Indexes for environmental opportunities

It is estimated that US$90 trillion of infrastructure investment is needed by 2030 to avert more than 2 degrees of global warming since pre-industrial levels. This large-scale capital deployment provides a significant and growing opportunity for investors who align their portfolios with the green economy.

Research by FTSE Russell has identified a large, growing and diversified “green” economy that currently represents around 6% of global listed equity markets – around US$4 trillion in market capitalization – and is similar in size to the Oil and Gas sector, to which it is often compared. If the green economy follows its current trajectory, it could represent 7% of global market capitalization by 2030.

Available indexes

Based on the FTSE Environmental Markets Classification System (EMCS).

<table>
<thead>
<tr>
<th>FTSE Environmental Opportunities Index Series</th>
<th>FTSE Environmental Technology Index Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad Diversified</td>
<td>Pure-play Over 50% revenue</td>
</tr>
<tr>
<td>Environmental Opportunities Over 20% revenue</td>
<td>Environmental Technology Over 50% revenue</td>
</tr>
</tbody>
</table>

Supports investors seeking to invest in a range of companies that provide products and services that deliver solutions to environmental challenges. Supports investors seeking to invest in pure-play companies whose core business is the development and deployment of environmental technologies.

A decade of history

Launched a decade ago, the FTSE Environmental Markets Index Series provides investors with a focused way of defining and accessing the investment opportunities presented by the green economy.

This index series was developed in collaboration with Impax Asset Management and with input from the independent FTSE Environmental Markets Advisory Committee, which is composed of clean technology analysts, scientists and experts drawn from asset owners/pension funds and market participants.

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1 The Sustainable Infrastructure Imperative: Financing for Better Growth and Development, Global Commission on the Economy and Climate, October 2016
2 Investing in the global green economy: busting common myths, FTSE Russell, May 2018
3 Investing in the global green economy: busting common myths, FTSE Russell, May 2018. Current trajectory estimate based on extrapolation of growth based on average growth rate from 2009 to 2017
Features

**FTSE Environmental Opportunities Index Series**

- Measures the performance of a range of companies that have significant involvement in environmental business activities
- Companies are required to have at least 20% of their business derived from environmental markets and technologies in order to be eligible

**FTSE Environmental Technology Index Series**

- Measures the performance of pure play companies who’s core business is in the development and deployment of environmental technologies
- Companies are required to have at least 50% of their business derived from environmental markets and technologies in order to be eligible

### Environmental Markets Classification System (EMCS)

The EMCS is used as a basis for the creation of the FTSE Environmental Markets indexes, which includes both the FTSE Environmental Opportunities (EO) and Environmental Technology (ET) families of indexes.

<table>
<thead>
<tr>
<th>E1.0 Renewable &amp; alternative energy</th>
<th>E2.0 Energy efficiency</th>
<th>E3.0 Water infrastructure &amp; technologies</th>
<th>E4.0 Pollution control</th>
<th>E5.0 Waste management &amp; technologies</th>
<th>E6.0 Environmental support services</th>
<th>E7.0 Food, agriculture &amp; forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1.1 Wind power generation equipment</td>
<td>E2.1 Power network efficiency</td>
<td>E3.1 Water infrastructure</td>
<td>E4.1 Pollution control solutions</td>
<td>E5.1 Waste technology equipment</td>
<td>E6.1 Carbon and other environmental assets trading</td>
<td>E7.1 Sustainable and efficient agriculture</td>
</tr>
<tr>
<td>E1.2 Solar energy generation equipment</td>
<td>E2.2 Industrial energy efficiency</td>
<td>E3.2 Water treatment equipment</td>
<td>E4.2 Environmental testing and gas sensing</td>
<td>E5.2 Recycling and value added waste processing</td>
<td>E6.2 Environmental consultancies</td>
<td>E7.2 Logistics, food safety and packaging</td>
</tr>
<tr>
<td>E1.3 Other renewables equipment</td>
<td>E2.3 Buildings energy efficiency</td>
<td>E3.3 Water utilities</td>
<td>E4.3 Public transportation</td>
<td>E5.3 Hazardous waste management</td>
<td>E6.3 Diversified environmental</td>
<td>E7.3 Sustainable forestry and plantations</td>
</tr>
<tr>
<td>E1.4 Renewable energy developers and IPPs</td>
<td>E2.4 Transport energy efficiency</td>
<td>E3.4 Diversified water infrastructure and technology</td>
<td></td>
<td>E5.4 General waste management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1.5 Biofuels</td>
<td>E2.5 Consumer energy efficiency</td>
<td></td>
<td></td>
<td>E5.5 Diversified waste and technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1.6 Diversified renewable and alternative energy</td>
<td>E2.6 Diversified energy efficiency</td>
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</tr>
</tbody>
</table>
Index construction process

Starting universe
Start with the market capitalization weighted underlying index from the FTSE Global Equity Index Series.

Step 1

<table>
<thead>
<tr>
<th>Environmental Opportunities</th>
<th>Map company activities to Environmental Markets Classification System (EMCS) sectors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Technology</td>
<td>Map company activities to EMCS sectors but with the following qualifications:</td>
</tr>
<tr>
<td></td>
<td>To qualify for these indexes companies' activities must be 'transformational', defined as where they deliver a clear and significant environmental benefit. On this basis the following EMCS sectors are excluded from the mapping:</td>
</tr>
<tr>
<td></td>
<td>• E3.3 (Water Utilities)</td>
</tr>
<tr>
<td></td>
<td>• E5.4 (General Waste Management)</td>
</tr>
<tr>
<td></td>
<td>• E6.3 (Diversified Environmental)</td>
</tr>
<tr>
<td></td>
<td>• Hydro power (as referred to in E1.3 Other Renewables Equipment, and E1.4. Renewable Energy Developers and Independent Power Producers)</td>
</tr>
<tr>
<td></td>
<td>• Steel recycling (as covered in E5.2 Recycling and Value Added Waste Processing)</td>
</tr>
<tr>
<td></td>
<td>• Construction companies (as covered in E2.3 Buildings Energy Efficiency)</td>
</tr>
<tr>
<td></td>
<td>• Transmission and distribution technology (as covered in E2.1 Power Network Efficiency)</td>
</tr>
</tbody>
</table>

Step 2

Threshold analysis

<table>
<thead>
<tr>
<th>Environmental Opportunities</th>
<th>To qualify for this index series companies must derive at least 20% of their business from the EMCS sectors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Technology</td>
<td>To qualify for this index series companies must derive at least 50% of their business from EMCS sectors. These activities must demonstrate environmental benefits.</td>
</tr>
</tbody>
</table>

The nature of a company’s business, and whether it passes the 50% or 20% threshold described above, is normally determined through analysis of the following parameters:

1. Environmental market revenues against total revenues
2. Environmental market invested capital against total invested capital
3. Environmental market EBITDA against total EBITDA
An environmental family of indexes

FTSE Environmental Markets Family Tree

FTSE Environmental Technology Index Series
- FTSE ET50 Index (Global)
- FTSE ET100 Index (Global)

FTSE Environmental Opportunities Index Series
- FTSE EO 100 Index
- FTSE Environmental Opportunities All-Share Index

Sector Indexes
- FTSE EO Waste & Pollution Control Technology Index
- FTSE EO Water Technology Index
- FTSE EO Energy Efficiency Index
- FTSE EO Renewable & Alternative Energy Index

Regional Indexes
- FTSE EO UK Indexes
- FTSE EO Europe Index
- FTSE EO U.S. Index
- FTSE EO Asia Pacific Indexes

- FTSE EO Waste & Pollution Control Technology 30 Index
- FTSE EO Water Technology 30 Index
- FTSE EO Energy Efficiency 50 Index
- FTSE EO Renewable & Alternative Energy 50 Index

FTSE ET50 Index (Global)
FTSE ET100 Index (Global)
FTSE EO 100 Index
FTSE Environmental Opportunities All-Share Index
FTSE EO UK Indexes
FTSE EO Europe Index
FTSE EO U.S. Index
FTSE EO Asia Pacific Indexes
FTSE ET50 Index (Global)
FTSE ET100 Index (Global)
FTSE EO 100 Index
FTSE Environmental Opportunities All-Share Index
FTSE EO UK Indexes
FTSE EO Europe Index
FTSE EO U.S. Index
FTSE EO Asia Pacific Indexes
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FTSE Russell is a leading global index provider creating and managing a wide range of indexes, data and analytic solutions to meet client needs across asset classes, style and strategies. Covering 98% of the investable market, FTSE Russell indexes offer a true picture of global markets, combined with the specialist knowledge gained from developing local benchmarks around the world.

FTSE Russell index expertise and products are used extensively by institutional and retail investors globally. For over 30 years, leading asset owners, asset managers, ETF providers and investment banks have chosen FTSE Russell indexes to benchmark their investment performance and create investment funds, ETFs, structured products and index-based derivatives. FTSE Russell indexes also provide clients with tools for asset allocation, investment strategy analysis and risk management.

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Impax Asset Management

Impax Asset Management is an award winning, leading investment manager dedicated to investing in the opportunities created by the scarcity of natural resources and the growing demand for cleaner, more efficient products and services, through both listed and private equity strategies.

Impax’s listed equity funds seek out mis-priced companies that are set to benefit from the long-term trends of changing demographics, urbanisation, rising consumption, and the resultant increases in resource scarcity. Investment is focused on a small number of deeply researched global equity strategies across alternative energy, energy efficiency, water, waste, food and agriculture related markets.

Impax’s private equity infrastructure funds follow an operationally focused, value-add strategy, investing in renewable power generation and related assets throughout Europe. The Climate Property Fund focuses on developing sustainable and energy efficient commercial property, primarily in the UK, adding synergistically to Impax’s wider real asset investment strategy within private markets.

For more information, visit impaxam.com

To learn more, visit ftserussell.com; email info@ftserussell.com; or call your regional Client Service Team office:

<table>
<thead>
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<th>North America</th>
<th>Asia-Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td>+44 (0) 20 7866 1810</td>
<td>+1 877 503 6437</td>
<td>Hong Kong +852 2164 3333</td>
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<td></td>
<td></td>
<td>Tokyo +81 3 4563 6346</td>
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<tr>
<td></td>
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<td>Sydney +61 (0) 2 8823 3521</td>
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