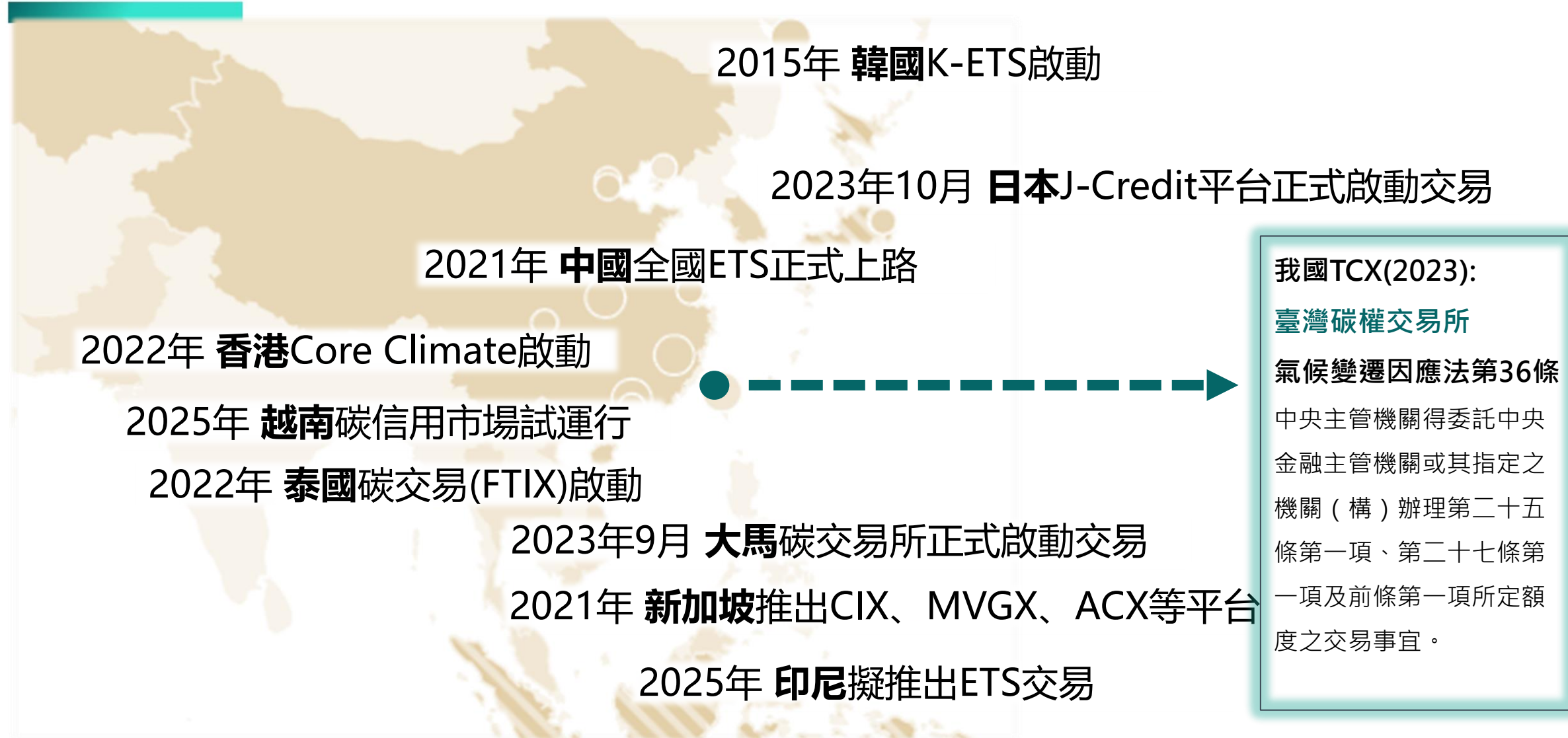
佔據**23%**全球碳排量



Source: <https://carbonpricingdashboard.worldbank.org/>

# 碳權市場相繼成立

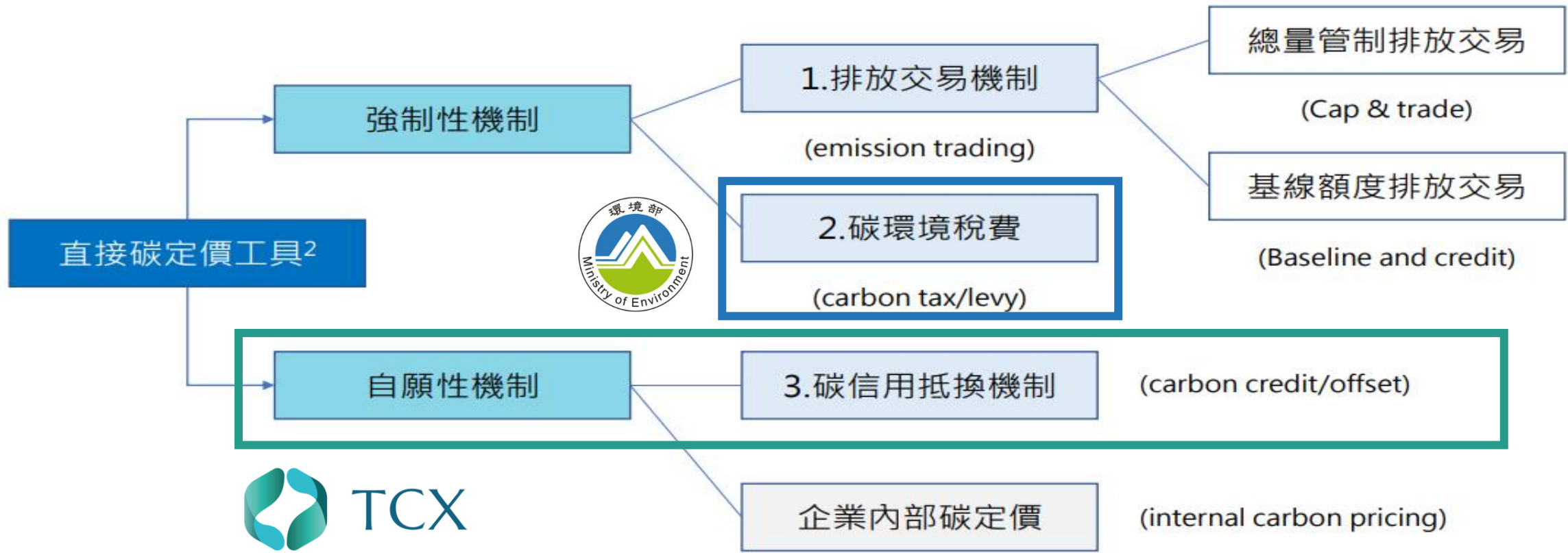
## Global Trend of Carbon Credit Market



我國TCX(2023):  
**臺灣碳權交易所**  
氣候變遷因應法第36條  
中央主管機關得委託中央  
金融主管機關或其指定之  
機關(構)辦理第二十五  
條第一項、第二十七條第  
一項及前條第一項所定額  
度之交易事宜。

# 何謂碳權(強制性、自願性)

## Mandatory or Voluntary?



註1：主要參考World Bank (2022) 的分類方式

註2：間接碳訂價 (indirect carbon pricing) 主要包含燃料的燃料稅、貨物稅等

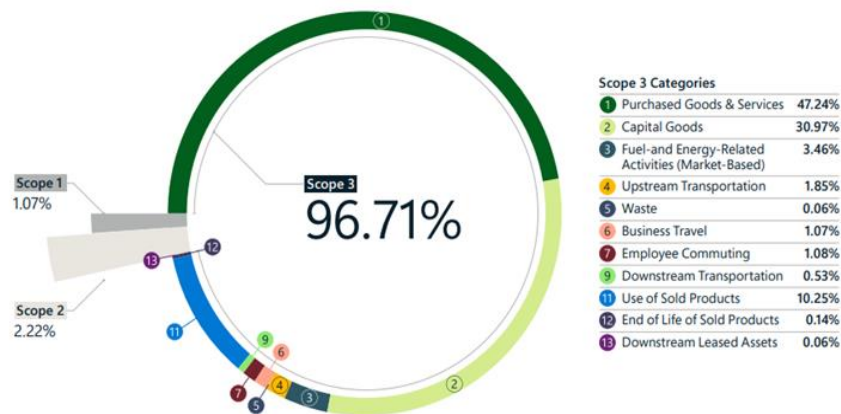
# 碳是成本？還是商機？ Cost or Opportunity?

**Carbon Reduction** will be the **prior mission** for Taiwanese companies in the **global supply chain!**

## CASE1 : Microsoft 2022 Environmental Sustainability Report

### Breaking down our FY22 Scope 3 emissions by source

Microsoft's Scope 3 emissions account for more than 96 percent of our total emissions, with the vast majority of these emissions coming from two categories upstream, Purchased Goods and Services (Category 1) and Capital Goods (Category 2), and one downstream, Use of Sold Products (Category 11).



Learn more in the Environmental Data Fact Sheet

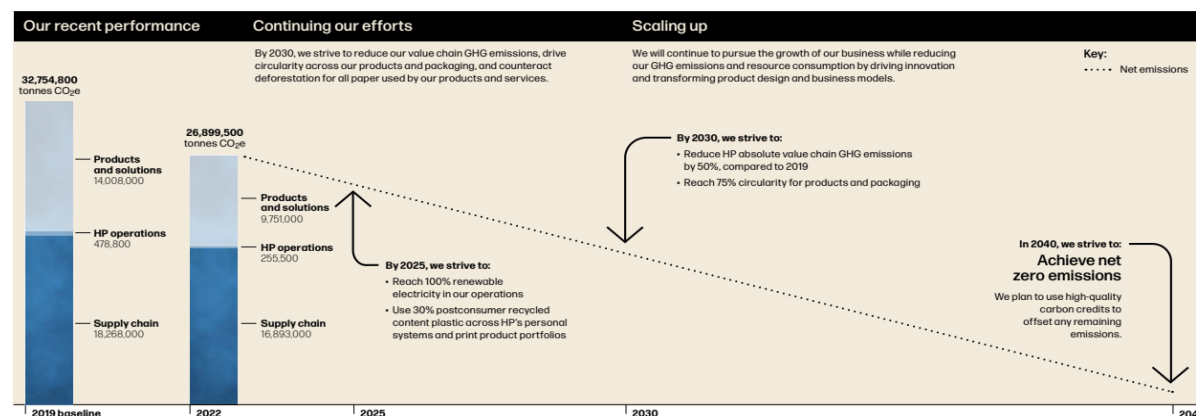
### Microsoft:

1. Supply Chain and Capital goods are the biggest drivers of emissions.
2. Adapted Supplier Code of Conduct (SCoC) to include third-party assurance.
3. A minimum 55% greenhouse gas (GHG) reduction by 2030.

Source: <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RW15mgm>

## CASE2 : 2022 HP Sustainable Impact Report

### HP's path to net zero emissions by 2040\*



\* Supply chain includes Scope 3 upstream emissions. HP operations includes Scope 1, 2, and 3 emissions. Products and solutions includes Scope 3 downstream emissions. See HP carbon footprint for detail.

Source: <https://www8.hp.com/h20195/v2/GetPDF.aspx/c08636600.pdf>

## CASE3 : Apple 2023 Environment Progress Report



Source:

[https://www.apple.com/uk/environment/pdf/GBEN\\_Apple\\_Environmental\\_Progress\\_Report\\_2023.pdf#page=14](https://www.apple.com/uk/environment/pdf/GBEN_Apple_Environmental_Progress_Report_2023.pdf#page=14)

# 國際品牌購入碳權助力減碳

## International Brands Cases for Carbon Credits

**Apple 投資自然為本的碳權抵銷產品碳足跡實現碳中和**

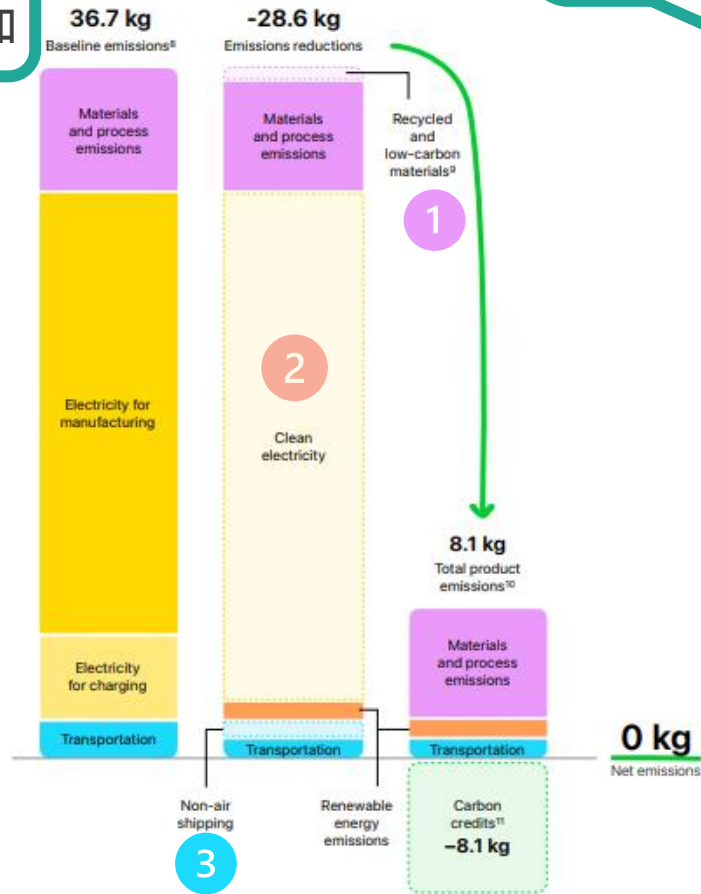
1 使用回收物料重量佔比超過 30%

2 以 100% 清潔電力供電

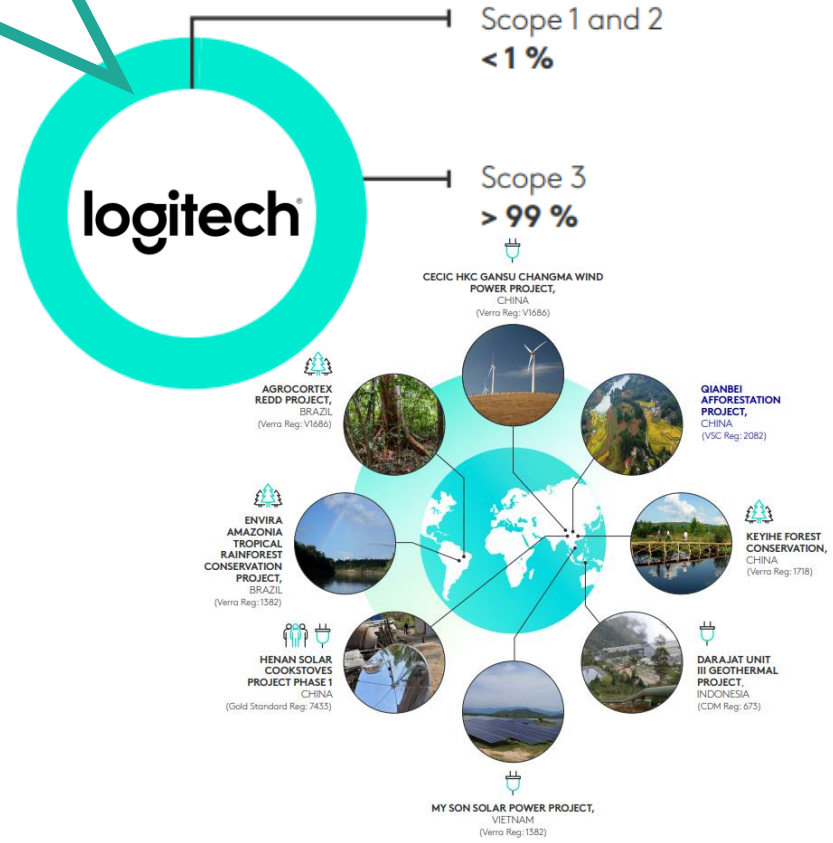
3 50% 或以上的產品採非空運方式運輸

Carbon Neutral

Source: <https://www.apple.com/tw/environment/>



**Logitech 購買碳抵換/移除專案以降低其自身 Scope 3 碳排放量**



Source: <https://www.logitech.com/zh-tw/sustainability/reports-and-resources.html>

# 國內企業購買碳權助力減碳

## Domestic Enterprises Cases for Carbon Credits

### 奇美落實企業減排，實踐碳中和承諾



#### 柬埔寨及祕魯森林自然保育專案(森林碳權)

- 促進當地婦女就業
- 提供潔淨水資源
- 支持生物多樣性



#### 內部員工日常通勤與商務旅行的碳排放抵換

- 用於2021-2025年度
- 已完成2021年度抵換

### 華邦電開展零碳家庭日，強化全員減碳意識



#### 巴基斯坦紅樹林保育專案(藍碳)

- 提供當地就業機會
- 提升公共衛生水平
- 加強性別平權倡導



#### 近7000位員工及眷屬共同參與家庭日的碳排放抵換

- 亦鼓勵員工搭乘接駁車
- 自備餐盒、活動無紙化

Source: [https://esg.winbond.com/files/2022\\_WINBOND\\_ESG\\_REPORT\\_CH.pdf](https://esg.winbond.com/files/2022_WINBOND_ESG_REPORT_CH.pdf)

Source: <https://apgw.chimei.com.tw/apis/filestorage/files/display/63f8680dfc216e04a82be939>



# 碳是成本？還是商機？

## Cost or Opportunity?

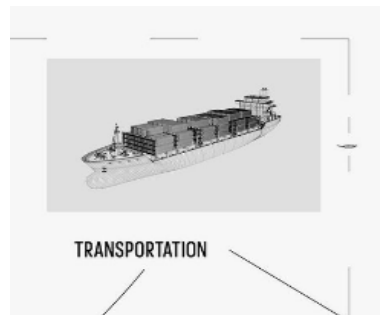
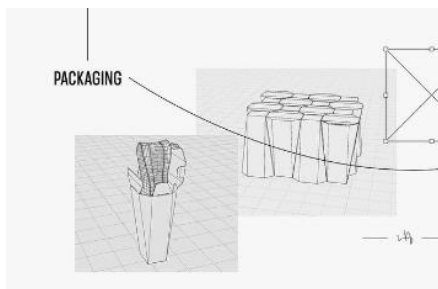
### Allbirds and adidas have made the world's lowest carbon footprint running shoe

The collaboration aims to cut the environmental footprint of running's shoe habit



Source: <https://www.wired.co.uk/article/adidas-allbirds-futurecraft-footprint>

Emission: 2.94kg



Source: <https://www.upbeatmediahk.com/>

### ASUS: Carbon Partner Services ( 碳合作夥伴服務 )

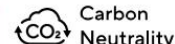
建立碳權存量 華碩2024年商用電腦全面推碳抵換服務 Emission: 300kg → 220kg

經濟日報 | 06月02日

Source: <https://money.udn.com/money/story/5612/7207467>



UX5304 ASUS Consumer Laptops Receives Carbon Neutrality Certification



Products Energy Efficiency

- Energy efficiency performance better than ENERGY STAR® standard by 43%
- External power supply exceeds the EEI 4 specification set by US DOE by 1%
- Retains more than 65% of original battery capacity after 1,000 cycles of charging



Low-carbon Products

- ISO 14067 : 2018 Product Carbon Footprint Verification
- PAS 2060 : 2014 Product Carbon Neutral Certification



Zenbook UX5304  
Carbon Footprint Report



Recycled Materials



Case  
Post-industrial recycled aluminum

Keyboard case

Post-industrial recycled Magnesium Aluminum Alloy



Keycaps

Post-consumer recycled plastics



Speaker case

Sea waste plastic + Recycled plastic



Motherboards

Halogen-free material



Sustainable Packaging Materials

Zero plastic packaging materials design-We used FSC Mix, paper handles and paper tape for the outer case.

[https://csr.asus.com/files/reports/ASUS\\_Detailed\\_2022\\_EN.pdf](https://csr.asus.com/files/reports/ASUS_Detailed_2022_EN.pdf)

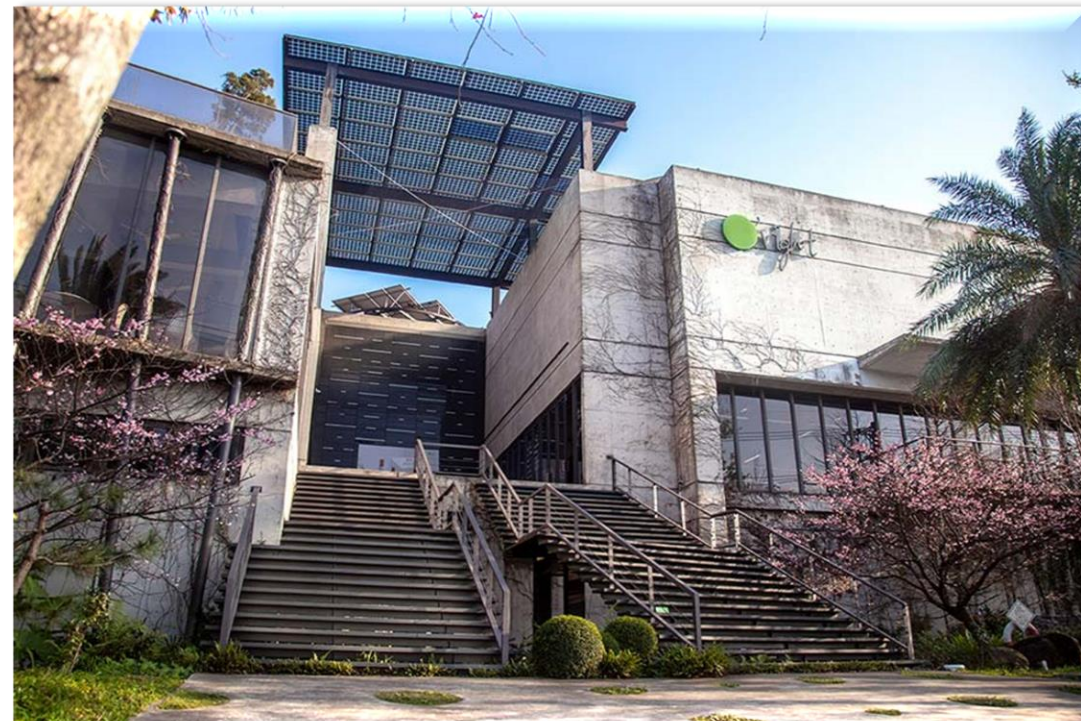
# 從產品到企業注入零碳DNA

## Embedding ESG DNA from products to businesses

2011年取得碳中和確證，推出全球第一支零碳洗髮精



2020年達成組織碳中和，擁有碳存簿的零碳美妝企業



Source: <https://www.orientinc.tw/about/3>

# 綠色金融解方邁向淨零

## Green finance solutions for Net-Zero



**首張零碳信用卡  
首家零碳ATM**  
購買台灣本地風電  
產生的碳權進行碳抵換

碳足跡標籤認證



挑選綠色製  
卡原料

精進環保製  
卡流程

降低配送碳  
排放

推廣e化電子  
帳單

購買碳權  
抵銷碳排

碳中和認證



碳足跡減量標籤



**首家消費碳足跡查詢**

通過APP查詢每月刷卡交易所  
產生的碳排放數據，響應減碳  
綠生活

Source: <https://www.esunbank.com/zh-tw/personal/credit-card/ecofooter>

Source: <https://card.firstbank.com.tw/card/mk/site/green/index.html>

# 企業該如何進行「碳管理」 How to do “Carbon Management” ?

## 企業減排步驟



### 溫室氣體盤查

金管會要求全體上市櫃公司  
於2027年完成溫室氣體盤查



### 設置永續長、人才培訓

培養具氣候變遷素養  
及減碳專業之人才



### 設定目標

以供應鏈與國際標準設定減  
碳目標 (如：RE100)



### 實施內部碳定價

以企業內部碳定價機制，分  
配各部門碳配額、計算碳費、  
收取費用、成立碳基金



### 資訊揭露

實收資本額20億元上市櫃公司2023  
永續報告書應遵循TCFD架構



### 綠色金融

善用綠色金融推動轉型，如  
綠色債券、綠色貸款等

# 企業該如何進行「碳管理」 How to do “Carbon Management” ?

## 內部碳定價之優點 Benefits of Internal Carbon Pricing

Management Decision Making Issue!(300USD VS. Link CBAM)

改變內部行為

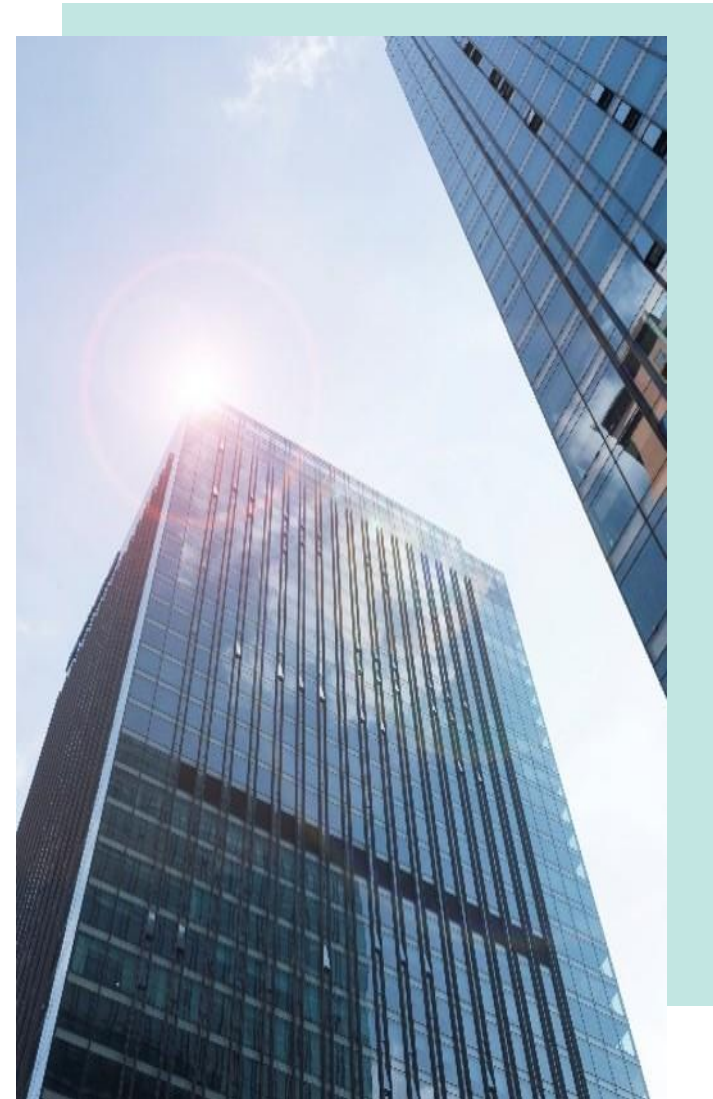
Change Internal behavior

提高能源使用效率

Drive energy efficiency

驅動低碳投資

Drive low-carbon investment



# 企業該如何進行「碳管理」 How to do “Carbon Management” ?

## 企業減排途徑

### 減少用電造成之碳排

如提高能源使用效率、使用再生能源等

### 減少生產中之碳排

研發減碳製程、使用可循環燃料

### 減少採購或 使用設備之碳排

使用減碳材質、零件減量、  
推動綠色採購

### 減少消費者使用產品之碳排

可分解之產品設計、  
零售轉型租賃等

### 減少通勤的碳排

省油路線、汰換運輸  
工具

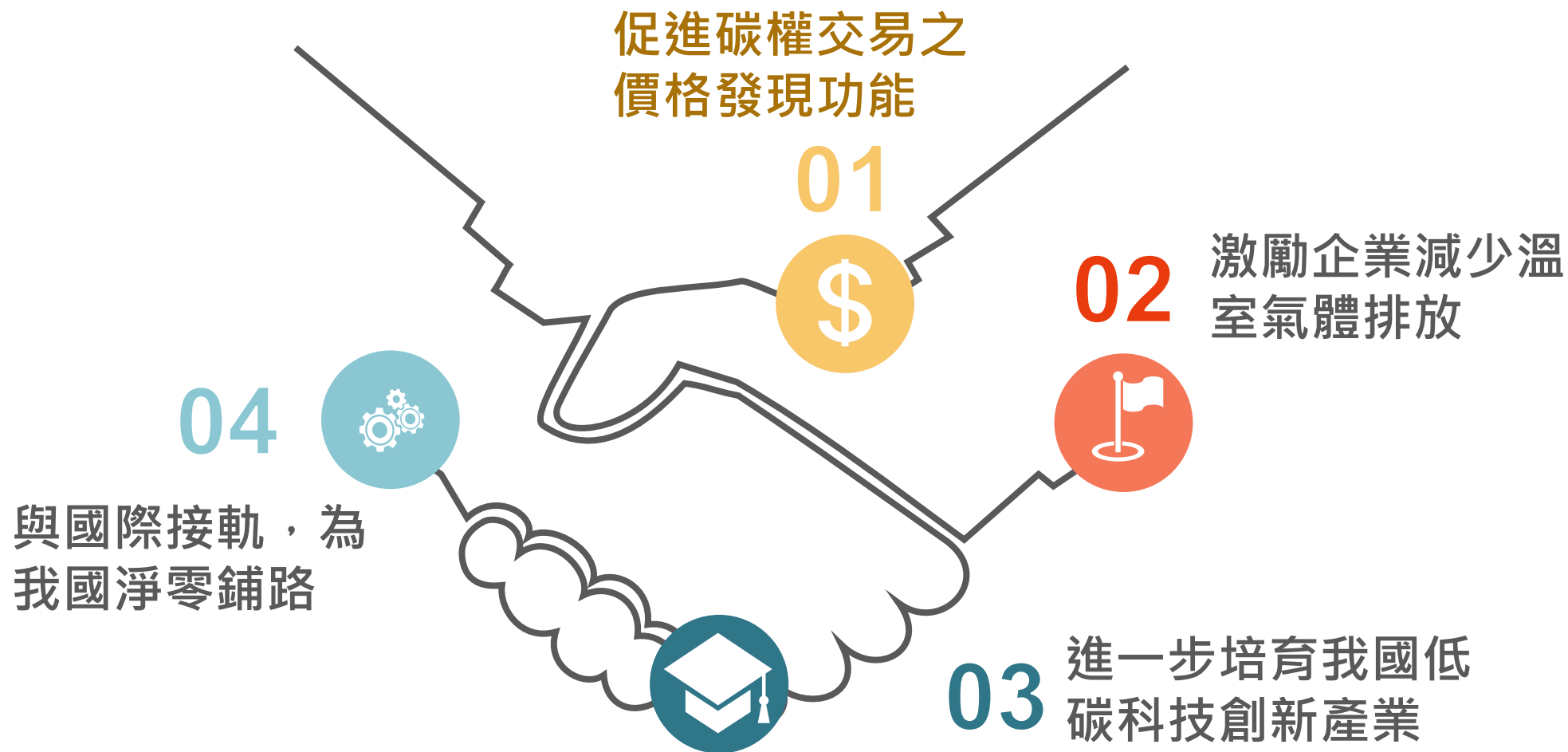
### 排放量減至最低後

碳捕捉、移除技術、  
採購碳權



# 碳交所如何幫助企業？

## Who we are and what we do



### 國內碳權交易

- 配合氣候變遷因應法相關子法之開放進程，分階段設立不同交易機制。
- 環境部刻正修訂相關法規預計最快於今年12月底預告。

### 國外碳權交易

- 協助企業因應供應鏈減碳或落實永續發展等需求，提供國外碳權支援及諮詢服務。
- 注重國外碳權品質，訂定相關上架標準，如合格核發機構、年份、SDG等。

### 碳諮詢及教育宣導

- 協助政府政策宣導，降低外界誤解。
- 與專業機構、大專院校等辦理課程、研討會及國際標準認證課程等，強化我國碳市場相關人才基礎建設。



# 碳交所如何幫助企業？

## Who we are and what we do



## 國外碳權交易

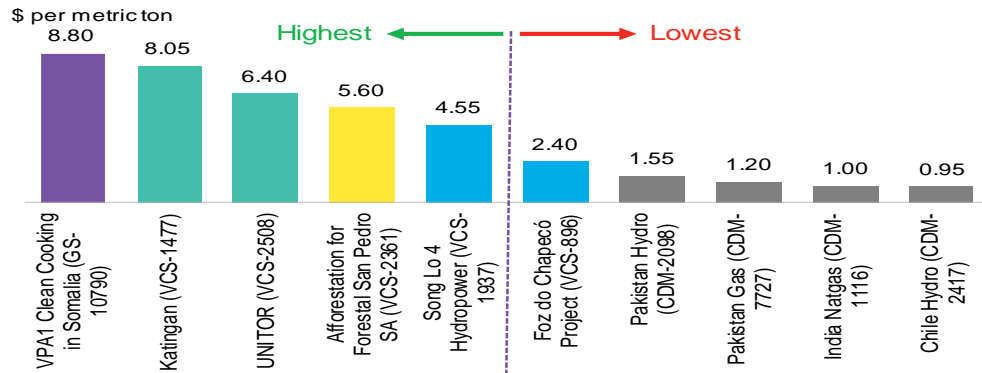
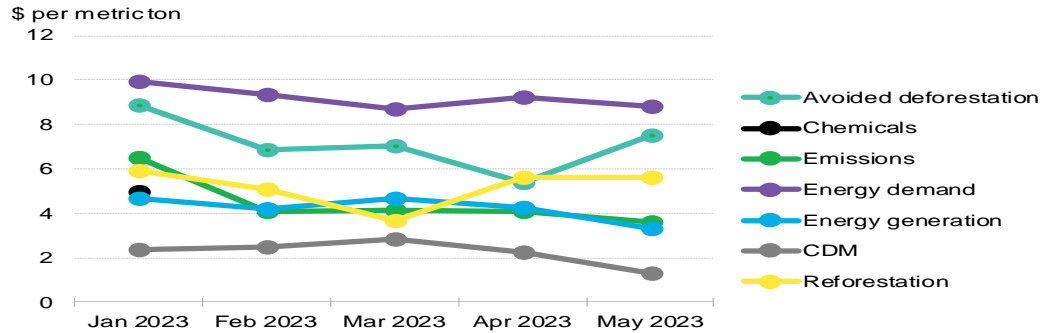
臺灣企業於全球半導體、資通信、紡織和金屬等產業具有舉足輕重的地位。面對全球品牌企業碳中和目標，除積極減碳，企業亦需高品質碳權以補足需求。碳交所將攜手具公信力之國際認證機構，提供高品質國外碳權交易支援，因應供應鏈減碳及落實自身碳中和，為全球減排做出實質貢獻。

# 碳交所如何幫助企業？

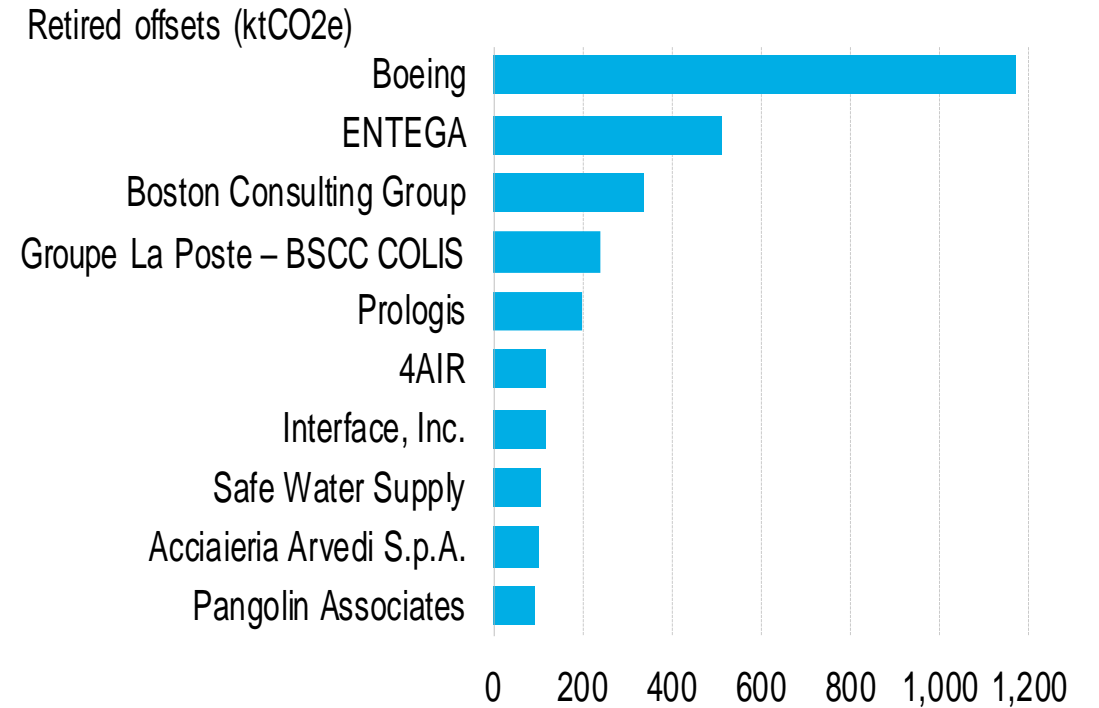
## Who we are and what we do

### 國際自願性碳權交易情況(International Voluntary Market)

Average traded offset prices, by sector



Top offset buyers, by retired credits in May 2023



Source: Bloomberg NEF, Bloomberg Terminal. Note: Data is based on daily offer price submissions by brokers and may not be fully representative of the market. Project names were shortened for space constraints on the slide.

Source: Bloomberg NEF, Verra, Gold Standard, ACR, CAR

# 碳交所如何幫助企業？

## Who we are and what we do

TIME

BY BRONSON GRISCOM

OCTOBER 13, 2023 12:47 PM EDT

IDEAS • CLIMATE CHANGE

## Most Companies Buying Carbon Credits Are Not Greenwashing

購買自願性碳權的公司並非「漂綠」（關鍵在碳權的品質）

1. A comprehensive new study from **Ecosystem Marketplace**, a D.C.-based nonprofit org.
2. Subject: over **7,000** companies that had transactions in voluntary carbon credits.
  - (1) investing **3 times** more in reducing emissions of their own business than companies who steer clear of credits.
  - (2) They are also **3.4 times** more likely to have science-based climate targets.
  - (3) If we invested more in protecting and restoring nature, that could rise to at least **one-third**, a significant step towards stabilizing our climate.
3. Companies are increasingly willing to pay a **premium for quality** in the carbon market.

Independent governance bodies like the **Integrity Council for the Voluntary Carbon Market (ICVCM)** are providing concrete standards for high-quality credits.



Source: <https://time.com/6323461/carbon-credits-greenwashing/>

# 碳交所如何幫助企業？

## Who we are and what we do

### 推動淨零基礎建設，協助綠領人才養成

- ✓ 與國內各大學等機構合作推廣教育訓練宣導活動。刻正與北、中、南大學洽談合作，課程自8月開始。
- ✓ 與國際專業機構合作開設碳盤查、碳足跡及碳中和之課程，為我國培育溫室氣體人才。



# 碳交所如何幫助企業？

## Who we are and what we do

請至 <https://www.tcx.com.tw/zh/> 查詢最新課程資訊

### TCX x BSI 國際標準認證系列課程

ISO14064-1:2018  
碳盤查查證員(組織型)



2023/11/20-22 9:00-17:00及11/23 9:00-12:00

碳盤查查證員(組織型)ISO14064-1:2018

臺灣碳權交易所台北辦事處



2023/10/25 (三) 14:00-17:00

CBAM稅政策與法規

臺灣碳權交易所



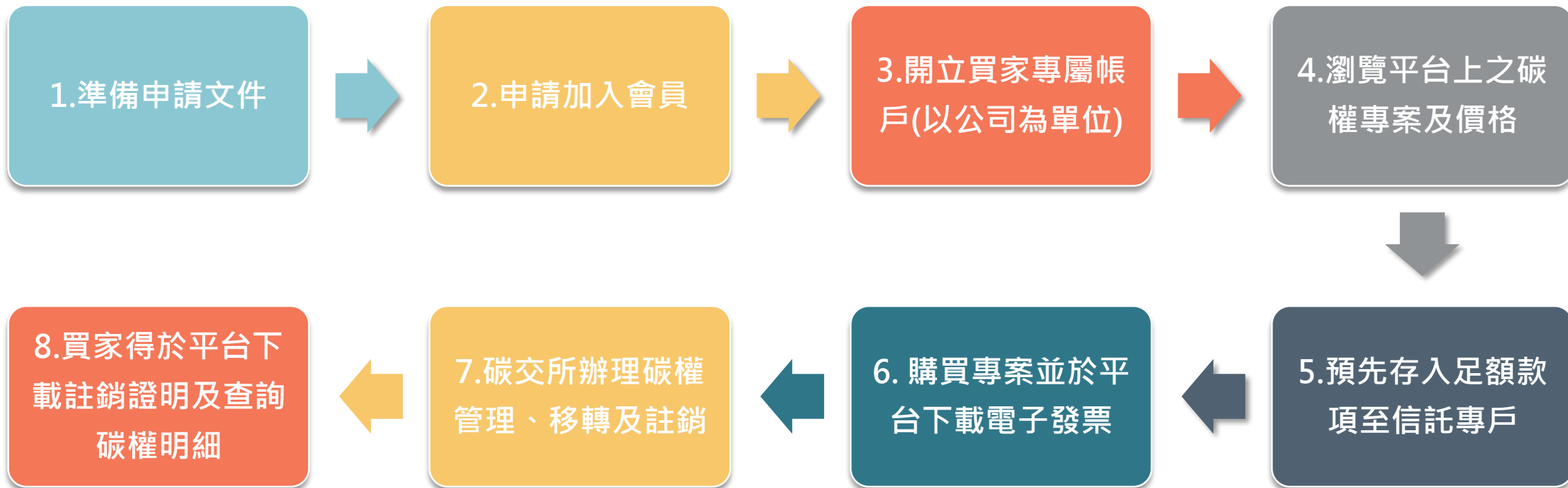
10/26 (四) - 10/27 (五) 14:00 - 17:00

永續治理人才培訓班

台南大飯店7樓國際1廳、2廳

# 碳交所碳權交易作業說明

## TCX Trading Operation Guide



## 從事碳交易，首選碳交所



1. 本公司為證交所投資60%，國發會投資40%成立



2. 本公司為氣候變遷因應法指定之唯一碳權交易機構



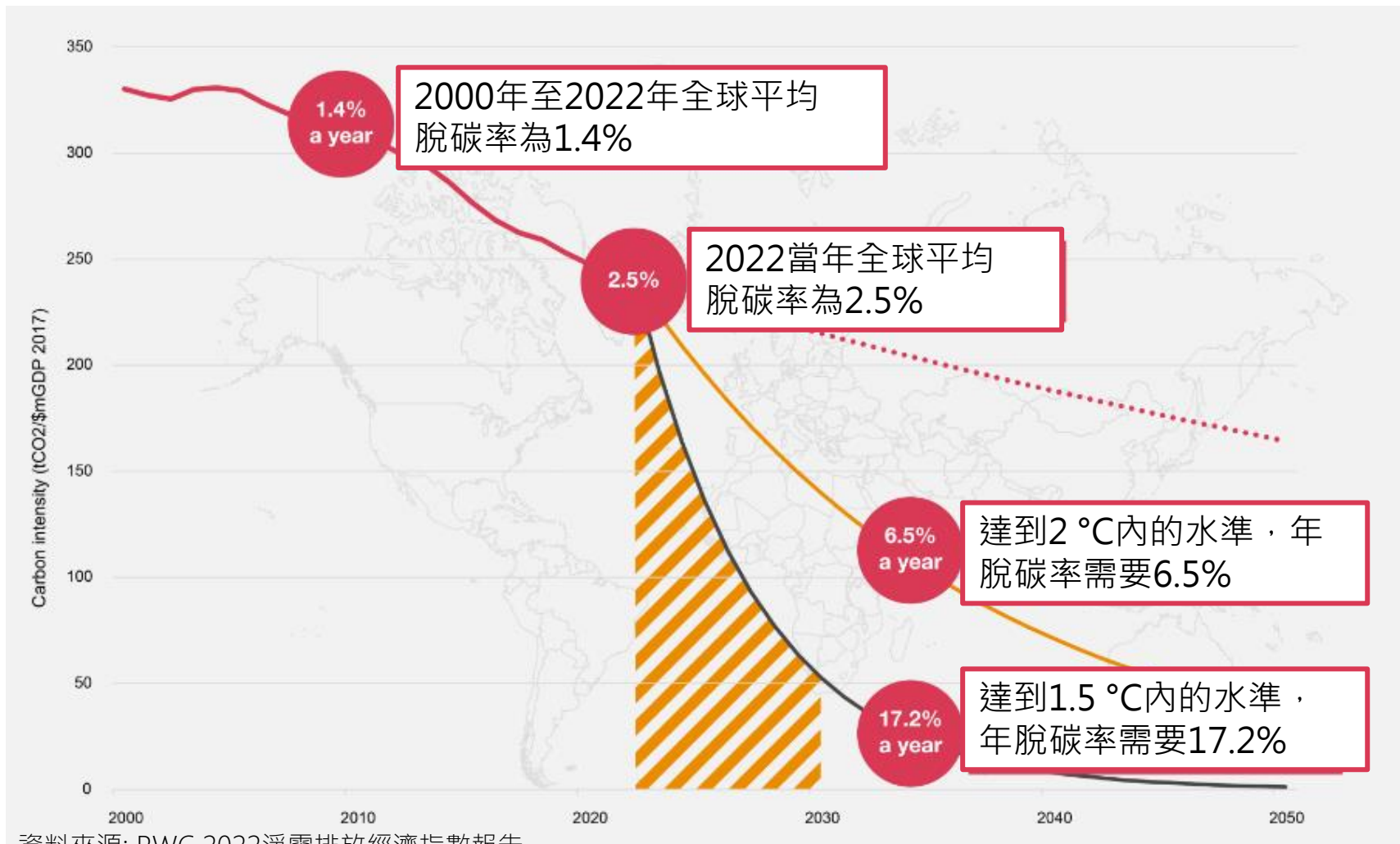
3. 本公司採用信託帳戶，買方匯入款項有保障



4. 採預收碳權及款項，確保交割安全

# 結語：實現全球脫碳目標亟需加快行動

Conclusion: Urgent Actions needed to Achieve Global Decarbonization



資料來源: PWC 2022淨零排放經濟指數報告







臺灣碳權交易所

TAIWAN CARBON SOLUTION EXCHANGE

THANK YOU

