

ENVIRONMENTAL STRATEGIES GROUP

Investment Update - October 2021



MARKET UPDATE AND OUTLOOK

Supply chain issues, commodity prices and the Chinese growth outlook were among the main items on investors' agendas in September. Iron ore prices fell by close to 40% over the summer, while China's credit impulse – the growth in new financing as a proportion of GDP – continues to show signs of weakening alongside a slowdown in the country's property sector.

But looking across the entire base metals complex, we believe **the recent supply-led supercycle in commodities** is getting very long in the tooth. Given the lack of real demand push, we think it's ultimately going to be **transitory in nature**. Unless demand rises significantly, we remain sceptical about the potential for a further rally, and at these elevated levels we actually expect demand to subside.

It's the uncertainty about the effects of supply chain problems and elevated freight costs that are worrying investors, but we would argue that these issues are more than adequately reflected in equity prices. At the time of writing, we are entering earnings with very low expectations and the potential for significant upside surprises given the confidence we encountered in our pre-earnings calls with several companies.

The talk of the town in environmental markets – mainly in Europe, but also in China – has been the recent spike in power prices. Just like the rise in other commodity prices, it's been driven by a supply-driven shock to gas prices as we are entering the winter months with record low inventories. Most of Europe's power is still produced by gas – not renewables – and this will remain the case until we "overbuild" renewables and develop better energy storage mechanisms and hydrogen infrastructure. Once all this is achieved, gas prices should collapse. For now, higher gas prices should represent a major tailwind for alternative energy, speeding up the build-out of renewables and Europe's progress towards its decarbonisation goals.

We continue to believe that the environmental space will perform well into year-end despite September having been another disappointing month for the theme, when it lost 7%. Against this backdrop, our funds outperformed across the board.



BNP PARIBAS
ASSET MANAGEMENT

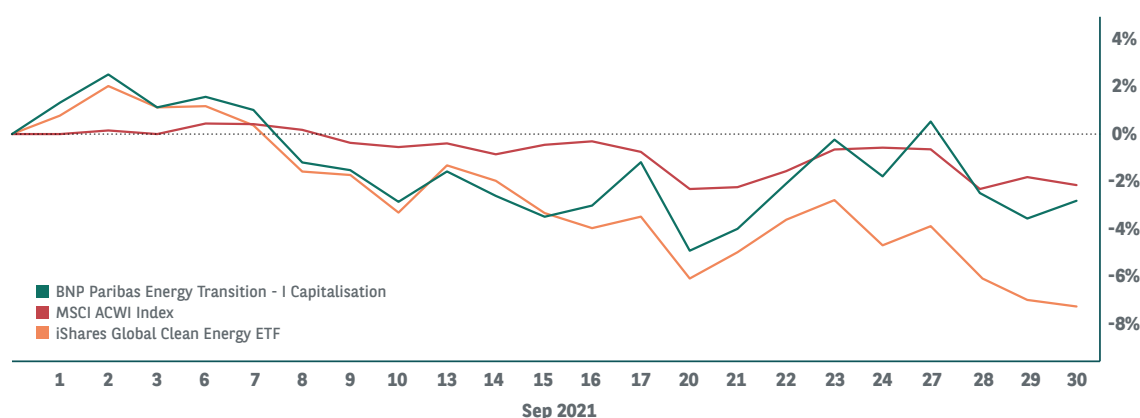
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PERFORMANCE AND PORTFOLIO UPDATE

BNP Paribas Energy Transition

The fund fell by 2.8% in September, underperforming the MSCI AC World Index (EUR) by 40 basis points. However, it outperformed the broad clean energy market, as measured by the iShares Global Clean Energy ETF, by around five percentage points.

Performance (%)	September	3M	YTD	Since inception
BNP Paribas Energy Transition	-2.80	-11.71	-4.75	184.49
iShares Global Clean Energy ETF	-7.72	-7.72	-22.91	102.92
MSCI ACWI Index	-2.33	1.42	17.78	37.85



Source: Bloomberg, September 2021. Past performance is not indicative of current or future performance. The value of your investment may fluctuate. BNP Paribas Energy Transition calendar performance over the past five years (I, Capitalisation in %): 2020: 167.30, 2019: 5.51, 2018: 18.54, 2017: 13.04, 2016: 35.97. 2014-2019: during this period the fund had a different investment policy and benchmark. All figures net of fees (in EUR).

Top contributors

Sustainable lithium firm Standard Lithium boosted the portfolio's return the most in September, benefitting from a tight lithium market driven by growing demand for electric vehicles. Li-Cycle, a battery recycling company, performed well as the company recently completed a merger of its entity. Solid-state battery producer QuantumScape rose strongly on the back of its partnership with a large automaker to evaluate prototypes of its solid-state battery cells. Xinjiang Goldwind continued as the wind theme remains solid in Asia and the company is well positioned. Finally, General Motors contributed 0.13% CTR as Engine1 bought a stake in support of the company's decarbonisation plans for electrification and battery technology platform.

Top detractors

Sunnova detracted the most from our return over the month. Despite being among the most defensive solar businesses, it was caught up in the broad solar sell-off, along with Enphase. Otonomo also fell despite reporting a positive operational update. Siemens Gamesa, sold off somewhat during the month following a sell side downgrade of the company. However, we remain convinced of the M&A premium that the company should have alongside having the equity reflecting what will most likely be a tough quarter.

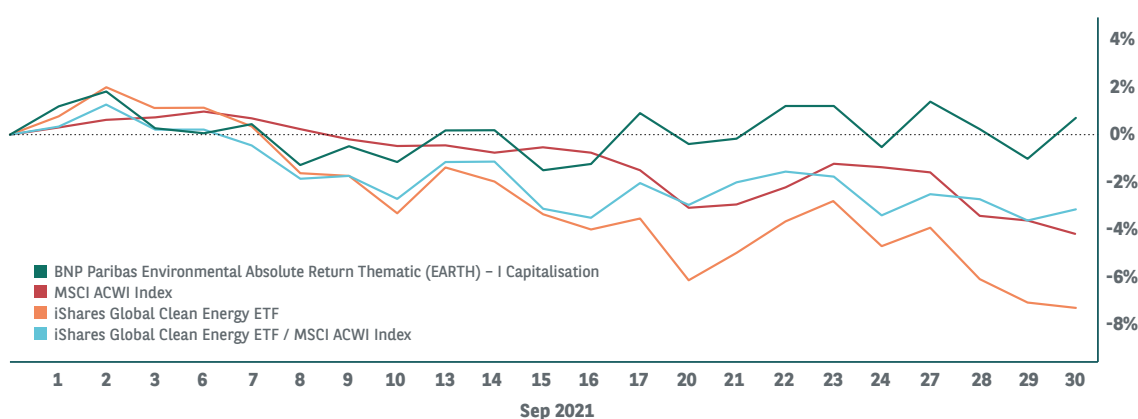
BNP Paribas Ecosystem Restoration

We are not permitted to publish performance figures for BNP Paribas Ecosystem Restoration until a year after the fund's launch. Please get in touch with your usual BNP Paribas Asset Management contact for the latest performance and attribution figures.

BNP Paribas Environmental Absolute Return Thematic (EARTH)

Our long/short equity strategy rose by 0.7% in September, outperforming the broader environmental market by 7 percentage points. The fund is significantly ahead of the environmental market on a year-to-date basis. It was great to see the fund being mentioned by JP Morgan's ESG research team as one of the pioneers of environmental themed equity long-short investing.

Performance (%)	September	3M	YTD	Since inception
BNP Paribas EARTH	0.71	-11.85	-6.15	34.02
iShares Global Clean Energy ETF / MSCI ACWI Index	-3.11	-6.54	-30.39	19.12
iShares Global Clean Energy ETF	-7.72	-7.72	-22.91	54.78



Source: Bloomberg, September 2021. Past performance is not indicative of current or future performance. The value of your investment may fluctuate. Performance of BNP Paribas EARTH (I, Capitalisation in %): 6 months: 7.32, 3 months: -1.67, 1 month: 9.82 and YTD (as of 30/07/21): 7.32. All figures net of fees (in USD).

Top contributors

Waste-to-energy firm Archaea Energy contributed most to our return, performing well after completing its merger with Aria Energy. Our shorts in US Steel, which is suffering operational challenges, and Rio Tinto, which fell sharply due to operational difficulties and lower iron ore prices, also boosted our return.

Top detractors

Sunnova detracted the most from our return over the month, coming under pressure along with the rest of the solar space despite its ultra-defensive business model. Daqo was also caught up in the solar sell-off, while Siemens Gamesa fell on a sell-side downgrade.



"The fund is significantly ahead of the environmental market on a year-to-date basis"

SECTORS IN FOCUS: PLASTIC WASTE

The huge amount of plastic waste – 250 million tonnes – that we produce every year has become broadly accepted to be one of the world's most pressing concerns. 2016 Netflix documentary **A Plastic Ocean** highlighted the devastating effects of plastic on the world's oceans, and in response to the issue consumers and politicians have increased their efforts to establish a circular plastic economy.

But there's a long way to go. As it stands, just 16% of plastic is recycled or reused. What's more, plastic production is a significant contributor to global temperature increases, as it is currently responsible for around 2% of the world's carbon emissions.



"Plastic production is a significant contributor to global temperature increases"

Let's begin by defining some key terms in any discussion of plastic waste.

Plastic

The term "plastic" is a catch-all phrase, loosely describing any one of a huge range of polymers (a chain of smaller molecules). The chemical composition of these polymers, the additives they contain and even the way in which they are shaped all affect how they can be recycled.

For example, plastic shopping bags are generally made of low-density polyethylene, while the camera lens in your mobile phone is likely to be made of polycarbonate – a very different kind of plastic. The wide range of types of plastic means there is no one-size-fits-all solution when it comes to recycling.

Plastics are made of a great variety of chemical substrates, tailored for thousand of specific uses. This complexity makes reusing plastics extremely challenging.

Type	Demand		Packaging uses	Non-packaging uses
 PET	24%		Beverage bottles (Transparent)	Seat belts, Apparel
 HDPE	14%		Milk/Shampoo bottles (Opaque)	Water pipe, Dust bins
 PVC	14%		Cosmetic Containers, Oil/Cleansing products, Cling film	Window sheet, Water pipe, Electrical insulation
 LDPE	17%		Plastic bags, Bins bags, Film inside packages	Toys, Buckets, Electrical insulation
 PP	23%		Straws, Ice cream tubs	Consumer electronics, Textiles, Auto parts
 PS	6%		Disposable cups, Protective packaging	Cutlery, Appliances

Bio-based plastics

These are produced from biomass sources such as corn or woodchips instead of petrochemicals based on oil or natural gas. However, bio-based plastics are not necessarily biodegradable. What's more, bioplastics from traditional sources such as corn or sugar could put significant strain on land resources.

Biodegradable

This refers to a compound's ability to be broken down into smaller molecules such as CO₂, methane and water through the action of micro-organisms. Many plastics are not biodegradable. If they were, they would not be as useful as they are in applications such as wrapping food.

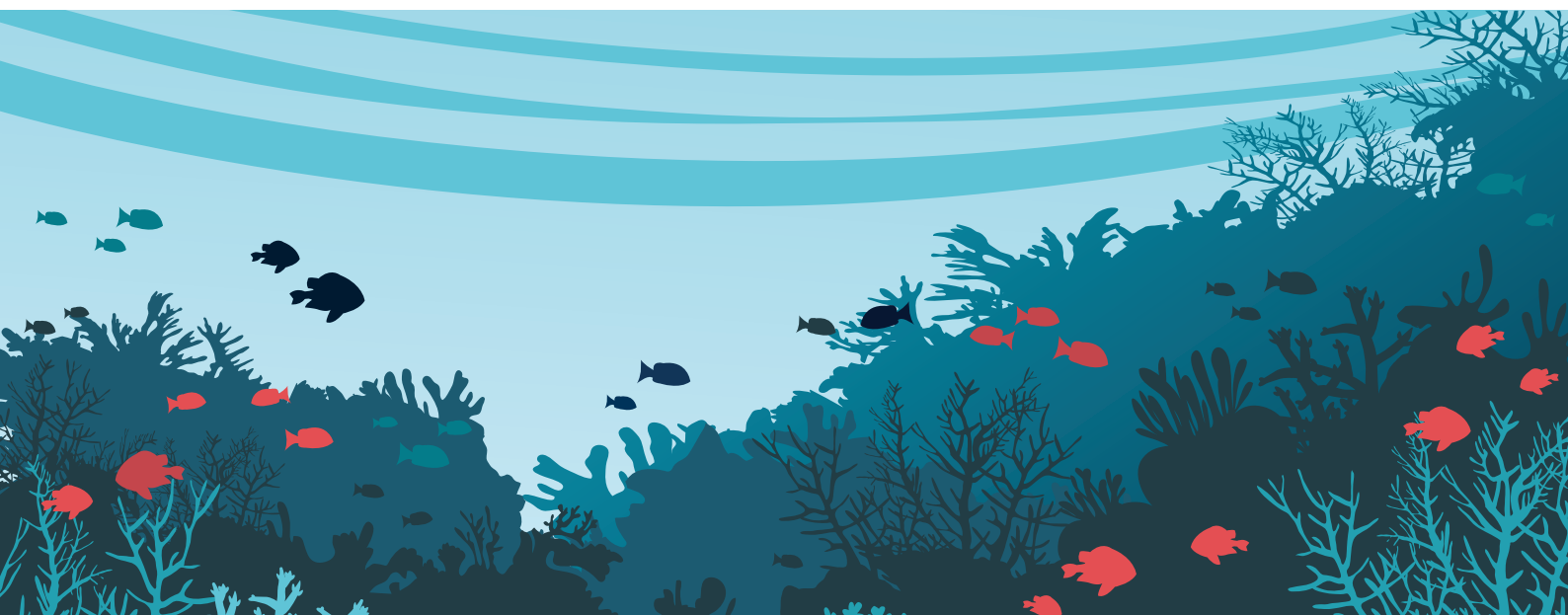
Soil degradability: biodegrading at ambient temperature in the soil. This does not necessarily mean that such a chemical is compostable and you could put it on your garden as the plastic could still release harmful toxins during the decomposition process.

Marine degradability: refers to the ability of a plastic to be decomposed into safe bio-based compounds in the ocean. Producing such plastics while maintaining their ability to protect food represents a major challenge.

We're flagging these definitions to highlight that there is no silver bullet to the plastic problem. Plastics play an integral role in our everyday lives and cannot simply be phased out. Every year, 47kg of plastics is produced for every person on the planet, and they have very important end uses from an environmental perspective. For example, they help keep food fresh, hence reducing food waste, while their light weight can help minimise carbon emissions linked to transport.



"Plastics play an integral role
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The world's response

Let's now consider some major governments' efforts to increase plastic recycling.

China: the world's biggest generator of plastic waste recently published a new five-year plan to reduce plastic pollution. The plan includes measures and targets to cut the production and use of plastics, promote bio-based and degradable alternatives, improve recycling and reduce the amount of plastic sent to landfill.

EU: the European Union has set targets of recycling 50% of plastic packaging by 2025 and 55% by 2030. Currently, it's around 42%.

US: 17 out of 50 states have introduced at least one regulation related to plastic recycling.

India: is introducing a ban on single-use plastic products by July 2022.

But it's not just governments that are getting involved – many companies are also taking steps to reduce single-use plastics and increase recycled content in their packaging. Over 500 firms, including Nestlé, PepsiCo and Unilever, have signed up to an initiative stating that 100% of plastic packaging should be reusable, recyclable or compostable by 2025.

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The importance of recycling

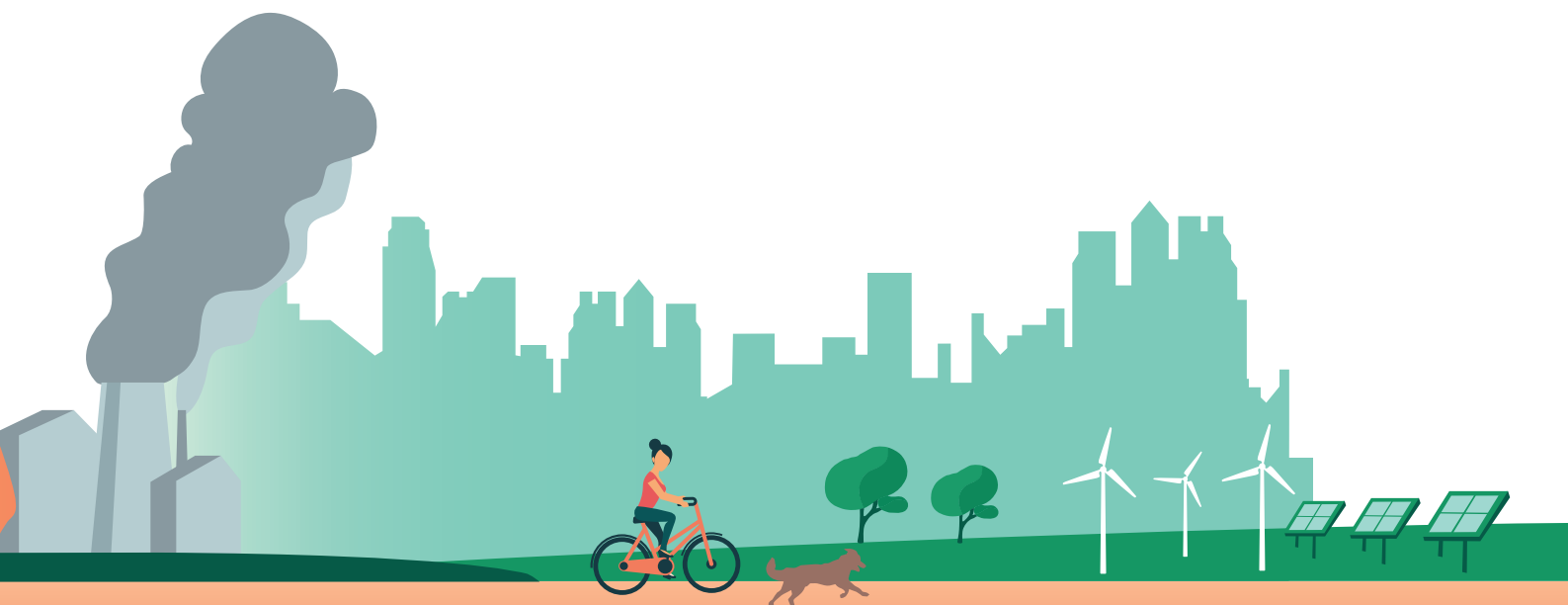
We don't believe the world can suddenly stop using plastic, or that bioplastics will be the immediate, or even ultimate, solution. We therefore view recycling as a hugely important part of the solution to plastic waste. Indeed, some reports suggest that 60% of all plastic will be recycled by 2050 – representing a huge potential growth opportunity for companies involved in the supply chain.

Below we outline some of the key recycling technologies that we believe will play an increasingly important role in the world's attempts to reduce plastic waste and reduce carbon emissions from plastic production.

Mechanical recycling: the vast majority of plastic recycling today is mechanical, but it is currently only really used for two types of plastic – PET and HDPE – which make up just 37% of all plastic waste.

Chemical recycling: this involves various chemical, thermal or catalytic processes that break down the structure of the waste plastic to produce a range of end-products.

- **Depolymerisation:** reversing the polymerisation process through a chemical reaction, turning the waste plastic into its precursor molecules (monomers), which can then be made into plastics again. Depolymerisation can only be applied to PET, polyamides and polyurethanes.
- **Pyrolysis:** waste plastics are broken down into a range of basic hydrocarbons by heating the waste stream in the absence of oxygen. The end-products can be used to make new plastics. This process does not need to use a single kind of waste plastic, and can handle impurities and additives in the waste stream.
- **Gasification:** waste plastics are heated to a very high temperature in the presence of a limited amount of oxygen. The resultant gases can then be used to produce a variety of chemicals such as methanol, ammonia, hydrocarbons and acetic acid. This process can be applied to any plastics.
- **Hydrothermal treatment:** uses water at high pressures and temperatures to break down waste plastics. This process is useful for treating carbon-fibre-reinforced plastics and printed circuit boards.



The Environmental Strategies Group

Our Environmental Strategies Group is an experienced team of thematic investors, led by Ulrik Fugmann and Edward Lees, who have in-depth understanding of businesses, industries and technologies in the environmental sphere. The team consists of portfolio managers, research analysts, investment specialists and a quantitative analyst. They benefit from access to our Sustainability Centre, Quantitative Research Group and global risk and trading platform.



“Plastic recycling represents a huge potential growth opportunity for companies involved in the supply chain”



Ulrik Fugmann

Co-Head & Senior PM
Environmental Strategies Group



Edward Lees

Co-Head & Senior PM
Environmental Strategies Group

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This piece was released in November 2021. It pertains to the investment update of our Environmental Strategies Group issued in October 2021.

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