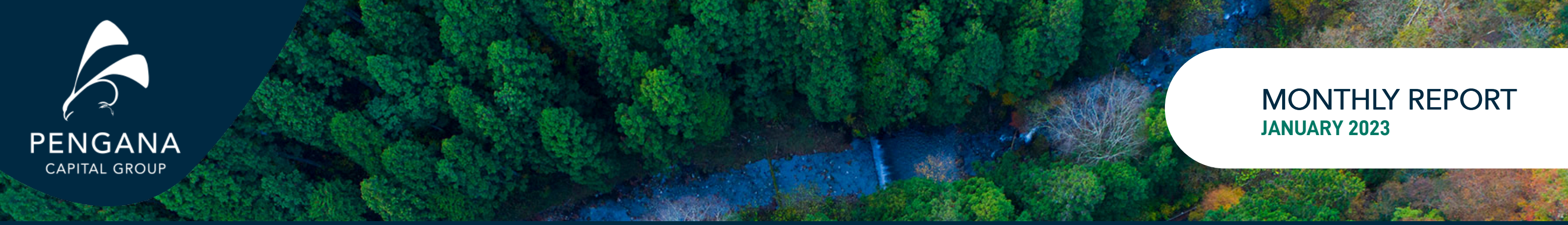


PENGANA
CAPITAL GROUP

MONTHLY REPORT
JANUARY 2023

PENGANA WHEB SUSTAINABLE IMPACT FUND

DESCRIPTION

The Pengana WHEB Sustainable Impact Fund invests in companies with activities providing solutions to sustainability challenges. WHEB have identified critical environmental and social challenges facing the global population over coming decades including a growing and ageing population, increasing resource scarcity, urbanisation and globalisation. The Fund invests in companies providing solutions to these sustainability challenges via nine sustainable investment themes – five of these are environmental (cleaner energy, environmental services, resource efficiency, sustainable transport and water management) and four are social (education, health, safety and well-being). WHEB's mission is 'to advance sustainability and create prosperity through positive impact investments.'

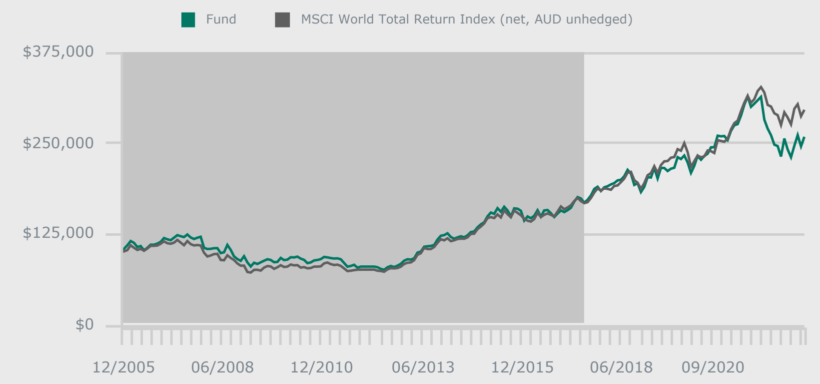
PERFORMANCE TABLE

NET PERFORMANCE FOR PERIODS ENDING 31 Jan 2023[1]

	1 MTH	1 YEAR	3 YEARS P.A.	5 YEARS P.A.	SINCE INCEPTION P.A.
WHEB Sustainable Impact Fund	5.4%	-8.3%	3.6%	6.4%	
Strategy (partial simulation – see below)					5.7%
MSCI World Total Return Index (net, AUD unhedged)	3.0%	-7.5%	5.8%	9.5%	6.6%

PERFORMANCE CHART

NET PERFORMANCE SINCE INCEPTION[2]



TOP HOLDINGS (ALPHABETICALLY)

Advanced Drainage Systems Inc	Industrials
Ansys	Information Technology
Autodesk Inc	Information Technology
Icon	Health Care
Infineon Technologies AG	Information Technology
Power Integrations Inc	Information Technology
Silicon Laboratories INC	Information Technology
Steris	Health Care
TE Connectivity	Information Technology
Trane Technologies PLC	Industrials

SECTOR BREAKDOWN

Consumer Discretionary	4.1%
Consumer Staples	1.9%
Health Care	29.9%
Industrials	21.9%
Information Technology	29.4%
Materials	11.6%
Cash	1.1%

CAPITALISATION BREAKDOWN

2-10bn	24.9%
10-20bn	26%
>20bn	47.9%
Cash	1.1%

CUSTOM SECTOR BREAKDOWN

Health	24%
Resource Efficiency	25.9%
Sustainable Transport	10.5%
Environmental Services	11%
Water Management	7.8%
Safety	5.2%
Cleaner Energy	6.5%
Wellbeing	6.3%
Education	1.7%
Cash	1.1%

REGION BREAKDOWN

North America	57.7%
Europe ex-UK	21.4%
Japan	7.4%
UK	7.1%
Asia Pacific	5.3%
Cash	1.1%

WHY WE LOVE HEAT PUMPS

COMMENTARY

Global Equities made a strong start to the year. Markets rallied on hopes that inflation has peaked, and that central banks are about to stabilise the pace of rate increases. The Fund delivered strong performance over January returning 5.4% (with positive contributions across all themes) and outperforming the MSCI World which returned 3.0%.

This month's commentary discusses the rapidly expanding heat pump market. Seb Beloe (Head of Research) provides a guide to how they work, how they measure up against other heating systems and how much they cost, and the ways WHEB invests in this area.

In our recently released Quarterly Report for Q4 2022, Claire Jervis (Senior Analyst) confronts the challenge of sustainable fashion and explains how some of our holdings are providing solutions; Katie Woodhouse (Climate and Data Analyst) provides an update on WHEB's 2022 carbon commitments and outlines our goals for 2023; and, Rachael Monteiro (Stewardship Analyst) introduces the first in a series of articles on our approach to stewardship.

Finally, we are pleased to bring you our latest company profiles document where we introduce you to the portfolio companies held in the strategy, where they sit on the impact map, and why and how they are aligned with our nine themes and the SDGs.

Market Review

Global Equities made a strong start to the year. Markets rallied on hopes that inflation has peaked, and that central banks are about to stabilise the pace of rate increases. In the US, December's inflation figures were at their lowest level since October 2021, at 6.5%. However, although inflation is moderating, the US labour market is still tight and there remain concerns around wage growth. The picture is more mixed internationally – while the US Federal Reserve has slowed the pace of its monetary policy tightening, the European Central Bank and Bank of England have sounded more hawkish.

At the same time, there is a somewhat contradictory hope that the global economy is doing better than expected. Despite recession fears, data showed that the eurozone economy grew in the final quarter of 2022 with indicators of economic activity surprising on the upside.

Despite the tension, this optimism created a stock market rally, and the Fund's benchmark MSCI World Index rose 3.0%. The rally has been high beta in nature, with economically sensitive stocks outperforming, and "growth" strategies outperforming "value" ones. Consumer Discretionary and Communication Services were the best-performing sectors while defensive industries such as Healthcare and Utilities were the weakest.

Fund Review

The Fund delivered strong performance over the month returning 5.4%, with positive contributions across all themes.

Advanced Drainage Systems (ADS) was the best performer, followed by Power Integrations. ADS benefited from positive investor sentiment in the lead-up to February earnings while Power Integrations performed strongly in line with the semiconductor sector.

At the other end of the spectrum, MSA Safety and Xylem were the weakest performers. Several of the end-markets of safety equipment manufacturer MSA Safety are exposed to the industrial cycle so general negative economic sentiment weighed on the share price. Meanwhile, Xylem, which is a leading maker of pumps and other water control technologies, announced it will acquire Evoqua, a water treatment business, for $7bn. The stock had been weak in the lead-up but fell further on the news.

From a thematic perspective, Resource Efficiency and Sustainable Transport were the best-performing themes and the highest contributors to return.

Outlook

After a difficult 2022, January has been a good start for investors and there is a case for the stock market to deliver positive returns in 2023. With expectations very low, any resilience in corporate earnings will be well received. China's reopening should also be beneficial for consumer stocks. There is likely to be continued volatility, which may also create new opportunities for the portfolio.

While the portfolio is unlikely to be immune to the industrial and consumer demand environments, we are confident our holdings are well-positioned to capture the impact-driven growth opportunities in their industries over the longer-term.

Why we love heat pumps

I first came across heat pumps while studying for my undergraduate degree in Environmental Science in the early 1990s. The technology has developed dramatically since then but still relies on the 'magic' of extracting heat from thin air.

How do heat pumps work and why are they important?

Heat pumps are found in everything from clothes dryers to electric cars. They are also increasingly common in buildings. A heat pump is a device that captures heat from outside a building and moves it inside to provide warmth. Everything around us contains thermal energy and this thermal energy – or heat – is captured by the heat pump and transferred into a building.

In a heat pump, a refrigerant is passed through a heat exchanger outside a building where it absorbs thermal energy from the air (or from water or the ground). The refrigerant will typically flow at temperatures well below 0°C and so can easily absorb energy even in the winter. The refrigerant is then pumped into a compressor which increases the pressure causing the refrigerant to increase to temperatures typically above 60°C. It then passes into the building and through another heat exchanger where the thermal energy is transferred to water (or air) which is then circulated through the building to provide heat. The refrigerant meanwhile flows through an expansion valve where it cools again before traveling outside to collect more thermal energy.

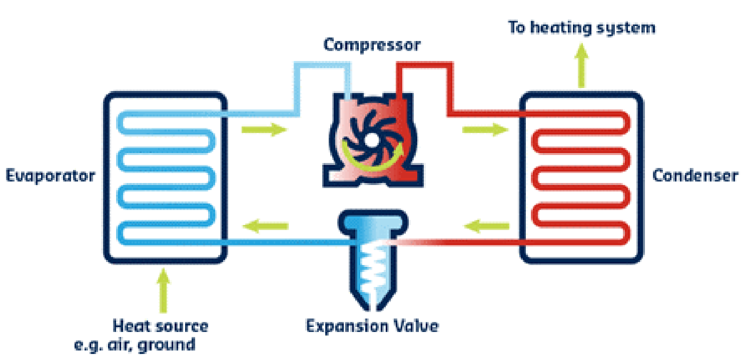


Figure 1: How a heat pump works

Energy is used to power the fans and compressors in a heat pump, but the system produces more energy than it uses because it captures thermal energy from outside. A-rated gas boilers manage to convert 90% of the chemical energy in the gas into usable heat. Heat pumps should be at least 300% efficient, delivering three times as much energy as they use. What's more, if the electricity that the heat pump is using comes from renewable resources, it can be considered to be a close to zero-carbon technology. According to the International Energy Agency, replacing 30% of the global heating market with heat pumps would reduce total global greenhouse gas emissions by 4%.

How they compete with other technologies

While heat pumps are superior to gas boilers from an efficiency point of view, there are other issues to consider. Historically, heat pumps have not been able to generate the high-water temperatures that gas or oil boilers can. To compensate, buildings using heat pumps need to be better insulated and have had to use larger radiators or underfloor heating – not always practical if you are retrofitting an existing building. However, newer heat pumps can heat water to 70°C degrees meaning that internal radiators do not need to be replaced. They can also be run in reverse providing cooling in the summer and then heating in the winter.

Despite the hype, green hydrogen used in fuel cells is not a realistic technology for heating buildings. According to a recent meta-study hydrogen in heating is less efficient, more expensive, and bears a higher resource burden than heat pumps.

Do heat pumps cost more?

The higher upfront costs of heat pumps have been a challenge as these have typically outweighed the efficiency benefits. In many parts of Europe, inflated gas costs due to the Russian invasion of Ukraine have meant that the total cost of ownership of heat pumps is now often below that of a typical gas boiler. This is already the case in several other regions of the world (see figure 2). Many governments are also providing incentives to home and business owners to install heat pumps. The US's Inflation Reduction Act, for example, has ear-marked US$12.5bn to support heat pump installations. In the US the subsidy is US$8,000 per heat pump.

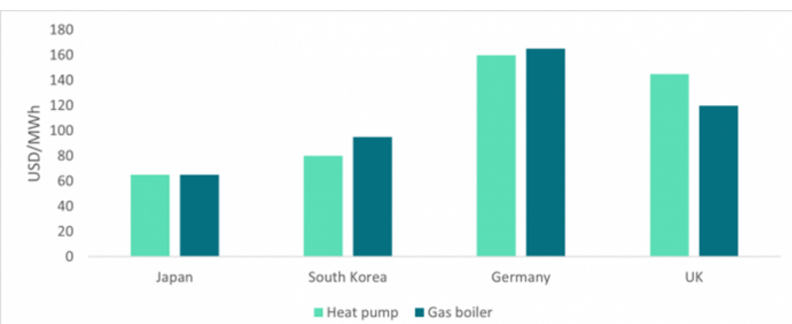


Figure 2: Total cost of ownership (unsubsidised) of heat pumps vs gas boilers

In the UK a subsidy of £5,000 is still not generally sufficient to make the technology fully competitive with traditional heating technologies. The UK in fact has the lowest rate of installation of heat pumps of any European country in 2021. Just 1.48 heat pumps were installed per 1,000 households in 2021. Hungary was next lowest at 1.8 per 1,000 households. Norway installed nearly 50 per 1,000 households. The reasons for the UK's poor performance are partly due to the high relative cost of electricity compared to gas, and because of the lack of capacity in the market to install heat pumps. The UK has only 3,000 trained heat pump engineers. We need 27,000 in the next six years.

What is the size of the market and how fast is it growing?

While heat pumps have been very popular in Scandinavian countries for some time, the environmental and economic advantages of heat pumps are now turbo-charging demand. This is particularly the case in Europe where country after country has reported growth rates of 100% in the past year. The Polish and Dutch markets are expected to have doubled in 2022. Finland reported market growth of 80% in the first half of last year with Germany +53% and Italy reporting growth of 114% over the same period. Even mature markets like Norway grew more than 10% in 2022. Daikin Industries, a major heat pump manufacturer and WHEB portfolio holding, forecasts the European residential heat pump market to grow from just over 600,000 units in 2020 to 7m units by 2030.

In the US too, alongside the IRA-linked subsidy, states like California are banning the use of gas heating. Penetration rates which have historically been around 20% are expected to increase to up to 50% over the next five years.

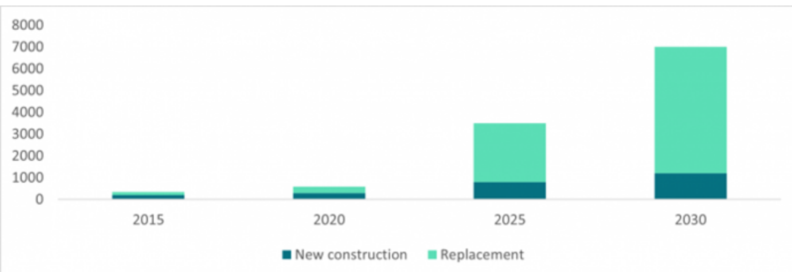


Figure 3: European residential heat pump market forecast (1,000 units)

How WHEB invests in heat pumps

Until recently, heat pumps were considered by most investors to be a niche technology with little expected growth. In contrast, WHEB's thematic research identified heat pumps as an important solution to the challenge of decarbonising heating in buildings. For example, we owned Nibe Industrier for many years. More recently we have focused on companies that have a strong position in the air-source heat pump market. This includes the Japanese company Daikin Industries which is among the top two manufacturers in the global market. We have also invested in Trane Technologies a leading provider of heat pumps to the North American market.

While none of these companies are 'pure-play' heat pump manufacturers, heat pumps represent a material portion of their revenues and are a clear strategic focus for them. Daikin recently devoted an entire investor presentation to the topic. These companies, in our view, are all very well-placed to benefit as the market for heat pumps continues to rapidly expand.

FEATURES

APIR CODE	HHA0007AU
REDEMPTION PRICE	A$ 1.4218
FEES *	Management Fee: 1.35%
MINIMUM INITIAL INVESTMENT	$10,000
FUM AT MONTH END	A$ 269.08m
FUND INCEPTION DATE	31 October 2007

FUND MANAGERS

Ted Franks
Partner, Head of Investment

Seb Beloe
Partner, Head of Research

1. From August 2017, performance figures are those of the Pengana WHEB Sustainable Impact Fund's class A units (net of fees and including reinvestment of distributions). The strategy's AUD performance between January 2006 and July 2017 has been simulated by Pengana from the monthly net GBP returns of the Henderson Industries of the Future Fund (from 1 January 2006 to 31 December 2011) and the FP WHEB Sustainability Fund (from 30 April 2012 to 31 July 2017). This was done by: 1) converting the GBP denominated net returns to AUD using FactSet's month-end FX rates (London 4PM); 2) adding back the relevant fund's monthly ongoing charge figure; then 3) deducting the Pengana WHEB Sustainable Impact Fund's management fee of 1.35% p.a. The WHEB Listed Equity strategy did not operate between 1 January 2012 and 29 April 2012 – during this period returns are zeroed. The Henderson Industries of the Future Fund's and the FP WHEB Sustainability Fund's GBP net track record data is historical. No allowance has been made for buy/sell spreads. Please refer to the PDS for information regarding risks. Past performance is not a reliable indicator of future performance. The value of the investment can go up or down.
2. The Fund incepted on 31 October 2007 as the Hunter Hall Global Deep Green Trust. The Fund was relaunched on 1 August 2017 as the Pengana WHEB Sustainable Impact Fund employing the WHEB Listed Equity strategy. This strategy was first employed on 1 January 2006 by the Henderson Industries of the Future Fund and currently by the FP WHEB Sustainability Fund.
3. Annualised standard deviation since inception.
4. Relative to MSCI World Total Return Index (net, AUD unhedged)
* For further information regarding fees please see the PDS available on our website.

PENGANA WHEB SUSTAINABLE IMPACT FUND

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