

A CLEANER AND GREENER WAY TO INVEST

BETASHARES CLIMATE CHANGE INNOVATION ETF (ASX CODE: EARTH)

Most scientific experts now agree the world faces serious disruption due to global warming unless we significantly contain growth in greenhouse gas emissions (GGE) over the next few decades.

As a result, demand for innovative products and services to meet the world’s growing climate challenge can be considered an investment ‘megatrend’, which is anticipated to experience strong growth in the decades ahead. Investing in this area may not only be financially rewarding for growth-seeking investors, but also help support more corporate activity in this critical area.

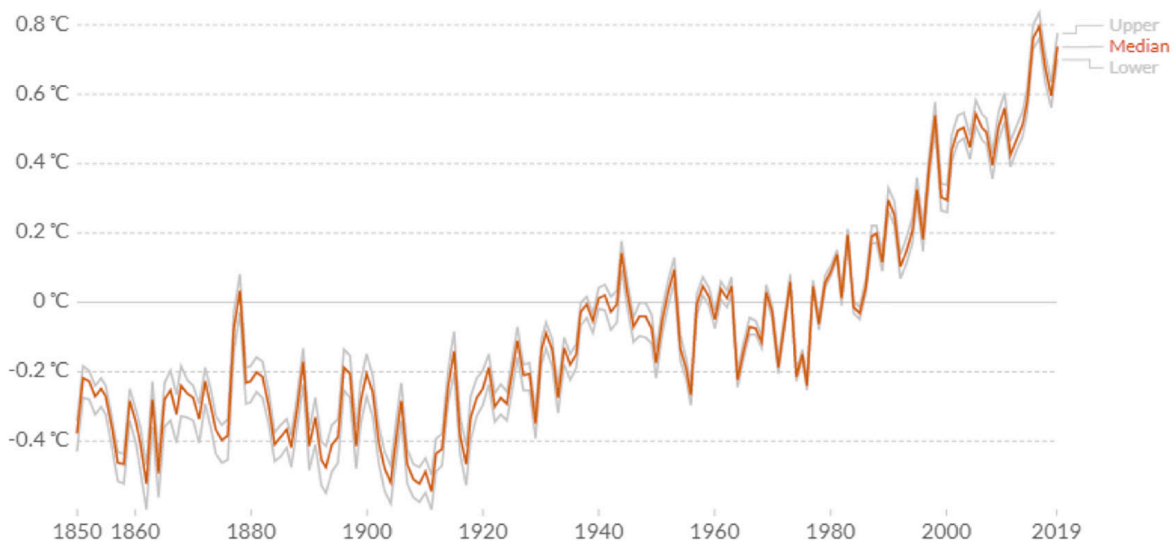
To tap into this potential, the BetaShares Climate Change Innovation ETF (ASX Code: EARTH) has been designed to provide investors with exposure to some of the world’s leading companies at the forefront of innovations designed to tackle climate change. These cover not just clean or renewable energy, but also other areas critical for meeting emissions reduction targets, such as green transportation development, water and waste improvement, sustainable product design, and other ‘enabling solutions’ such as battery and fuel cell development.

THE GLOBAL WARMING CHALLENGE

Global climate records suggest that since the onset of the Industrial Revolution in the mid-1800s, the average world temperature has already increased by around 1.1°C. Indeed, the past two decades have included eighteen of the twenty warmest years since record-keeping began in 1850.

Average temperature anomaly, Global

Global average land-sea temperature anomaly relative to the 1961-1990 average temperature.



Source: Hadley Centre (HadCRUT4)

Note: The orange line represents the median average temperature change, and grey lines represent the upper and lower 95% confidence intervals

Atmospheric CO₂ concentration

Global average long-term atmospheric concentration of carbon dioxide (CO₂) measured in parts per million (ppm). Long-term trends in CO₂ concentrations can be measured at high-resolution using preserved air samples from ice cores.

Our World
in Data



Source: EPICA Dome C CO₂ record (2015) & NOAA (2018)

In turn, many experts note that extreme weather events around the world – such as flooding, drought, bushfires and cyclones – appear to have increased in frequency and severity in recent decades. Severe further global disruption therefore seems likely the more the world warms.

While there have been some government efforts – along with increased consumer demand – for GGE-reducing measures in recent years, projections by the United Nations Intergovernmental Panel on Climate Change (IPCC) suggest significant challenges still lie ahead.

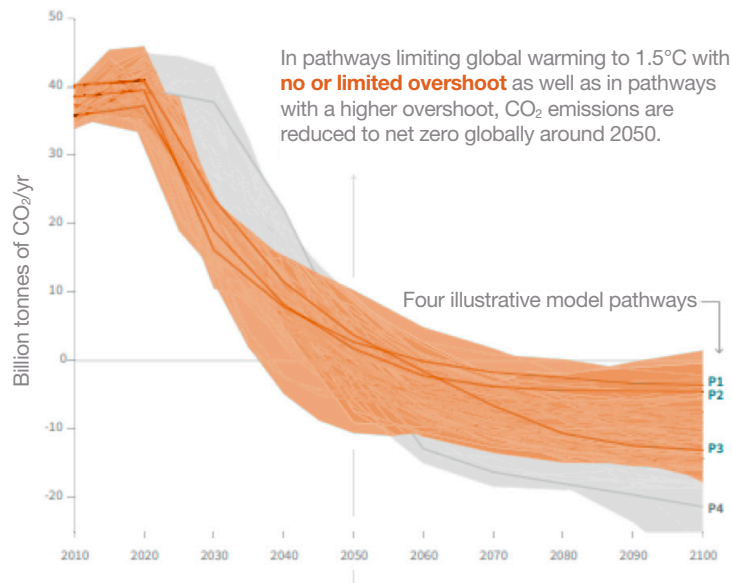
Indeed, according to IPCC estimates¹, even if global commitments to cut GGE emissions to around 52-58 GtCO₂e² by 2030 under the current Paris Climate Accord were met – which increasingly appears a stretch – the world still faces potentially very disruptive global warming by 2100 of more than 1.5°C.

To limit warming to a possibly more manageable 1.5°C by 2100, the IPCC projections suggest the world may need to aim for a larger reduction in GGE emissions to around 25-30 GtCO₂e by 2030, or 45% below 2010 levels. The world would then also need to aim for around net-zero emissions by 2050. Many countries have already moved to make such a 'net-zero by 2050' pledge.

¹ IPCC Special Report, Global Warming to 1.5°C, October 2018.

² Gigatonnes of equivalent carbon dioxide.

Global total net CO₂ emissions



SIGNIFICANT INVESTMENT IN INNOVATIVE SOLUTIONS NEEDED

To meet the global commitment of net-zero emissions by 2050, large investments into new technologies and companies are needed.

According to a report released in September 2020 by the Energy Transitions Committee (ETC), a coalition of senior executives from 45 energy producers, financial institutions and environmental groups, the additional investment required to achieve a zero carbon-emissions economy by 2050 will be US\$1-2 trillion p.a.

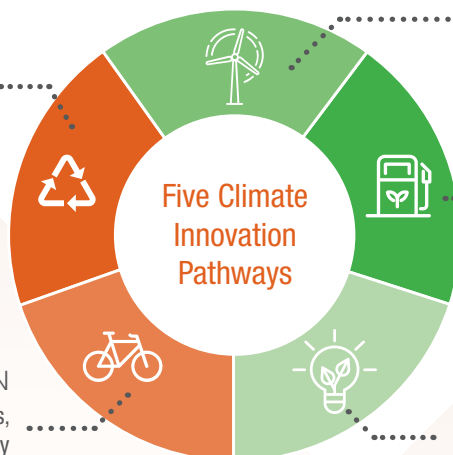
Given the burning of fossil fuels to produce energy is a major contributor to GGE emissions, a move towards clean renewable energy will be clearly important. According to IPCC projections, the renewable share of energy production would need to increase from around 15% at present, to at least around 60% by 2050.

But clean energy alone – particularly given their own significant land and material requirements in areas such as wind and solar - will not be sufficient. Innovative development appears necessary along at least four other pathways:

- the electrification of transport systems
- sustainable product design (such as reducing the reliance on land and livestock for food)
- better water and waste management to reduce emissions from pollution, and
- a broad range of 'enabling' technologies in areas such as energy efficiency and storage.

WATER & WASTE IMPROVEMENTS
Pollution control, recycling & materials, waste management, water & waste efficiency

GREEN TRANSPORTATION
Electric transportation, electric vehicles & bikes, ride sharing & efficiency



GREEN ENERGY

Renewable energy assets, renewable energy developers, renewable energy equipment, and green utilities

ENABLING SOLUTIONS

Fuel cells, alternative fuels, battery supply chain, electric systems, energy efficiency, energy storage, green finance, semiconductor devices, electrical components

SUSTAINABLE PRODUCTS

Food solutions, telepresence, sustainable materials, efficient materials & processes, sustainable buildings, sustainable forestry

THE BETASHARES CLIMATE CHANGE INNOVATION ETF (ASX CODE: EARTH)

In the context of ever-growing demand for solutions to mitigate or address climate change, BetaShares is pleased to launch the Climate Change Innovation ETF (ASX Code: EARTH). This fund will aim to track an Index that provides exposure to a portfolio of global companies at the forefront of dealing with today’s climate and environmental challenges.

Specifically, the index which EARTH aims to track provides exposure to up to 100 of the largest global companies that derive at least 50% of their revenues from products and services that help to address climate change and other environmental problems through the reduction or avoidance of CO₂ (carbon dioxide) emissions. Importantly, this covers not just clean energy providers (an area which in itself is subject to significant change and uncertainty), but also leading companies tackling green transport, waste management, sustainable product development, and improved energy efficiency and storage.

The ETF is designed to provide exposure to companies that can be expected to benefit as the global economy transitions to a more sustainable model.

As seen in the table below, EARTH currently provides exposure to a diverse range of companies in a broad range of climate-friendly activities, from wind and solar energy producers, to electric vehicle manufacturers, and innovators in areas such as sustainable food production, and water and energy efficiency.

Selected Company Exposures in EARTH's Index: 28 February 2021

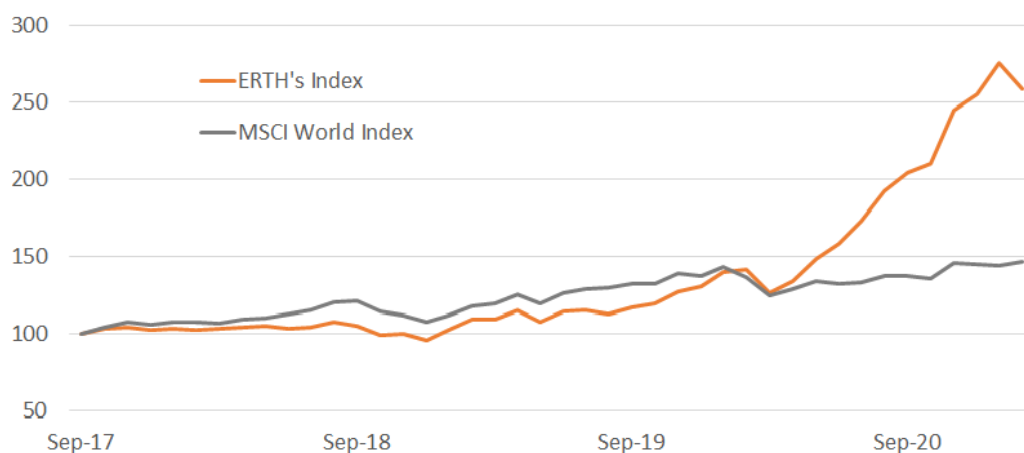
SECTOR	COMPANY NAME	SPECIALTY
Renewable Energy	VESTAS WIND SYSTEMS A/S	Wind turbines
	ENPHASE ENERGY INC	Home clean energy and energy storage
	SOLAREDGE TECHNOLOGIES INC	Solar
Enabling Solutions	INFINEON TECHNOLOGIES AG	Semiconductors and energy efficiency
	TRANE TECHNOLOGIES PLC	Efficient heating and cooling
	PLUG POWER INC	Hydrogen fuel cell systems
Green Transport	TESLA INC	Electric vehicles and clean energy
	XPENG INC	Electric vehicles
	LI AUTO INC	Electric vehicles
Water & Waste Management	SMART METERING SYSTEMS PLC	Water and energy efficiency and metering
	HALMA PLC	Waste detection and safety
Sustainable Products	BEYOND MEAT INC	Food solutions
	KINGSPAN GROUP PLC	Insulation and building efficiency

Source: Solactive. No assurance is given that these companies will remain in the index or generate positive returns.

To be included in the Index, companies must also pass a number of tests to satisfy certain broader environmental, social and governance (ESG) concerns. These include not being directly involved in the fossil fuel industry (coal, oil or natural gas) nor deriving revenue from companies engaged in the fossil fuel industry, arms production or nuclear energy above certain revenue thresholds⁴.

As evident in the chart below, having exposure to environment-friendly global companies in recent years has not hurt investment performance. Since its inception in August 2017 to February 2021, the index of companies which ERTH aims to track has delivered returns of 33.33% p.a. in \$A terms, compared with 12.56% p.a. for a global equity benchmark.

ERTH's Index vs MSCI World Index



Source: Bloomberg. As at 28 February 2021. Past performance is not an indicator of future performance of the index or ERTH. Does not take into account ERTH's fees and costs. You cannot invest directly in an Index. ERTH's index is the Solactive Climate Change and Environmental Opportunities Index. ERTH's returns can be expected to be more volatile (i.e. vary up and down) than a broad global shares exposure, given its concentrated sector exposure.

The index that ERTH aims to track is designed to continue to provide exposure to important environmentally-active companies over time, even as technologies and individual company fortunes may change. This is achieved through semi-annual rebalancing of the Index⁵.

The 50% green revenue threshold requirement applied in the index means that portfolio holdings provide relatively 'pure' exposure to climate innovation activities - compared, for example, to larger, but more diversified conglomerates, where the environmental divisions generate revenues that may be large in absolute dollar terms, but which are not material to company performance over time.

In addition to the financial benefits that may come from investing in ERTH, investors may also benefit from knowing that their investment dollars can help make a positive difference in the world. By directing capital to companies that are providing solutions to climate and sustainability challenges, unitholders in ERTH help lower the cost of capital for these companies and therefore help them to deliver positive impacts through their environmental products and services. Investors in ERTH can therefore play their own part in helping to lower carbon emissions, generate renewable energy, save or treat water, make agriculture more sustainable and avoid or control pollution.

⁴ More detailed information on these screens is provided in the Product Disclosure Statement (PDS).

⁵ Specific index buffering rules apply as described in the PDS.

SUMMARY

Climate change has been called the ‘defining challenge of our age’ and is arguably the most significant challenge the world now faces.

To achieve the reduction in GGE necessary to reduce the risk of disruptive climate change, the development of innovative solutions across a broad range of industries will be critical. Along with helping to address this global challenge, companies operating in this area also stand to benefit financially from rapidly growing interest and demand, which in turn offers rewards to their investors.

ERTH provides a cost-effective and easily accessible way to gain exposure to a portfolio of leading global companies in this area.

There are risks associated with investment in ERTH, including market risk, international investment risk, sector risk and non-traditional index methodology risk. ERTH’s returns can be expected to be more volatile (i.e. vary up and down) than a broad global shares exposure, given its concentrated sector exposure. The Fund should only be considered as a component of a diversified portfolio. For more information on risks and other features of ERTH please see the Product Disclosure Statement available at www.betashares.com.au.

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