

# RESEARCH SPOTLIGHT

## Beyond Divestment: Using Low Carbon Indexes

As the global economy copes with the unpredictable challenges of climate change, institutional investors are exploring the potential impact of these changes on financial assets. This paper provides a framework for evaluating ways to reduce two dimensions of carbon exposure – current carbon emissions and potential future emissions embedded in fossil fuel reserves — and explores new and more financially viable ways of managing carbon risk.

### KEY FINDINGS

- Investors are focusing on the risk that a significant portion of current assets could become “stranded”—and thereby drastically lose value—if carbon emissions are constrained by regulation or technological innovation in the future.
- Thus far, approaches using sector-based selection (or divestment) have received the most attention from stakeholders and investors; these approaches, which include portfolios based on the MSCI Fossil Fuels Exclusion Indexes, help investors send a strong message to stakeholders but ignore short-term benchmark risk.
- Newer, innovative approaches that use re-weighting and optimization techniques, such as the MSCI Global Low Carbon Target and MSCI Global Low Carbon Leaders indexes, would have reduced exposure to carbon-intensive companies while limiting short-term risk against the benchmark.
- These newer strategies are also more expansive than traditional approaches, encompassing both current and future emissions, going to the heart of risk mitigation.

# Beyond Divestment: USING LOW CARBON INDEXES

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## Carbon Stranded Assets

Institutional investors are probing the long-term portfolio implications of “carbon stranded assets” — assets that may lose economic value before the end of their expected life, primarily driven by changes in regulation and technological innovation. Two core assumptions underlie this view. The first is that the Earth will be unable to sustain the current rate of increase in greenhouse gas emissions (GHGs) without triggering catastrophic effects. A second core assumption is that policymakers or regulators will eventually limit the amount of GHG emissions, as a response to the potential catastrophic effects of climate change.

While regulatory changes that limit GHG emissions would have the most direct role in triggering the stranding of carbon-intensive assets, the rapid development and falling costs of new technology could also trigger large-scale substitution of current energy sources with cleaner sources of energy. As these alternative sources of energy gain economies of scale and become less costly, they could challenge the dominance of fossil fuels, even in the absence of stringent regulations on GHG emissions or high carbon prices. Another trend that could dampen future demand for fossil fuels is improvements in energy efficiency. In particular, technologies targeting the residential, transport and industry sectors have the potential to significantly reduce aggregate energy demand.

Limiting future GHG emissions would have important financial consequences:

- Two-thirds of the fossil fuel reserves that we have already discovered but have not yet extracted would remain unused. According to the International Energy Agency, this could represent 50% of current oil and gas reserves, and 80% of coal reserves.
- Fixed assets reliant on burning fossil fuels could also be abandoned if future carbon emissions would exceed the carbon budget or if new energy sources become economically competitive.

## Identifying Sources of Risk

For institutional investors, the first step to addressing risks of carbon stranded assets requires identifying holdings in companies that own fossil fuel reserves and companies whose business activities are highly carbon-intensive. Measuring the extent of fossil fuel reserves holdings and carbon-intensity of business activities across a broad, diversified portfolio replicating the MSCI ACWI Index shows the risk of potential carbon stranded assets was highly concentrated, as of January 15, 2015.

- **Proved and probable coal, oil and gas reserves:** Unsurprisingly, the risk of stranded assets was highest in the Energy sector representing more than 80% of total fossil fuel reserves.
- **Sector exposure:** The three most intensive sectors — Utilities, Materials, Energy — accounted for more than 80% of the total direct and indirect carbon emissions in the MSCI ACWI Index, as of January 15, 2015. This measure can act as a proxy for long-lived assets at risk of stranding as well as for evaluating a company's contribution to climate change.
- **Issuer exposure:** In the sample portfolio, the top fifth of companies with direct and indirect emissions in absolute terms accounted for more than 80% of the total emissions of the universe during the examination period. Similarly, 13 companies accounted for more than 50% of the total potential future emissions from burning current reserves held by MSCI ACWI Index constituents, as of June 2014.

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# Key Parameters for Institutional Investors

Asset owners differ widely in terms of their investment beliefs and constraints when it comes to assessing their carbon-related risk. Thus, the approaches they use may vary significantly. Investors may fall along a wide spectrum based on four key parameters.

## SHORT-TERM RISK

Institutional investors differ in the constraints they face or the appetite they have for deviating from the benchmark (tracking error) and market exposure in the short term.

## LONG-TERM THESIS

Investors fully convinced of the stranded asset thesis may take into account long-term risks to their portfolios.

## STAKEHOLDER COMMUNICATION

Some institutions face pressure from stakeholders that may affect their choice of approach to lowering carbon exposure. For example, they may be expected to display high levels of transparency on the impact of their investments on social and environmental issues.

## PUBLIC STANCE

Some large institutions cannot diversify away their long-term carbon exposure and thus may take a more active role by engaging with companies with poor corporate practices.

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## Reducing Carbon Risk Exposure: Re-weighting vs. Selection

There are two broad investment approaches to reduce carbon exposure risks in portfolios. The exact choice of the investment strategy – re-weighting versus selection – will depend on sensitivity to the above-mentioned four key parameters.

EXHIBIT 1  
RE-WEIGHTING VS SELECTION

	Re-weighting	Selection
SHORT-TERM RISK	Allows for different techniques (e.g. optimization) to manage short-term risk	Tracking error is ignored in favor of long-term considerations
LONG-TERM THESIS	Aims to minimize exposure to companies most vulnerable to stranded assets	Exposure to companies most vulnerable to stranded assets depends on selection approach
STAKEHOLDER COMMUNICATION	Communication to stakeholders is more challenging due to the more complex nature of the approach	Conducive to public communication with stakeholders when targeting key sectors or high profile companies
PUBLIC STANCE	Allows investment in the full universe and keeps communication channels open with companies	Makes strong public statement that investor aims to influence corporate behavior

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The selection-based approach partially reduces carbon exposure risk, focusing on avoiding potential long-term risks from holding stocks of companies whose value is derived from reserves that may be unburnable in a future regulatory or technological scenario. However, a selection-based approach ignores short-term financial risks of deviating from the benchmark. Additionally, a selection-based approach focused on fossil fuel reserves fails to capture the risk that “fixed assets” locked into burning fossil fuels become stranded in a carbon-constrained future.

- MSCI’s Fossil Fuel Exclusion Indexes aim to eliminate 100% of carbon reserves exposure by excluding companies that own oil, gas and coal reserves, representing 8.0% of the MSCI ACWI Index’s market capitalization, as of November 28, 2014.
- The MSCI ex Coal Indexes aim to significantly reduce carbon reserves exposure found in the parent index by excluding solely companies that own coal reserves, representing just 1.1% of the MSCI ACWI Index market capitalization.

The re-weighting approach seeks to increase exposure to more carbon-efficient companies and to lower exposure to large current and future carbon emitters.

In the long run, investors may reduce the risk of emitters’ stocks underperforming from future and unforeseen changes in environmental regulations, technological changes or market forces. In shorter time periods, however, the low carbon portfolio may lag a “traditional” broad equity market portfolio because of differences in their weighting strategies.

- The MSCI Global Low Carbon Target Indexes aim to address both short-term and long-term risks by first re-weighting the portfolio to minimize carbon exposure and then using portfolio optimization techniques to reduce short-term risk to the parent index. Carbon emission intensity was reduced by 78% compared to the parent index; the reduction in potential carbon emissions normalized by market cap was 97%.
- The MSCI Global Low Carbon Leaders Indexes, which combine selection and re-weighting techniques, aim to select the companies with low carbon emissions relative to sales and those with low potential carbon emissions per dollar of market capitalization. They also aim to minimize the tracking error relative to the market-cap weighted parent index while reducing carbon exposure by at least 50%.

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## Comparing the Different Approaches: What Matters?

Institutional investors have a variety of options dependent upon their investment beliefs and constraints, as well as their available resources and willingness to take a public stance.

We summarize the pros and cons of the global Low Carbon indexes and the MSCI Fossil Fuels Exclusion Indexes and compare key metrics of four indexes to the parent in Exhibits 2 and 3, respectively. Current and potential carbon emissions for those indexes are compared to the parent index.

## EXHIBIT 2

### COMPARISON OF GLOBAL LOW CARBON AND GLOBAL FOSSIL FUELS EXCLUSIONS INDEXES

	MSCI Global Fossil Fuels Exclusion Index	MSCI Global Low Carbon Target Index	MSCI Global Low Carbon Leaders Index
APPROACH USED IN INDEX DESIGN	Selection	Re-Weighting	Selection + Re-Weighting
SHORT-TERM RISK	Not considered	Uses optimization to reduce tracking error to parent index	Uses optimization to reduce tracking error to parent index
LONG-TERM THESIS	Exposure reduction based solely on selecting companies with low fossil fuel reserves	Uses optimization to reduce exposure to companies most vulnerable to stranded assets (i.e. exposed to current and future emissions) while retaining complete opportunity set	Exposure reduction based on selecting companies with low current carbon emission and low fossil fuel reserves
STAKEHOLDER COMMUNICATION	Transparent and simple methodology	Sophisticated methodology, could be more difficult to explain	Selection methodology is transparent and simple BUT weighting methodology could be more difficult to explain
PUBLIC STANCE	Excluding stocks makes strong public statement	Allows for engagement with companies	Excluding stocks makes strong public statement

## EXHIBIT 3

### KEY METRICS OF MSCI ACWI LOW CARBON INDEXES

	MSCI ACWI	MSCI ACWI Low Carbon Target	MSCI ACWI Low Carbon Leaders	MSCI ACWI ex Coal Index	MSCI ACWI ex Fossil Fuels Index
TOTAL RETURN* (%)	11.4	11.8	11.6	11.7	12.5
TOTAL RISK* (%)	13.3	13.2	13.3	13.1	12.8
RETURN / RISK	0.86	0.89	0.88	0.89	0.97
SHARPE RATION	0.84	0.88	0.86	0.88	0.96
ACTIVE RETURN* (%)	0.0	0.4	0.2	0.3	1.1
TRACKING ERROR* (%)	0.0	0.4	0.5	0.3	1.0
INFORMATION RATIO	NA	0.98	0.49	1.18	1.06
HISTORICAL BETA	1.00	1.00	1.00	0.99	0.96
TURNOVER** (%)	2.0	12.5	6.2	2.2	2.3
ACTIVE SHARE*** (%)	NA	21.8	16.2	1.1	8.0
#SECURITIES EXCLUDED	NA	0	497	28	127
% MARKET CAP EXCLUDED	NA	0.0	15.5	1.1	8.0

## CONCLUSION

Institutional investors concerned about their carbon exposure have considered selection-based approaches to reduce carbon exposure in their portfolios. However, these approaches ignore short-term benchmark risk. While this approach enables investors to reflect clear communications with stakeholders, new and more financially viable approaches address short-term risk as well as long-term risk associated with carbon exposure. At the same time, these new approaches are more expansive than traditional approaches, encompassing both current and future emissions, going to the heart of risk mitigation.

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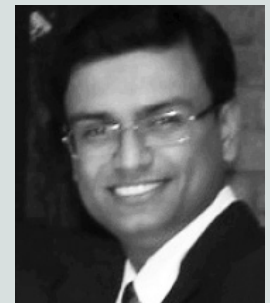


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