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CHIEF INVESTMENT OFFICE

Impactonomics®

Circular Economy

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How Did We Get Here?

Since the late 1700s, the world has experienced numerous industrial revolutions related to mechanization, mass production, automation and digitization. A common characteristic of all these transformations is the use of a linear production and consumption model, with the expectation that resources are extracted, transformed into useable products and then discarded. According to the United Nations Environment Programme, global resource extraction has increased over 300% in the last five decades, suggesting a rising level of consumer and corporate demand.

Multiple problems arise from this type of economic system, including significant amounts of product waste, increased pollution and greenhouse gas emissions, depletion of available land, and resource scarcity, to name a few. This infinite expansion cannot continue with the finite natural resources available. There is a need, now more than ever, for a new revolution toward a system that can both seek to mitigate prior damage and be sustainable for future use.

What Is the Circular Economy?

The "take-make-dispose" linear model of production and consumption leads to a significant utilization of resources, a continuous creation of products with a finite lifespan, and an increase in waste and pollution within the environment.[1] By 2030 based on current trends, we will need two times the Earth's resources to keep up with demand.[2] To eliminate the negative externalities associated with the present model, the idea of a circular economy is increasingly more important. The circular economy model aims to be regenerative from conception by reusing natural capital and extending the life span of products.[3] The main principles behind the circular economy are to design out waste and pollution, maintain products and materials in use, and regenerate natural processes.[4]

How Does the Circular Economy Operate?

The circular economy combines two different cycles: one centered on biodegradables and the other on the redistribution of finished goods. The biological cycle maintains

[1] McKinsey & Company, "The Circular Economy: Moving From Theory to Practice," 2016.

[2] Earth Overshoot day.org and Global Footprint Network, July 2021.

[3] McKinsey & Company, "The Circular Economy: Moving From Theory to Practice," 2016.

[4] Ellen MacArthur Foundation.

AUTHORED BY:

Chief Investment Office

INVESTMENT IMPLICATIONS

We believe investors who embrace sustainable investing practices may be better positioned to achieve their social and environmental impact, alongside competitive financial returns.

There are many factors to take into consideration when building an investment portfolio and it's important to remember ESG factors and data are only one component to potentially consider and should always be used alongside fundamental analysis.

There is no guarantee that investments applying Environmental, Social and Governance (ESG) strategies will be successful.

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materials circulated within the environment until chemical elements are absorbed back into the earth, reducing waste and economic value leakage.[5] The technical cycle of the circular economy promotes the use of different methods (recycling, remanufacturing, redistributing, maintaining, sharing) to eliminate waste in the short term. Finite resources are included in multiple consumption tracks and therefore managed efficiently.

Fashion retailers are making production models more eco-conscious. One Norwegian company created a "Circular Series" of jackets made from a singular polymer. Old jackets go through a depolymerization process that transforms them into a recycled nylon, which is used in the manufacturing of other products.[6] In terms of the technical cycle, the clothing resale market is expected to exceed the fast fashion market by 2030, suggesting a consumer interest in sustainability.[7]

What Are the Important Areas?

There is both an environmental *and* economic benefit to be had from the implementation of a circular economy. If countries adopted this model, their reliance on outside nations for raw materials would decrease, creating more ease and autonomy, in terms of price stability, within an already tight supply chain. A circular economy could improve the European Union (EU) resource productivity by 3% and create cost savings around €600 billion a year (around $644 billion) by 2030, which equates to a 7 percentage point gross domestic product (GDP) increase.[8]

The shift to a circular economy is challenging and requires new methods of production for some sectors such as agriculture. According to the Population Reference Bureau (PRB) 2021 World Population Data Sheet, the world population is on course to reach 9.7 billion people by 2050—a nearly 24% increase over 2020, suggesting food production will need to almost double to meet this incoming demand. However, because of industrial development and soil erosion, there is not enough usable land. To combat this, regenerative agriculture practices must be adapted. Soil health is promoted through the restoration of soil's organic carbon and the subsequent production of new crops.[9] Some examples include crop rotations, cover crops (buckwheat, clover), vertical farming (less water, year round) and a reduction in fertilizers and pesticides.

Additionally, the energy sector requires a dramatic change toward a circular economy. Within 15 years, half of the world's electricity will originate from renewable energy, including solar and wind-powered methods (Exhibit 2).[10] Producing renewable energy is difficult because of its reliance on natural sources (solar, wind).[11] However, one solution could be to create solar power in a region that experiences longer hours of daylight. Before a full circular economy is adopted, companies will continue utilizing gas and oil to meet consumer demand (Exhibit 1). One energy company currently invests in fossil fuels to maintain revenue by fetching higher prices in a tight energy market but is simultaneously expanding their clean energy business through solar, electric vehicle charging and wind ventures, with profits expected in the near term.[12] Furthermore, the costs of low-carbon generation technologies are decreasing below the costs of fossil fuel generation, making it an attractive alternative for companies.[13]

[5] Ellen MacArthur Foundation.

[6] Ibid.

[7] Absolute Strategy Research, "Investment Themes for an Uncertain Transition," January 2022.

[8] McKinsey & Company, "The Circular Economy: Moving From Theory to Practice," 2016.

[9] World Resources Institute, "Regenerative Agriculture: Good for Soil Health, but Limited Potential to Mitigate Climate Change," 2020.

[10] Absolute Strategy Research, "Investment Themes for an Uncertain Transition," January 2022.

[11] Ibid.

[12] British Petroleum.

[13] International Energy Agency, "Projected Costs of Generating Electricity 2020," 2020.

Exhibit 1: U.S. Energy Consumption Breakdown By Major Source, 2020.

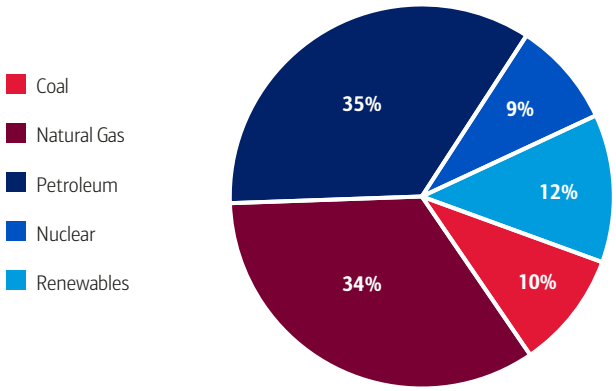
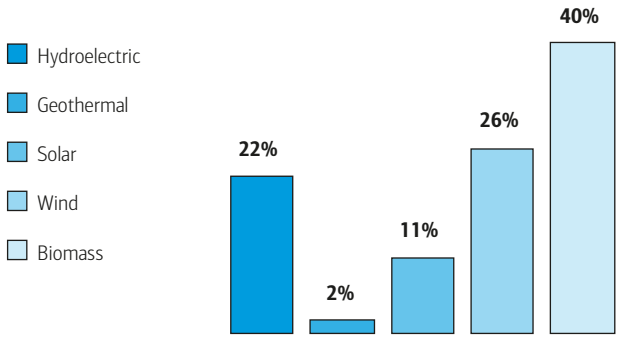


Exhibit 2: U.S. Renewable Energy Consumption Breakdown, 2020.



Source: U.S. Energy Information Administration. Data as of 2020. Measured in British thermal units (Btu); represented as percentages. Right chart: Data shown is the breakdown of Renewables (12%) from left chart. Note: Sum of components may not equal 100% because of independent rounding.

How Are Countries Adapting Their Legislation and Policies?

The Paris Climate Accords (Agreement)—an international treaty on climate change, adopted in 2015—stated that to maintain a livable earth and avoid the detrimental effects of global warming, the increase in global temperatures must be capped to 1.5°C (Celsius) above pre-industrial levels.[14] Today, over 70 countries have set a net-zero target for 2050.[15] It is clear this will force them to be environmentally conscious.

The most progressive policies have emerged from the EU. In 2015, they embraced the Circular Economy Action Plan (CEAP), which consists of 54 action items and four legislative proposals to decrease the EU's consumption footprint and double their circular material use rate in the next decade.[16] Furthermore, the EU created the European Green Deal, which aims to separate economic growth from resource consumption, decrease greenhouse gas emissions, and confirm global competitiveness of the EU. Some countries, such as the U.K., are working alongside corporations to increase renewable energy use. The H2Teesside project—BP's world-scale hydrogen project—hopes to capture and store 2 million tons of carbon dioxide per year by 2030, which would contribute to the U.K.'s 10 Point Plan for a net-zero environment.[17]

The U.S., while behind the EU in terms of policy implementation, has started the National Recycling Strategy, which hopes to increase the recycling rate to 50% by 2030.[18] In addition to public sector actions, investors should focus on private sector movement. The shift to this economic model requires a collaborative effort between the public sector, private companies and the individual consumer.

Turning Your Impact Goals Into Action — What Works For You?

Governments, corporations and individuals are slowly looking to shift their investment objectives away from solely output-focused measurements toward the inclusion of environmental, social and governance (ESG)-related factors. Within the Chief Investment Office (CIO), we categorized the common issues that sustainable investors focus on into four thematic pillars: people, planet, principles of governance, and prosperity. These

[14] United Nations.

[15] Ibid.

[16] European Commission.

[17] British Petroleum as of March 2021.

[18] United States Environmental Protection Agency.

pillars were designed as a framework, so we can evaluate investments using consistent, industry-agnostic and increasingly publicly available data. Our goal is to make sustainable investing intuitive and actionable by measuring the exposure of a portfolio to these issue areas so that our clients can understand where they may want to pursue greater impact.

People	Planet	Principles of Governance	Prosperity
			
Commitment to engaged and healthy workers	Contributions to climate and environmental sustainability	Commitment to ethics and societal benefit	Contributions to equitable, innovative economic growth and sustainable communities

When considering the addition of ESG-related factors within an investment strategy, investors should first consider the type of intended impact they hope to achieve. This will help shape their sustainability concentrations and depths of ESG integration going forward. For example, an individual may choose a strategy that broadly focuses on an area of ESG, such as renewable energy and natural resource integration, in addition to the avoidance of oil and natural gas. On the other hand, an individual could have a specific interest in strategies that rely on companies that include measurements of carbon, water and waste usage in their reporting.

Many ESG-focused approaches help signify increasing interest in circular economy-related themes; however, they do not directly impact the system as it is still a novel concept. Investors may find it necessary to consider investment managers or individual companies that bridge the gap from a resource-intensive global economy to a more circular economy. These ideals exist under our version of FAANG (fuels, aerospace, agriculture, nuclear and renewables, gold and metals/minerals) 2.0[19] theme, specifically fuels, agriculture, nuclear and renewables.

Looking Ahead

Investors seek out innovative solutions to big problems, and our current economic environment faces a variety of challenges, including energy and food supply chain disruptions in part related to resource-centric geopolitical conflict and deglobalization. Demographic trends in parts of the developed world are also leading to worker shortages, pushing firms to be more innovative. The circular economy is a long-term effort to help mitigate these roadblocks while seeking to establish economic and environmental success and security. For this reason, we believe it is an investment theme worth consideration.

[19] See Chief Investment Office *Capital Market Outlook* May 2022 for more information on FAANG 2.0.

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Investing involves risk, including the possible loss of principal. Past performance is no guarantee of future results.

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The CIO has developed Impactonomics®, a sustainability-related analytic lens that includes societal and environmental factors while also examining a range of relationships between economic growth and investing for impact and profit, as well as the measurable social and environmental change sustainable investing can enable.

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