ROBECO
The Investment Engineers

Robeco Trends & Thematic Investing

The New Energy Landscape: Creating clean joules from disruptive jolts

Sustainable Investing Expertise by ROBECOSAM

Investment opportunity

For professional investors

Roman Boner, Senior Portfolio Manager

RobecoSAM Smart Energy Equities

- Renewables will be the new ‘petroleum’ fueling 21st century innovation and growth
- Carbon pricing, stricter regulations, favorable financing, and lower costs bolster clean and efficient energy solutions
- Beyond renewables, a successful energy transition requires investments across the entire energy value chain

Contents

Executive summary

The energy sector is undergoing a once-in-a-century transition to a new energy source that will require a new energy infrastructure. The Smart Energy Equities strategy invests in companies across the energy value chain that are enabling the transformation of energy towards a net zero future.

The energy sector is at a once-in-a-century crossroads. The climate crisis means 20th century energy fuels are unable to meet society's need for robust and sustainable economic growth. An energy shift is mission critical.

Shifts in energy sourcing can be destructive and disruptive, but they are also necessary and constructive. As previous energy shifts have shown, they provide powerful jolts that ignite joules of energy that stimulate innovative technologies and applications across industries. As a result, new players, industries and business models emerge that drive economic growth and increase wealth and well-being.

We have entered a new century of energy that is being shaped and propelled by 21st century forces impacting energy supply and demand: the danger of carbon emissions, the rising demand for electricity, and the promise of a dynamic, digitalized and hyper-connected economy.

The energy sector accounts for 75% of global emissions making it by far the single largest contributor to climate change and the central focus of decarbonization and climate action for governments, companies and investors.

Switching from polluting fossil fuels to renewable energy such as wind and solar is the only way forward. Moreover, the electrification of demand-side applications will enable the expansion of renewables across the entire economy.

Beyond supportive policies and financing, technological advances mean renewable energy sources are now cost competitive with traditional fuels. Solar has become the cheapest source of electricity in history and renewable capacity is expanding faster than any other type of energy.

However, there is still a long way to go. The net zero trajectory requires annual investment in clean energy to reach USD 4 trillion by 2030, more than triple current levels.

Moreover, current investments in clean energy generation will not be sufficient either.

Increasing global populations, urbanization, electrification and digitalization mean energy and electricity demand will continue to rise. To ensure clean electricity can match demand without reverting back to fossil fuels, society's energy intensity on the demand side must be reduced. Technologies that target energy-efficient conversions, transfers and end consumption will be critical to maintaining stable energy supplies without jeopardizing climate targets or compromising industry growth.

Finally, these supply and demand solutions must be accompanied by a dynamic and flexible electrical grid that can efficiently source, convert and distribute energy from an increasingly decentralized network of energy users and producers. The need for smart grid infrastructure is underscored by the fact that by 2050 investments in energy infrastructure will far exceed investments in energy generation.

From better semiconducting materials in electronics to better insulation materials in buildings, and from increasing automation in manufacturing to electrifying cars and transport, the Smart Energy strategy invests in clean and energy-efficient solutions across the energy value chain that are accelerating the transition to a net zero future.

'The energy sector is at a once-in-a-century crossroads'

Why energy?

For nearly two centuries, energy and economic growth have moved in lockstep as society discovered and harnessed the power of new energy sources.

Harnessing the power of energy for economic growth

The first industrial revolution used the energy potential of water and wheels to mechanize the manufacturing of textiles, food and tools. Soon after, manufacturers harnessed the power of carbon-rich coal, ushering in a new era of raw material processing for the machines, buildings and railway lines of an expanding 19th century economy.

At the end of the 19th century, advances in electromagnetism and electrochemistry ultimately led to the diffusion of wires and electric currents that lit cities, channeled radio waves and led to society's first great electrification. During this same period, liquified petroleum products gained significance as the preferred energy source for an emerging automotive industry, supercharging a global dependency that has lasted more than a century. Moreover, the use of petroleum as a feedstock for plastics meant its economic dominance continued to expand through the end of the 20th century.

Throughout history, energy sources have evolved in step with scientific advances and society's need for growth and expansion. Newer sources beat predecessors based on their ability to offer more power, convenience and flexibility. The disastrous impacts of climate change necessitate the addition of one more performance capability to the list: today's energy sources must also be clean. As a result, renewables will ultimately replace fossil fuels as the dominant energy source of the 21st century.

A variety of forces are pressuring energy markets

The urgency of climate change

Energy use and economic growth have come at the expense of environmental health. The energy sector accounts for 75% of global emissions, making it by far the single largest contributor to climate change. From COP 21 through COP 26, global summits have clearly demonstrated a consensus for decarbonizing the world's economies.

Clean energy and renewables

The shift to renewably produced electricity has been underway since the early 2000s as solar and wind power costs declined. That trend continues and has accelerated in the last five years. Renewables are the fastest-growing energy source. In 2020, despite declines for other types of energy fuels, renewable capacity grew, marking the highest year-on-year increase in nearly two decades.

In markets around the globe, including the US, Europe and China, solar power has become the lowest cost option for electricity generation. The International Energy Agency (IEA) even proclaimed solar PV the cheapest source of electricity in history.

Moreover, onshore and offshore wind are also benefitting from lower costs of capital and favorable financing, further propelling capacity expansions that increase scale and lower prices. Still, there is a long way to go. According to the IEA, the share of wind and solar PV in electricity generation must expand to almost 70% by 2050, compared with an average of just under 10% today.

The net zero trajectory requires annual investment in clean energy to reach USD 4 trillion by 2030, more than triple current levels. Though near-term investment costs are high, they are more than compensated by the future reward. In its Energy Outlook from 2020, the IEA estimated the combined market size of wind turbines, solar panels and electrification technologies (e.g., lithium-ion batteries, electrolyzers and fuel cells) to be worth USD 27 trillion through 2050.

'The net zero trajectory requires annual investment in clean energy to reach USD 4 trillion by 2030, more than triple current levels'

Reducing energy intensity, raising energy efficiency

Green is great and needed to reduce carbon intensity, but it's still not enough to hit net zero. It must be accompanied by reducing energy intensity. Rising demand for electricity will place strains on renewable energy sources. To reduce this strain on clean energy without reverting to fossil fuels, the world must reduce its energy intensity. That means using less energy to accomplish the same amount of work. For national economies, this means using less energy to achieve the same level of GDP growth.

The prolific growth of the internet, big data and digitalization means electricity demand will continue to accelerate. Demand will further rise with the electrification of transport and building sectors. Electricity's share of total energy is expected to grow from 20% in 2020 to 50% by

2050. The rapid deployment of energy-efficient solutions is mission critical to lowering electricity use so that demand doesn't exceed green supplies.

Industry currently accounts for 40% of global energy consumption (second only to power generation) and hence is a hotbed for energy-efficient solutions. These solutions can range from the ordinary (LED lighting and household appliances) to the heavy-duty (industrial-sized air compressors, heat exchangers and power drives) to the sophisticated (semiconductors materials that reduce switching losses in electronic devices). Moreover, the proliferation of automated sensors, digital twins and other energy monitoring and management systems that cut across industries is also helping reduce energy waste.

Figure 1 | Watts saved are emission avoided

Energy-efficient solutions in industrial facilities, residential homes and commercial buildings are also critical to cutting energy demand and lowering carbon emissions.

Source: iStock by Getty

Efficiency gains from insulation of buildings and electronic systems are also helping to maximize the energy efficiency of wind turbines, solar PVs and other renewable plants and equipment. The IEA estimates that investing in higher efficiency could halve future energy demand as well as reduce operational costs by USD 3 trillion through 2050.

Electrification of buildings and transport

Electrification is a critical component of strategies to reduce energy demand, decarbonize economies and enable the uptake and expansion of emission-free energy throughout the economy. Currently, electricity powers around 20% of the global economy while fossil fuels cover the rest. But meeting net zero by 2050 requires these statistics to flip. Electrifying processes that currently rely on combustion fuels will be key in making the transition over the next three decades.

Outside of power generation and industrial processes, transportation and building are the most carbon-intensive and fossil-dependent sectors in the economy. As a result, they are prime targets in national strategies to decarbonize through electrification.

The transportation sector is responsible for 24% of direct CO2 emissions from the combustion of petroleum-based fuels. Advances in battery technologies have enabled the electrification of passenger mobility, a market still heavily reliant on liquid petroleum. Not only does the switch to electric reduce fossil fuel use, it also increases energy efficiency. Today's electric cars use an average of 70% less energy to travel one kilometer than a conventional ICE, making them three to four times more energy efficient.

Today's building sector accounts for almost one-third of total final energy consumption and 30% of carbon emissions when electricity and heat are included. The deployment of electric heat pumps is an effective solution for lowering building emissions. And given they are three to four times more energy efficient than conventional boilers, they also reduce energy demand and lower operational costs.

Smart grids – new generation and distribution systems

Reducing emissions in energy generation through renewables and in end-use applications is critical, but so too is greening transmission and distribution systems that carry, convert and deliver energy. As modes of energy production and energy use change, the energy grid that links them must also adapt.

The utility grid of the past was organized around a centralized, monopolistic model dominated by fossil fuels. But this century-old architecture together with its legacy equipment will need to be completely overhauled to accommodate new sources of fuel via solar and wind, new generation capacity from end users, and increased variability in energy demand and supply. As a result, 21st century energy networks must be efficient, dynamic, interactive, and flexible.

Despite being carbon-free, renewables are not problem free. On cloudy or windless days, little no energy is produced from solar cells and wind farms, making power generation intermittent and less reliable than traditional coal and gas sources. These conditions can change not only from season to season but also from day to day and hour to hour. In the future, network distributors must shift to utility-scale batteries and make use of low-carbon natural gas and green hydrogen solutions to solve the long-term storage issues and ensure system stability.

Moreover, rooftop solar and battery storage from millions of electric vehicles mean households, communities, commercial buildings, industrial complexes and even charging infrastructure for transportation networks are becoming decentralized sources of energy generation. Smarter power grids are needed to adapt to these new realities. Digital technologies will play crucial roles in integrating the millions of new nodes and new flows that will characterize future energy systems.

Why now?

There's no time to waste. The world is warming, regulations are tightening, technologies are scaling, and markets are shifting towards a low-carbon reality.

Heightened urgency for clean energy supplies
Recent data models from the IPCC reveal we are on track to hit a catastrophic 2.7°C temperate increase rather than the agreed 1.5°C. More powerful perhaps than the technical data is however the destructive impact of climate change we're witnessing almost daily around the globe. Whether empirical or anecdotal, all evidence points to a world that is not racing fast enough to net zero.

Though compared with Paris, the COP26 outcomes were not momentous, they did reveal momentum. Moreover, the COP summits have helped galvanize public awareness and political peer pressure, key tools for effective change. Countries and companies reaffirmed pledges and outlined policy pathways that will reshape long-standing supply chains across sectors, creating winners and losers along the way. This is nowhere more evident than in energy markets where weather extremes, energy policies and consumer demand are already creating volatilities for market participants.

The current crisis is a harbinger of things to come and emphasizes the dire need to accelerate investments in renewable capacity and energy storage infrastructure as well as energy-efficient solutions that temper energy demand. It also emphasizes the limitations of a 20th century energy grid that is ill-equipped to meet the dynamic energy demands of our 21st century society. The good news is that mature solutions are on the scene, and more are in end-stage development.

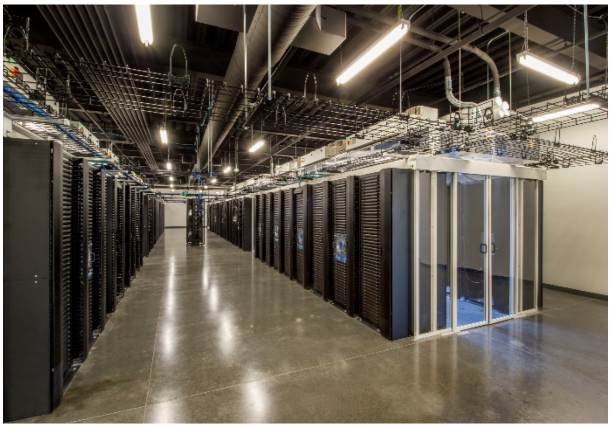
Climate solutions are gaining momentum
From solar cells and wind turbines to electric vehicles and heat pumps, the cost of clean technologies is falling dramatically compared with traditional products and clean solutions are scaling in markets around the globe. In 2020, renewables accounted for 90% of net power capacity expansion globally.

EV uptake is also increasing. With more than three million cars sold, the global EV market reached 4.3% of global auto sales in 2020 and is showing no signs of abating in 2021. Global penetration rates were around 8% through the first half of 2021 and in Europe, the third quarter marked the first time EVs outsold diesel vehicles.

The global stock of heat pumps has increased 10% annually over the past five years and will shoot higher as green building mandates for new and existing buildings across residential, commercial and industrial market segments around the world take effect.

These trends impact not only the built environment but also big tech. As digitalization expands and connectivity densifies, more data is being processed and more heat is being generated. As a result, data centers housing giant networks of servers spanning millions of square meters globally are investing in state-of-the-art cooling systems to protect heat-sensitive electrical components and avoid network meltdowns. Moreover, to decrease the heat generated by microchips and electrical equipment, big tech and big industry are investing in hyper-efficient materials which help reduce transistor temperatures and enhance processing performance.

Figure 2 | Cleaning the data



Servers at a data center farm. Cutting-edge semiconducting materials on the inside of electrical equipment and efficient cooling systems on the outside are helping reduce energy use and data's carbon footprint as electrification and digitization expand across sectors.

Source: iStock by Getty

Government action is supporting clean energy markets
More policies are on the horizon that will further boost clean tech and infrastructure in major markets. Through the next decade, the US will spend USD 73 billion to modernize and decarbonize its power grid via investments in clean renewables, USD 7.5 billion for EV charging infrastructure, and another USD 7.5 billion for clean buses.

China's National Energy Administration has set a further target for renewables to account for half of the country's installed capacity by 2025 as well as proposed raising minimum companies' renewable energy purchases to 40% by 2030.

Perhaps the most powerful piece of policy that will promote clean and lower carbon technologies is carbon pricing regimes. As part of its net zero pathway, the EU expanded its Emissions Trading System (ETS) to include more sectors, and over time will increasingly reduce the number of carbon permits available to companies across the market.

That means the cost of polluting and the cost of capital will inevitably rise, squeezing profits for not only fossil fuel producers but also companies that have failed to invest in low carbon and energy-efficient solutions. In parallel, producers of renewables and emissions-reducing technologies will become increasingly more attractive.

'the cost of polluting and the cost of capital will inevitably rise, squeezing profits for not only fossil fuel producers but also companies that have failed to invest in low carbon and energy-efficient solutions'

Abundant private sector financing available

While public policies are potent, momentum in the private sector is also gaining traction. The UN Global Compact and Race to Zero campaigns are mobilizing corporate action and commitments to limit global warming to 1.5°C. As of COP26, 1,045 companies representing more than USD 23 trillion in market capitalization have signed and agreed to invest in the tools and strategies needed to reach net zero by 2050.

Financial capital too should flow more freely to companies focused on net zero alignment. The Glasgow Financial Alliance for Net Zero (GFANZ) led by former Bank of England governor Mark Carney, represents the commitment of 450 global financial institutions with 130 trillion in assets which are geared towards boosting investment and bringing green solutions to the market.

Why RobecoSAM Smart Energy?

The RobecoSAM Smart Energy Equities strategy invests in the transformation of the entire energy sector towards a low-carbon future.

A comprehensive approach

Net zero requires more than the switch from fossil fuels to clean renewables. Clean energy production, electrification, energy efficient consumption and smart power grids are just a few areas across the energy value chain that will experience rapid growth as industries and economies shift to low-carbon operating environments.

The RobecoSAM Smart Energy Equities strategy (the Strategy) invests across these key growth themes, focusing specifically on the electrification of road transport, the built environment and some industrial processes.

Moreover, in the coming decades, as more and more sectors electrify, demand for electricity will skyrocket. To ensure there is sufficient clean energy to match increased electricity consumption, the Strategy invests in state-of-the-art semiconducting materials and power management devices that efficiently capture, convert and distribute energy within and between electronic devices. As a result, the energy and carbon intensity of end-use applications is reduced, and system stability is ensured over the long term.

Finally, the Strategy invests in technologies that enable efficient digitalized smart grids that distribute clean energy supplies across a network of decentralized energy suppliers and users.

Figure 3 | Investment clusters

Renewable energies – Companies that provide critical equipment, supplies and services to support the generation and distribution of renewable energy, including solar cells, on and offshore wind turbines, and pure-play renewable operators.

Energy distribution – Companies providing the infrastructure, equipment and software solutions to enable the digitization and decentralization of the energy grid (smart grids) so that energy supplies and demand can be efficiently matched.

Energy management – Companies providing the semiconducting technologies to enable the safe capture, conversion and distribution of energy to and between digital devices (solar panels to grid electricity, high to low voltage environments, etc.) and energy storage capacity via batteries.

Energy efficiency – Companies enabling the decarbonization of heavy-emitting industries such as transportation via EVs and connective technologies (5G, embedded sensors), buildings/construction via energy-saving insulation and the electrification of heating and ventilation, as well as more energy-efficient data-processing across the digital economy.

Actively managed, sustainably driven

The Smart Energy strategy is supported by an investment team with deep knowledge and diverse experience across energy, transportation and mobility, semiconductors and software systems, chemicals and materials, in addition to finance, economics and investing.

The investment team collaborates closely with Robeco's SI Research team. The SI team is organized by sector and therefore able to offer specialized expertise on sustainability trends and issues affecting industries and their constituent companies. Our SI analysts also carry out in-depth assessments on sector and company ESG performance as well as their impact on the UN SDGs. SI inputs are integrated into portfolio-specific investment decisions and help inform future investment strategies.

Since inception in 2003, the Strategy's assets have grown to nearly EUR 3.6 billion as of 31. October 2021.

Table 1 | Smart Energy strategy track record[1]

	1 year	**3 years**	**5 years**	**Since inception (2003)**
RobecoSAM Smart Energy Equities	54.96%	37.37%	25.21%	12.68%
MSCI World Index TRN	41.35%	17.37%	14.21%	9.29%
Relative performance	13.62%	19.99%	11.00%	3.39%

Annualized performance of the RobecoSAM Smart Energy Equities strategy. Gross of fees, EUR. Source: Robeco. Data as of 31 Oct 2021.

Moreover, the Strategy takes a long-term view and uses future sustainability risks and opportunities to help evaluate a company's value proposition for society and investors. Companies whose dominant revenues stem from products that are questionable, controversial or incompatible with the Strategy's sustainable principles are excluded.

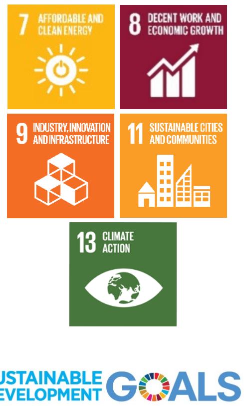
Promoting SDGs

The Strategy invests in companies creating long-term value for stakeholders in society, not just shareholders of stock. These companies contribute directly to multiple SDGs, including affordable and clean energy, decent work and economic growth, industry innovation and infrastructure, sustainable cities and communities and climate action.

Article 9

The fund has been classified as an Article 9 investment under the EU's Sustainable Finance Disclosure Regulation (SFDR).

Figure 4 | Strategy-related SDGs [2]



Source: Robeco, UN Sustainable Development Goals
Data as of September 2021.

In addition, Robeco has successfully developed a proprietary tool that scores companies in the thematic universe based on the strength of their contributions to theme-relevant SDGs. Companies which detract from SDG targets are excluded from the portfolio.

Finally, the Strategy benefits from the voting and engagement activities of Robeco's Active Ownership team, which drives awareness, education and action among and within companies on the risks and opportunities of addressing sustainability issues within their operations and markets.

For more information, please contact your Robeco Sales Manager or our Client Servicing team at rs-clientservicing@robeco.com.

[1] Source: Robeco. Performance since inception is as of the first full month. The currency in which the past performance is displayed may differ from the currency of your country of residence. Due to exchange rate fluctuations the performance shown may increase or decrease if converted into your local currency. Periods shorter than one year are not annualized. The value of your investments may fluctuate. Past performance is no guarantee of future results. Returns gross of fees, based on gross asset value. Values and returns indicated here are before cost; neither consider the management fee as well as other administration costs related to the fund nor the fees and costs which may be charged when subscribing, redeeming and/or switching units. These have a negative effect on the returns shown. 1 first performance date: 30.09.2003. Effective October 29th 2020, selected RobecoSAM equity funds were merged onto the RCGF SICAV platform and received new inception dates, share classes, and ISIN codes. All performance prior to the RCGF SICAV merger on October 29th 2020, has been calculated based on the investment policies, fees, and share classes of the respective sub-fund under the previous SICAV.

[2] The SDGs listed are not exhaustive, have been prioritized based on strength of impact and the overarching goals of the Smart Materials Equities strategy over the long term. A complete reporting of SDGs associated with the Strategy can be obtained upon request.

Important Information

Robeco Institutional Asset Management B.V. has a license as manager of Undertakings for Collective Investment in Transferable Securities (UCITS) and Alternative Investment Funds (AIFs) ("Fund(s)") from The Netherlands Authority for the Financial Markets in Amsterdam. This marketing document is solely intended for professional investors, defined as investors qualifying as professional clients, have requested to be treated as professional clients or are authorized to receive such information under any applicable laws. Robeco Institutional Asset Management B.V and/or its related, affiliated and subsidiary companies, ("Robeco"), will not be liable for any damages arising out of the use of this document. Users of this information who provide investment services in the European Union have their own responsibility to assess whether they are allowed to receive the information in accordance with MiFID II regulations. To the extent this information qualifies as a reasonable and appropriate minor non-monetary benefit under MiFID II, users that provide investment services in the European Union are responsible to comply with applicable recordkeeping and disclosure requirements. The content of this document is based upon sources of information believed to be reliable and comes without warranties of any kind. Without further explanation this document cannot be considered complete. Any opinions, estimates or forecasts may be changed at any time without prior warning. If in doubt, please seek independent advice. It is intended to provide the professional investor with general information on Robeco's specific capabilities but has not been prepared by Robeco as investment research and does not constitute an investment recommendation or advice to buy or sell certain securities or investment products and/or to adopt any investment strategy and/or legal, accounting or tax advice. All rights relating to the information in this document are and will remain the property of Robeco. This material may not be copied or used with the public. No part of this document may be reproduced or published in any form or by any means without Robeco's prior written permission. Investment involves risks. Before investing, please note the initial capital is not guaranteed. Investors should ensure that they fully understand the risk associated with any Robeco product or service offered in their country of domicile. Investors should also consider their own investment objective and risk tolerance level. Historical returns are provided for illustrative purposes only. The price of units may go down as well as up and the past performance is not indicative of future performance. If the currency in which the past performance is displayed differs from the currency of the country in which you reside, then you should be aware that due to exchange rate fluctuations the performance shown may increase or decrease if converted into your local currency. The performance data do not take account of the commissions and costs incurred on trading securities in client portfolios or on the issue and redemption of units. Unless otherwise stated, the prices used for the performance figures of the Luxembourg-based Funds are the end-of-month transaction prices net of fees up to 4 August 2010. From 4 August 2010, the transaction prices net of fees will be those of the first business day of the month. Return figures versus the benchmark show the investment management result before management and/or performance fees; the Fund returns are with dividends reinvested and based on net asset values with prices and exchange rates of the valuation moment of the benchmark. Please refer to the prospectus of the Funds for further details. Performance is quoted net of investment management fees. The ongoing charges mentioned in this document are the ones stated in the Fund's latest annual report at closing date of the last calendar year. This document is not directed to or intended for distribution to or use by any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, document, availability or use would be contrary to law or regulation or which would subject any Fund or Robeco Institutional Asset Management B.V. to any registration or licensing requirement within such jurisdiction. Any decision to subscribe for interests in a Fund offered in a particular jurisdiction must be made solely on the basis of information contained in the prospectus, which information may be different from the information contained in this document. Prospective applicants for shares should inform themselves as to legal requirements also applying and any applicable exchange control regulations and applicable taxes in the countries of their respective citizenship, residence or domicile. The Fund information, if any, contained in this document is qualified in its entirety by reference to the prospectus, and this document should, at all times, be read in conjunction with the prospectus. Detailed information on the Fund and associated risks is contained in the prospectus. The prospectus and the Key Investor Information Document for the Robeco Funds can all be obtained free of charge at www.robeco.com.

Additional Information for US investors

Robeco is considered "participating affiliated" and some of their employees are "associated persons" of Robeco Institutional Asset Management US Inc. ("RIAM US") as per relevant SEC no-action guidance. Employees identified as associated persons of RIAM US perform activities directly or indirectly related to the investment advisory services provided by RIAM US. In those situations these individuals are deemed to be acting on behalf of RIAM US, a US SEC registered investment adviser. SEC regulations are applicable only to clients, prospects and investors of RIAM US. RIAM US is wholly owned subsidiary of ORIX Corporation Europe N.V. and offers investment advisory services to institutional clients in the US.

Additional Information for investors with residence or seat in Australia and New Zealand

This document is distributed in Australia by Robeco Hong Kong Limited (ARBN 156 512 659) ("Robeco"), which is exempt from the requirement to hold an Australian financial services license under the Corporations Act 2001 (Cth) pursuant to ASIC Class Order 03/1103. Robeco is regulated by the Securities and Futures Commission under the laws of Hong Kong and those laws may differ from Australian laws. This document is distributed only to "wholesale clients" as that term is defined under the Corporations Act 2001 (Cth). This document is not for distribution or dissemination, directly or indirectly, to any other class of persons. In New Zealand, this document is only available to wholesale investors within the meaning of clause 3(2) of Schedule 1 of the Financial Markets Conduct Act 2013 ('FMCA'). This document is not for public distribution in Australia and New Zealand.

Additional Information for investors with residence or seat in Austria

This information is solely intended for professional investors or eligible counterparties in the meaning of the Austrian Securities Oversight Act.

Additional Information for investors with residence or seat in Brazil

The Fund may not be offered or sold to the public in Brazil. Accordingly, the Fund has not been nor will be registered with the Brazilian Securities Commission – CVM, nor has it been submitted to the foregoing agency for approval. Documents relating to the Fund, as well as the information contained therein, may not be supplied to the public in Brazil, as the offering of the Fund is not a public offering of securities in Brazil, nor may they be used in connection with any offer for subscription or sale of securities to the public in Brazil.

Additional Information for investors with residence or seat in Canada

No securities commission or similar authority in Canada has reviewed or in any way passed upon this document or the merits of the securities described herein, and any representation to the contrary is an offence. Robeco Institutional Asset Management B.V. is relying on the international dealer and international adviser exemption in Quebec and has appointed McCarthy Tétrault LLP as its agent for service in Quebec.

Additional information for investors with residence or seat in the Republic of Chile

Neither Robeco nor the Robecofunds have been registered with the *Comisión para el Mercado Financiero* pursuant to law no. 18.045, the *Ley de Mercado de Valores* and regulations thereunder. This document does not constitute an offer of, or an invitation to subscribe for or purchase, shares of the Funds in the Republic of Chile, other than to the specific person who individually requested this information on his own initiative. This may therefore be treated as a "private offering" within the meaning of article 4 of the *Ley de Mercado de Valores* (an offer that is not addressed to the public at large or to a certain sector or specific group of the public).

Additional Information for investors with residence or seat in Colombia

This document does not constitute a public offer in the Republic of Colombia. The offer of the Fund is addressed to less than one hundred specifically identified investors. The Fund may not be promoted or marketed in Colombia or to Colombian residents, unless such promotion and marketing is made in compliance with Decree 2555 of 2010 and other applicable rules and regulations related to the promotion of foreign Funds in Colombia.

Additional Information for investors with residence or seat in the Dubai International Financial Centre (DIFC), United Arab Emirates

This material is being distributed by Robeco Institutional Asset Management B.V. (DIFC Branch) located at Office 209, Level 2, Gate Village Building 7, Dubai International Financial Centre, Dubai, PO Box 482060, UAE. Robeco Institutional Asset Management B.V. (DIFC Branch) is regulated by the Dubai Financial Services Authority ("DFSA") and only deals with Professional Clients or Market Counterparties and does not deal with Retail Clients as defined by the DFSA.

Additional Information for investors with residence or seat in France

Robeco Institutional Asset Management B.V. is at liberty to provide services in France. Robeco France is a subsidiary of Robeco whose business is based on the promotion and distribution of the group's funds to professional investors in France.

Additional Information for investors with residence or seat in Germany

This information is solely intended for professional investors or eligible counterparties in the meaning of the German Securities Trading Act.

Additional Information for investors with residence or seat in Hong Kong

The contents of this document have not been reviewed by the Securities and Futures Commission ("SFC") in Hong Kong. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice. This document has been distributed by Robeco Hong Kong Limited ("Robeco"). Robeco is regulated by the SFC in Hong Kong.

Additional Information for investors with residence or seat in Italy

This document is considered for use solely by qualified investors and private professional clients (as defined in Article 26 (1) (b) and (d) of Consob Regulation No. 16190 dated 29 October 2007). If made available to Distributors and individuals authorized by Distributors to conduct promotion and marketing activity, it may only be used for the purpose for which it was conceived. The data and information contained in this document may not be used for communications with Supervisory Authorities. This document does not include any information to determine, in concrete terms, the investment inclination and, therefore, this document cannot and should not be the basis for making any investment decisions.

Additional Information for investors with residence or seat in Japan

These documents are considered for use solely by qualified investors and are being distributed by Robeco Japan Company Limited, registered in Japan as a Financial Instruments Business Operator, [registered No. the Director of Kanto Local Financial Bureau (Financial Instruments Business Operator), No, 2780, Member of Japan Investment Advisors Association].

Additional Information for investors with residence or seat in Mexico

The funds have not been and will not be registered with the National Registry of Securities, maintained by the Mexican National Banking and Securities Commission and, as a result, may not be offered or sold publicly in Mexico. Robeco and any underwriter or purchaser may offer and sell the funds in Mexico on a private placement basis to Institutional and Accredited Investors, pursuant to Article 8 of the Mexican Securities Market Law.

Additional Information for investors with residence or seat in Peru

The Fund has not been registered with the Superintendencia del Mercado de Valores (SMV) and is being placed by means of a private offer. SMV has not reviewed the information provided to the investor. This document is only for the exclusive use of institutional investors in Peru and is not for public distribution.

Additional Information for investors with residence or seat in Shanghai

This material is prepared by Robeco Overseas Investment Fund Management (Shanghai) Limited Company ("Robeco Shanghai") and is only provided to the specific objects under the premise of confidentiality. Robeco Shanghai was registered as a private fund manager with the Asset Management Association of China in September 2018. Robeco Shanghai is a wholly foreign-owned enterprise established in accordance with the PRC laws, which enjoys independent civil rights and civil obligations. The statements of the shareholders or affiliates in the material shall not be deemed to a promise or guarantee of the shareholders or affiliates of Robeco Shanghai or be deemed to any obligations or liabilities imposed to the shareholders or affiliates of Robeco Shanghai.

Additional Information for investors with residence or seat in Singapore

This document has not been registered with the Monetary Authority of Singapore ("MAS"). Accordingly, this document may not be circulated or distributed directly or indirectly to persons in Singapore other than (i) to an institutional investor under Section 304 of the SFA, (ii) to a relevant person pursuant to Section 305(1), or any person pursuant to Section 305(2), and in accordance with the conditions specified in Section 305, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA. The contents of this document have not been reviewed by the MAS. Any decision to participate in the Fund should be made only after reviewing the sections regarding investment considerations, conflicts of interest, risk factors and the relevant Singapore selling restrictions (as described in the section entitled "Important Information for Singapore Investors") contained in the prospectus. You should consult your professional adviser if you are in doubt about the stringent restrictions applicable to the use of this document, regulatory status of the Fund, applicable regulatory protection, associated risks and suitability of the Fund to your objectives. Investors should note that only the sub-Funds listed in the appendix to the section entitled "Important Information for Singapore Investors" of the prospectus ("Sub-Funds") are available to Singapore investors. The Sub-Funds are notified as restricted foreign schemes under the Securities and Futures Act, Chapter 289 of Singapore ("SFA") and are invoking the exemptions from compliance with prospectus registration requirements pursuant to the exemptions under Section 304 and Section 305 of the SFA. The Sub-Funds are not authorized or recognized by the MAS and shares in the Sub-Funds are not allowed to be offered to the retail public in Singapore. The prospectus of the Fund is not a prospectus as defined in the SFA. Accordingly, statutory liability under the SFA in relation to the content of prospectuses would not apply. The Sub-Funds may only be promoted exclusively to persons who are sufficiently experienced and sophisticated to understand the risks involved in investing in such schemes, and who satisfy certain other criteria provided under Section 304, Section 305 or any other applicable provision of the SFA and the subsidiary legislation enacted thereunder. You should consider carefully whether the investment is suitable for you. Robeco Singapore Private Limited holds a capital markets services license for fund management issued by the MAS and is subject to certain clientele restrictions under such license.

Additional Information for investors with residence or seat in Spain

Robeco Institutional Asset Management BV, Sucursal en España with identification number W0032687F and having its registered office in Madrid at Calle Serrano 47-14º, is registered with the Spanish Commercial Registry in Madrid, in volume 19.957, page 190, section 8, sheet M-351927 and with the National Securities Market Commission (CNMV) in the Official Register of branches of European investment services companies, under number 24. The investment funds or SICAV mentioned in this document are regulated by the corresponding authorities of their country of origin and are registered in the Special Registry of the CNMV of Foreign Collective Investment Institutions marketed in Spain.

Additional Information for investors with residence or seat in South Africa

Robeco Institutional Asset Management B.V is registered and regulated by the Financial Sector Conduct Authority in South Africa.

Additional Information for investors with residence or seat in Switzerland

The Fund(s) are domiciled in Luxembourg. This document is exclusively distributed in Switzerland to qualified investors as defined in the Swiss Collective Investment Schemes Act (CISA). This material is distributed by Robeco Switzerland Ltd, postal address: Josefstrasse 218, 8005 Zurich. ACOLIN Fund Services AG, postal address: Affolternstrasse 56, 8050 Zürich, acts as the Swiss representative of the Fund(s). UBS Switzerland AG, Bahnhofstrasse 45, 8001 Zurich, postal address: Europastrasse 2, P.O. Box, CH-8152 Opfikon, acts as the Swiss paying agent. The prospectus, the Key Investor Information Documents (KIIDs), the articles of association, the annual and semi-annual reports of the Fund(s), as well as the list of the purchases and sales which the Fund(s) has undertaken during the financial year, may be obtained, on simple request and free of charge, at the office of the Swiss representative ACOLIN Fund Services AG. The prospectuses are also available via the website www.robeco.ch.

Additional Information relating to RobecoSAM-branded funds / services

Robeco Switzerland Ltd, postal address Josefstrasse 218, 8005 Zurich, Switzerland has a license as asset manager of collective assets from the Swiss Financial Market Supervisory Authority FINMA. RobecoSAM-branded financial instruments and investment strategies referring to such financial instruments are generally managed by Robeco Switzerland Ltd. The RobecoSAM brand is a registered trademark of Robeco Holding B.V. The brand RobecoSAM is used to market services and products which do entail Robeco's expertise on Sustainable Investing (SI). The brand RobecoSAM is not to be considered as a separate legal entity.

Additional Information for investors with residence or seat in Liechtenstein

This document is exclusively distributed to Liechtenstein-based duly licensed financial intermediaries (such as e.g., banks, discretionary portfolio managers, insurance companies, fund of funds, etc.) which do not intend to invest on their own account into Fund(s) displayed in the document. This material is distributed by Robeco Switzerland Ltd, postal address: Josefstrasse 218, 8005 Zurich, Switzerland. LGT Bank Ltd., Herrengasse 12, FL-9490 Vaduz, Liechtenstein acts as the representative and paying agent in Liechtenstein. The prospectus, the Key Investor Information Documents (KIIDs), the articles of association, the annual and semi-annual reports of the Fund(s) may be obtained from the representative or via the website wwww.robeco.ch.

Additional Information for investors with residence or seat in the United Arab Emirates

Some Funds referred to in this marketing material have been registered with the UAE Securities and Commodities Authority (the Authority). Details of all Registered Funds can be found on the Authority's website. The Authority assumes no liability for the accuracy of the information set out in this material/document, nor for the failure of any persons engaged in the investment Fund in performing their duties and responsibilities.

Additional Information for investors with residence or seat in the United Kingdom

Robeco is subject to limited regulation in the UK by the Financial Conduct Authority. Details about the extent of our regulation by the Financial Conduct Authority are available from us on request.

Additional Information for investors with residence or seat in Uruguay

The sale of the Fund qualifies as a private placement pursuant to section 2 of Uruguayan law 18,627. The Fund must not be offered or sold to the public in Uruguay, except in circumstances which do not constitute a public offering or distribution under Uruguayan laws and regulations. The Fund is not and will not be registered with the Financial Services Superintendency of the Central Bank of Uruguay. The Fund corresponds to investment funds that are not investment funds regulated by Uruguayan law 16,774 dated September 27, 1996, as amended.