APOSTLE

This document is intended for wholesale investors only.

Building a climate-resilient portfolio without compromising returns

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Prepared by
Apostle Funds Management

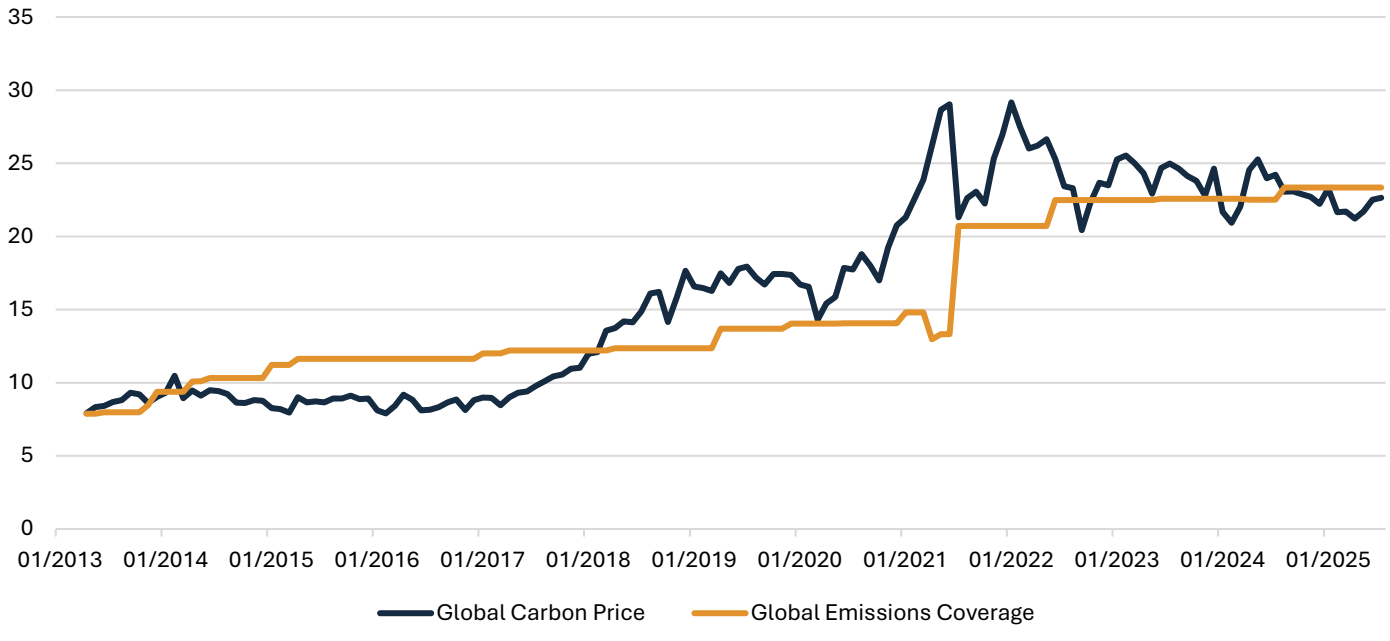
Executive Summary

Global efforts to decarbonise the economy are accelerating, and carbon pricing has emerged as one of the most powerful policy tools driving this transition. As more governments implement emissions caps and introduce compliance carbon markets, the cost of emitting carbon is becoming an increasingly material factor for organisations. For equity investors, this shift presents a growing financial risk: companies that exceed their emissions budgets face significant cost pressures that threaten profitability and market valuations. As a solution, this paper demonstrates how a small allocation to carbon markets provides investors with a direct and effective hedge against this risk.

Understanding Carbon Pricing

Carbon pricing places a cost on greenhouse gas emissions through mechanisms such as emissions trading schemes or carbon taxes. When companies emit more than their permitted budgets, they incur carbon costs known as carbon price risk. Carbon pricing imposes a financial cost on greenhouse gas emissions either through market-based cap-and-trade systems or direct carbon taxes. Over the past decade, both the value and scope of regulated carbon pricing schemes have expanded significantly, with key markets emerging or evolving across the US, Europe, the UK, Australia and New Zealand. This growth is expected to continue as global climate policy tightens.

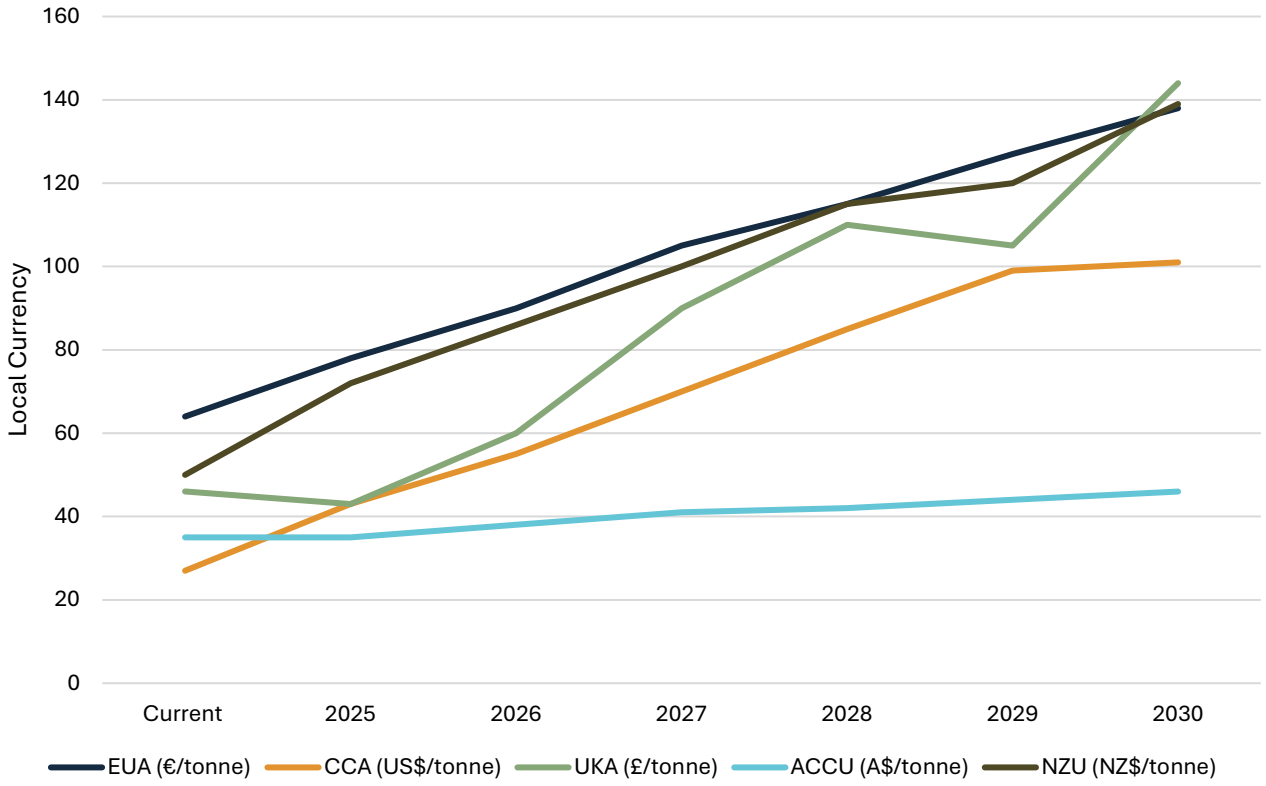
Figure 1: Global Carbon Price



Data as at: 30/06/2025. Source: Bloomberg Data, Apostle Funds Management.

Meeting the ambitious 1.5°C target set in the Paris Agreement requires steep, economy-wide, emissions reductions – achievable only by incentivising markets through substantially higher carbon prices. Elevated prices are essential to redirect capital, accelerate industrial decarbonisation, and bring current policies in line with climate commitments. As depicted in Figure 1, the average global carbon unit has grown in price by >500% since 2015, and this trend is likely to continue. Exemplifying this, a Macquarie Bank report suggests carbon prices may rise 28-38% per annum through 2030 and beyond (Macquarie Group Net Zero and Climate Risk Report, 2023). These costs will ultimately be borne by organisations and by proxy, passed onto its shareholders - thereby embedding global transition risk into equity portfolios.

Figure 2: Year-End Carbon Price Forecast (Local Currency)



Data as at 30/06/2025. Source: Bloomberg, Apostle Funds Management

Potential Carbon Liability

Potential Carbon Liability (PCL) is a forward-looking measure developed by EMMI (Emissions Market Modelling Infrastructure) to assess the financial implications of carbon pricing in investment portfolios. EMMI calculates the value at risk for each company based on their excess emissions under a 1.5°C-aligned scenario, allowing investors to quantify the potential erosion in market value (PCL) if climate policy does indeed drive carbon prices higher.

EMMI starts by giving each company an emissions budget aligned with a 1.5°C climate scenario. It then compares this budget to the company's actual emissions. Any excess is treated as a liability and priced using a scenario-aligned carbon price. This cost is then scaled to reflect its impact on the company's market value using sector-relevant valuation multiples.

Take BHP, for example. In the EMMI model, its emissions overshoot the budget by more than 80 million tonnes, and at the current scenario-based carbon price, that translates to an annual liability of nearly US$12 billion. These costs would reduce BHP's earnings, profitability, and free cash flow, weakening its financial position. In turn, markets may reprice the company's shares downward to reflect this loss in value – **equating to a ~27% decline in enterprise value**.

Table 1: Modelling PCL for BHP

BHP Group Ltd (2023)		
Total Annual Emissions (tCO2e) 1.5°C Scenario Budget Carbon Budget Overspend	175,686,766 94,742,150 **80,944,616**	Every company has a dedicated emissions budget based on their size, industry etc. Climate policy will likely penalise companies for their excess emissions to this budget.
IPCC Net Zero Carbon Price (US$) Annual Cost of Carbon (US$)	$146 **$11,778,988,857**	A company's potential annual cost of carbon is calculated by applying a model carbon price to a company's carbon budget overspend.
Value Multiple Potential Carbon Liability (US$)	3.38 **$39,869,453,255**	To convert this annual cost of carbon to potential value loss, EMMI use 15 different financial ratios to derive a relevant valuation multiple.
EVIC (US$) Potential Carbon Liability (%)	$147,774,103,983 **26.98%**	To calculate the potential loss on your investment due to this carbon liability, divide the potential carbon liability by the company's total EVIC.

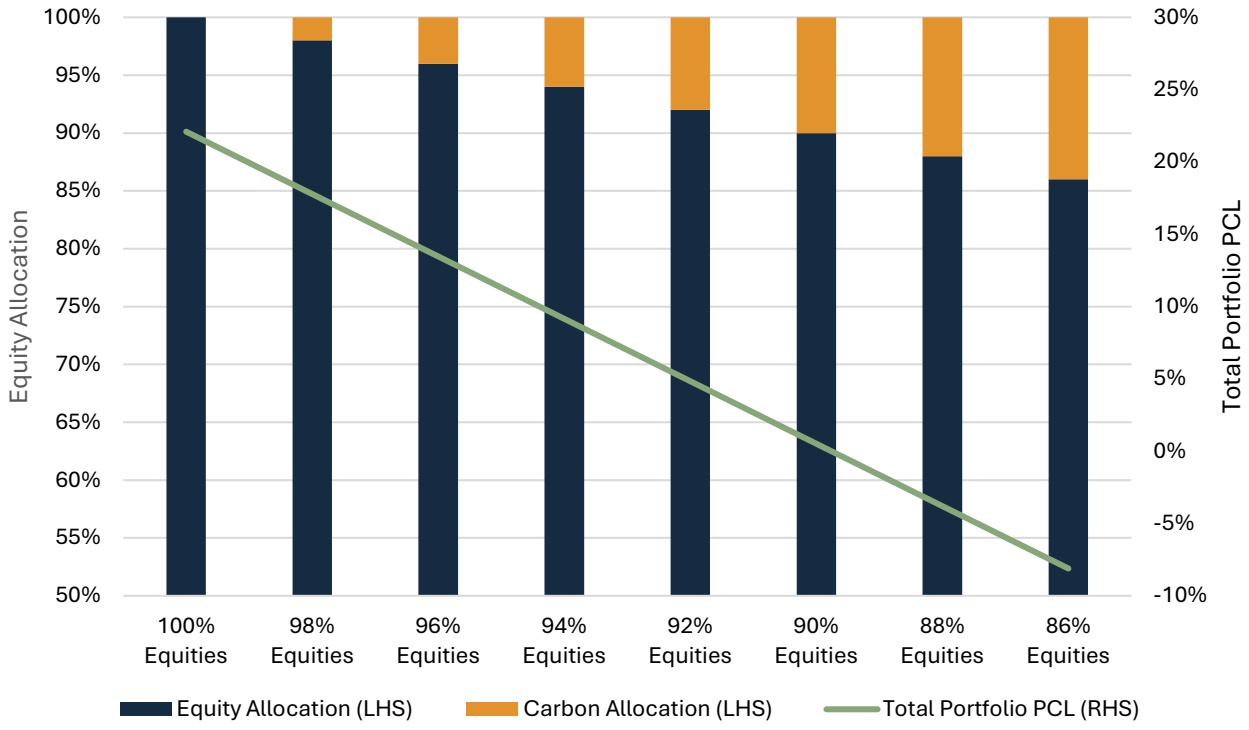
Data as at 30/06/2025. Source: EMMI Data

PCL in Equity Portfolios

A standard equity portfolio may have up to 29% of its market value exposed to carbon price risk under a 1.5°C scenario. Even after applying screening criteria, including fossil fuel exclusions and low-carbon tilts, security selection can only manage part of the portfolio's risk. Carbon credits are among the few asset classes with a negative PCL. As such, they play a critical role in building climate-resilient portfolios without compromising performance. The figures on page 5 show how a portfolio's PCL progressively declines with each additional allocation to carbon units.

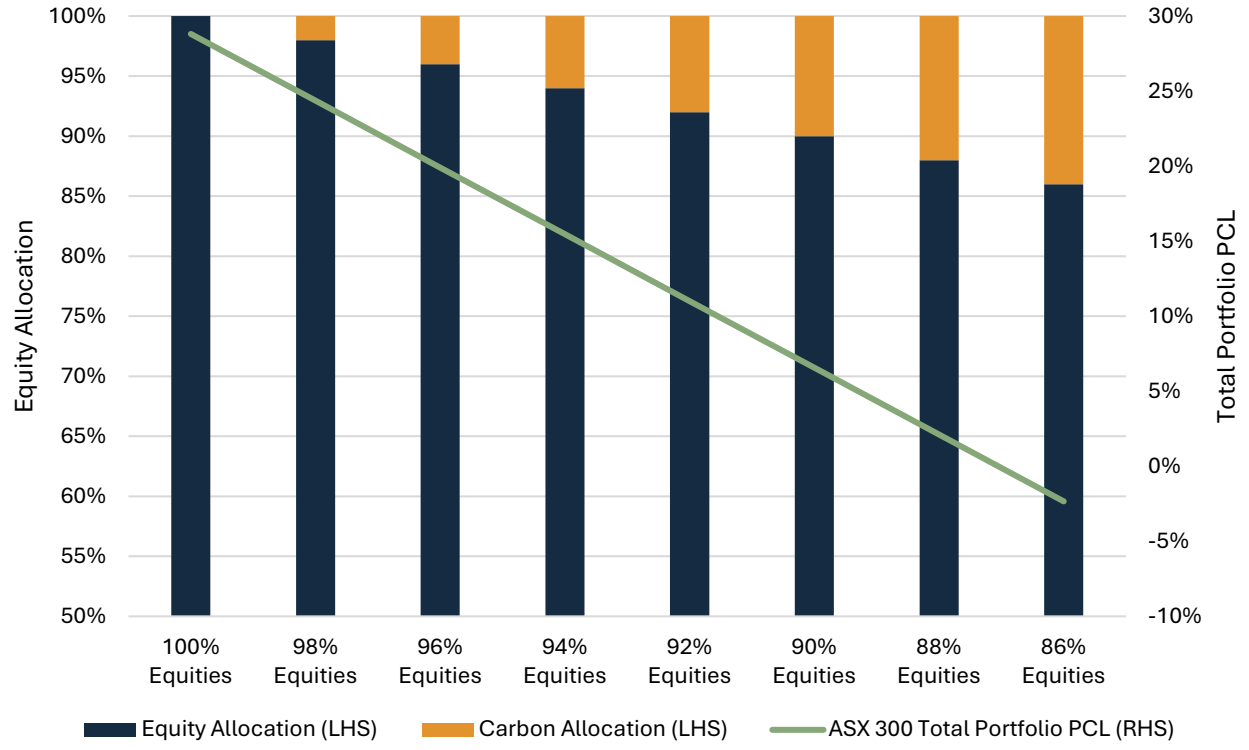
We see in Figure 4, a 4% allocation to compliance carbon markets reduces the total PCL of a global equity portfolio from 22% to 13%. A 10% allocation to carbon effectively hedges out the total portfolio PCL. Similar results are seen when looking at the ASX 300 (Figure 4).

Figure 3: PCL Exposure
MSCI ACWI Ex-Aus Total Portfolio PCL (RHS)



Data as at 30/06/2025. Source: EMMI Data, Apostle Funds Management

Figure 4: PCL Exposure
ASX 300 Total Portfolio PCL (RHS)



Data as at 30/06/2025. Source: EMMI Data, Apostle Funds Management

While energy, materials, and utilities are the most obvious contributors to PCL, sectors such as transport, manufacturing, and construction also play a role through Scope 3 emissions. What ultimately drives the liability is the gap between a company's actual emissions and its allowable carbon budget – not just the total volume of emissions. Traditional portfolio tools, limited by tracking error and diversification requirements, can only go so far in reducing this risk. To address the remaining exposure, investors need a more targeted solution: one designed specifically to hedge carbon liabilities. This underscores the fact that carbon risk is embedded across sectors, including those not traditionally considered high emitting.

Table 2: MSCI ACWI Ex-Aus Index Analysis

GICS Sector	Index Weight	Current Emissions (tCO2e)/$m - Scopes 1, 2 & 3	Emissions Budget (1.5°C Scenario)	Potential Carbon Liability (1.5°C Scenario)
Total	**100.00%**	**218.93**	**37.45**	**22.09%**
Communication Services	8.68%	9.39	7.89	0.76%
Consumer Discretionary	10.87%	140.15	36.12	26.42%
Consumer Staples	6.26%	141.92	54.78	40.86%
Energy	3.51%	1286.44	144.41	86.38%
Financials	17.58%	76.19	47.92	12.89%
Health Care	9.04%	20.23	13.16	2.69%
Industrials	11.19%	899.02	66.31	57.99%
Information Technology	25.08%	30.42	10.34	4.40%
Materials	3.23%	422.67	71.97	44.98%
Real Estate	1.88%	24.83	15.00	5.23%
Utilities	2.67%	421.76	78.93	71.58%

Data as at 30/06/2025. Source: EMMI Data

Table 3: ASX 300 Index Analysis

GICS Sector	Index Weight	Current Emissions (tCO2e)/$m - Scopes 1, 2 & 3	Emissions Budget (1.5°C Scenario)	Potential Carbon Liability (1.5°C Scenario)
Total	**100.00%**	**314.36**	**59.28**	**28.81%**
Communication Services	3.88%	22.01	18.19	1.18%
Consumer Discretionary	7.70%	226.54	60.17	57.78%
Consumer Staples	3.71%	326.97	82.24	76.92%
Energy	3.54%	1749.24	159.28	92.27%
Financials	34.08%	74.22	50.47	9.50%
Health Care	9.62%	16.90	12.28	2.85%
Industrials	7.65%	118.95	45.53	18.37%
Information Technology	3.45%	6.23	2.95	2.66%
Materials	18.09%	932.02	120.27	67.91%
Real Estate	6.91%	8.25	5.92	1.46%
Utilities	1.39%	1203.20	81.17	57.61%

Data as at 30/06/2025. Source: EMMI Data

Accessing Carbon Investments

Exposure to regulated compliance carbon markets can be achieved through markets including the California Carbon Allowance (CCA), European Union Allowance (EUA), United Kingdom Allowance (UKA),

Australian Carbon Credit Unit (ACCU) and the New Zealand Unit (NZU). These systems require carbon emitters to buy tradeable allowances under emissions caps, creating a real and rising price on carbon. Exposure to these markets is available through vehicles like the Apostle Carbon Credit Fund (ACCF).

Carbon markets vary widely in maturity, liquidity, and policy design, emphasising the importance of active management to navigate regulatory shifts and capitalise on regional dislocations. A globally diversified approach – such as that employed by ACCF – helps capture price upside across multiple regions while also smoothing volatility.

As nations continue to tighten climate policy, emissions caps are becoming stricter, regulated demand is increasing, and policy tools such as the EU's Carbon Border Adjustment Mechanism (CBAM) are reinforcing price strength. With these conditions in mind, compliance carbon markets are structurally positioned for strong performance as these shifts come into effect.

ACCF: A Purpose-Built Carbon Strategy

The Apostle Carbon Credit Fund (ACCF) provides diversified, actively managed exposure to global compliance carbon markets. It invests across CCA, EUA, UKA, ACCU and NZU markets, adapting to regional policy shifts and liquidity conditions.

ACCF is designed to generate long-term uncorrelated returns while simultaneously helping institutional investors reduce PCL, and maintaining alignment with ESG, SRI, and Net Zero objectives. It offers both risk mitigation and long-term return generation in a single, scalable strategy. By allocating to ACCF, investors can actively hedge portfolio carbon liabilities in a policy-aligned, forward-looking manner.

Summary – Why Invest in Carbon Markets?

Carbon markets are increasingly attractive to investors due to their:

- Strong outlook - driven by legislation and government control mechanisms
- Diversification benefits when included in a portfolio
- Hedging benefits against climate transition risk and inflation risk
- Contribution to global decarbonisation efforts

The Apostle Carbon Credit Fund is a complete solution for investors looking to access the global carbon market. Key benefits include:

- Diversified exposure to major global markets
- Active management with a target return of 2% p.a. above the market net of fees over rolling 5-year periods

Conclusion

As carbon prices rise and climate policy tightens, companies with high emissions face growing financial penalties. This creates a real and measurable risk for equity investors – one that is often overlooked in traditional portfolio analysis. Investors have a ready-made solution in regulated carbon markets as they provide a direct hedge against this liability. Therefore, a small allocation to carbon credits – via a globally diversified strategy like the Apostle Carbon Credit Fund – can dramatically reduce exposure while offering strong return potential. Measuring and hedging PCL is no longer a theoretical exercise – it's a practical step toward protecting capital in a decarbonising world.

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