

## 內部碳定價制度

### Internal Carbon Pricing (ICP) Framework

#### 一、 導入目標 **Objective of ICP Framework**

本公司導入內部碳定價制度，目的在於將碳排放量具體化、財務化，納入日常營運與長期策略規劃，以推動企業邁向低碳轉型。其主要目標包括：

The Company has introduced an Internal Carbon Pricing (ICP) mechanism with the purpose of concretizing and monetizing carbon emissions, thereby embedding them into daily operations and long-term strategic planning to accelerate our transition toward a low-carbon business model. The primary objectives include:

##### 1. 強化決策與風險管理

###### **Strengthening Decision-Making and Risk Management**

我們將碳成本納入策略與財務規劃，確保氣候議題能在決策過程中被充分考量。這有助於公司提前掌握潛在碳稅或碳交易成本的影響，提升對氣候變遷帶來的實體與轉型風險的管理能力，並確保營運策略的穩健性。

By integrating carbon costs into strategy and financial planning, we ensure that climate-related issues are adequately considered in the decision-making process. This enables the company to anticipate the potential impacts of future carbon taxes or trading schemes, enhance the management of both physical and transition risks associated with climate change, and safeguard the resilience of business strategies.

##### 2. 推動能源效率與低碳投資

###### **Driving Energy Efficiency and Low-Carbon Investments**

內部碳定價讓我們能更真實地進行成本效益分析，在投資評估時納入碳排放影響。這將推動公司優先投入再生能源、節能設備及低碳產品等領域，提升能源效率，同時掌握新興的低碳商機，進一步創造競爭優勢。

ICP allows us to perform more realistic cost-benefit analyses by factoring in the impact of carbon emissions during investment evaluations. This incentivizes the company to prioritize renewable energy deployment, energy-efficient equipment, and low-carbon products, thereby enhancing energy efficiency while capturing emerging low-carbon opportunities that strengthen our competitive advantage.

### 3. 辨識低碳機會與創造價值

#### **Identifying Low-Carbon Opportunities and Creating Value**

透過建立內部碳定價，公司能將氣候外部性轉化為可衡量的內部管理指標，讓我們更有效率地配置資源。這不僅提升短期經營效率，也有助於在長期為股東與社會創造更高的永續價值，並強化公司在低碳轉型中的市場競爭力。

By establishing ICP, the company transforms climate externalities into measurable internal management indicators, enabling more efficient resource allocation. This not only improves short-term operational efficiency but also contributes to long-term value creation for shareholders and society, reinforcing the company's market competitiveness in the low-carbon transition.

### 4. 支持氣候目標、政策落實與法規因應

#### **Supporting Climate Goals, Policy Implementation, and Navigating regulations**

內部碳定價制度不僅是內部管理工具，也能協助我們逐步實現減碳目標與永續承諾。同時，透過將碳價內部化，公司能及早模擬並因應未來可能的碳稅、碳交易或其他氣候相關法規要求，降低政策轉型風險。這不僅展現公司對利益關係人的氣候行動決心，也持續提升我們在永續領域的領導地位與形象。

The ICP system is not only a management tool but also supports the gradual achievement of our emission reduction goals and sustainability commitments. By internalizing a carbon price, the company can proactively simulate and prepare for potential future requirements such as carbon taxes, trading schemes, or other climate-related regulations, thereby mitigating transition risks. This approach demonstrates our determination to act on climate issues to stakeholders while further strengthening the company's leadership and reputation in sustainability.

## 二、 內部碳定價制度應用範圍 **Scope of Application**

範疇一與範疇二的排放源中，涉及能源使用與減碳相關之資本支出，以及具有顯著碳排放影響的營運項目，於成本效益評估流程中納入內部碳定價。

Within Scope 1 and Scope 2 emissions, capital expenditures related to energy use and decarbonization, as well as operational items with significant carbon impacts, will incorporate ICP into cost-benefit assessment processes.

### 三、 內部碳價類型 Type of ICP

本公司採用「影子價格」(Shadow Price)作為內部碳定價的類型。在進行投資或專案評估時，將碳排放量乘以設定的內部碳價，作為額外的成本或效益因素納入分析。透過內部財務化的模擬，協助公司更真實地反映碳排放的隱含成本，進而優化決策品質。

The Company adopts the “Shadow Price” model as the type of Internal Carbon Pricing. This approach applies the set internal carbon price to projected emissions during investment or project evaluations, treating it as an additional cost or benefit factor in the analysis. This internal monetization mechanism enables the company to better reflect the implicit cost of carbon emissions, thereby improving decision-making and encouraging low-carbon investments.

### 四、 內部碳定價 Internal Carbon Price

本公司規劃將內部碳定價設定為**每公噸二氧化碳新台幣 1500 元**。此數值係參考世界銀行提出的建議，呼應巴黎協定「將全球升溫控制在 2°C 以內」的路徑要求，即在 2030 年前碳價應落於每公噸 50 至 100 美元的區間。由於本公司並非能源密集產業，初期選擇以新台幣 1500 元（約為 50 美元）作為合理且審慎的起點，並將隨著外部政策發展與產業趨勢，每年進行檢視與調整，以確保內部碳價能持續反映真實的氣候成本並發揮管理效益。

Our company plans to set the internal carbon price at **USD 50 per ton of CO<sub>2</sub>**. This figure references the World Bank’s guidance aligned with the Paris Agreement pathway of limiting global warming to below 2°C, which recommends that carbon prices should reach USD 50–100 per ton by 2030. Since our company is not an energy-intensive industry, we adopt TWD 50(approximately USD 50) as a prudent starting point, subject to annual review and adjustment in line with policy developments and industry trends. This ensures that the internal carbon price continues to reflect the real cost of carbon and delivers management effectiveness.

### 五、 實施案例 Implementation Cases

- 案例一：南州廠太陽能裝置

#### Case 1: Solar PV Installation at Nanchou Plant

評估南州廠太陽能設備，就純現金節流角度（不計碳價值），此專案在不折現情況下呈現強勁回收性：約 7.95 年回收，20 年內節省電費約新台幣 2,997 萬。若將 1,500 元/tCO<sub>2</sub>e 的影子價格計入，每年額外視為

469,260 元的內部收益，能將投回期縮短到約 6.7 年，並使 20 年淨效益提升約新台幣 938 萬元。顯示專案具備兼顧經濟效益與減碳效益。

Based on pure cash savings (excluding carbon value), the solar PV project demonstrates strong payback, with an undiscounted payback period of about 7.95 years and a cumulative net cash flow of approximately TWD 29.97 million over 20 years. By applying an internal carbon shadow price of TWD 1,500 per ton of CO<sub>2</sub>, the project generates an additional internal benefit of TWD 469,260 annually, reducing the payback period to about 6.7 years and increasing the 20-year net benefit by around TWD 9.38 million. This highlights the project's dual economic and environmental benefits.

- 案例二：忠孝辦公室綠電採購方案

**Case 2: Green Electricity Procurement at Zhongxiao Office**

忠孝辦公室自 2025 年 8 月起逐年增加綠電採購量，現行綠電價格雖高於台電，但若預估每年台電電費以 10% 的幅度增加，並納入內部碳定價後，減碳價值足以使專案逐年趨向正效益，讓累計淨效益達 38.9 萬元。

Starting in August 2025, the Zhongxiao Office will gradually increase its green electricity procurement. Although the current green electricity price is higher than Taiwan Power's standard tariff, projections of a 10% annual increase in grid electricity prices combined with the internal carbon value show that the project will trend toward positive benefits year by year, reaching a cumulative net benefit of approximately TWD 389,000.