

*Integrating Environmental Risks
into Asset Valuations:
The potential for stranded assets
and the implications for long-
term investors*

*Nick Robins
Chief Executive Officer
Head, HSBC Climate Change Centre of Excellence*

May 2014

© 2014 The International Institute for Sustainable Development
Published by the International Institute for Sustainable Development.

International Institute for Sustainable Development

The International Institute for Sustainable Development (IISD) contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change and energy, and management of natural and social capital, as well as the enabling role of communication technologies in these areas. We report on international negotiations and disseminate knowledge gained through collaborative projects, resulting in more rigorous research, capacity building in developing countries, better networks spanning the North and the South, and better global connections among researchers, practitioners, citizens and policy-makers.

IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the International Development Research Centre (IDRC), from the Danish Ministry of Foreign Affairs and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations and the private sector.

Head Office

161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, Canada R3B 0Y4
Tel: +1 (204) 958-7700 | Fax: +1 (204) 958-7710 | Website: www.iisd.org

Integrating Environmental Risks into Asset Valuations: The potential for stranded assets and the implications for long-term investors

May 2014

Written by Nick Robins, Head, HSBC Climate Change Centre of Excellence, London

Nick Robins has over 20 years experience in the financial and policy realities of delivering sustainable outcomes in finance, business and public policy. He is currently running HSBC's climate centre, and he has won the Thomson Exel award for best analyst in integrated climate research in 2009, 2011, 2012 and 2013. Robins also actively participates on external corporate advisory panels, such as British Telecom (United Kingdom, 2007-2012) and General Electric (United States, 2007-present). Nick represents HSBC in global climate negotiations. Previously, he has worked for and with the European Commission, Organisation for Economic Co-operation and Development and the United Nations, as well as the British and Norwegian governments.

Robins co-authored the first book on sustainable investment, *Sustainable Investing: The Art of Long-Term Performance* (2008) and the first corporate accountability history of the East India Company, *The Corporation that Changed the World* (2006). He has been interviewed and quoted in leading global media such as BBC, Bloomberg, CNBC, CNN, *Financial Times*, *The Guardian*, *Le Monde*, *The New York Times*, *Reuters* and *La Tribune*.

Table of Contents

1.0 Summary.....	1
2.0 The Growing Importance of Integrating Sustainability into Financial Analysis	2
3.0 The Low-Carbon Transition Is Disruptive for Market Valuations	3
4.0 Aligning Capital Markets with Climate Security	7
References.....	8

1.0 Summary

Investors are increasingly committed to integrating environmental factors. Institutional investors are increasingly committed to integrating environmental, social and governance (ESG) factors into their strategies for delivering risk-adjusted returns and delivering their ownership responsibilities. Institutions with between USD\$20 trillion and US\$87 trillion in assets under management have made commitments to varying levels of integration, ranging from requests for improved corporate disclosure to incorporating ESG factors into valuations to changing asset allocation.

The shift to a low-carbon economy is likely to be disruptive for market valuations. Long-term carbon targets have not traditionally been included in market valuations, creating an overinvestment in fossil fuels. These could become stranded assets as policy, market, technology and social conditions change. HSBC and other financial institutions have started to analyze the valuation implications of the low-carbon transition, highlighting that 40 to 60 per cent of current European coal, oil and gas valuations are at risk from the low-carbon transition.

Reforms in investor practice and market frameworks are needed to prevent value destruction. Investors need to take action to anticipate these shifts, diverting capital from high-risk areas ahead of time. In addition, a series of policy and regulatory steps can be taken to enable financial markets to operate with greater foresight through long-term environmental challenges.

2.0 The Growing Importance of Integrating Sustainability into Financial Analysis

Over the past decade, institutional investors have made increasing commitments to integrating ESG factors into their investment strategies: asset allocation, country and sector weightings, and theme and stock analysis, as well as the exercise of ownership rights through shareholder engagement and voting. Two main factors are driving this process:

- The recognition of the increasing materiality of ESG factors for investment returns, both in terms of risks and opportunities.
- The growing importance, following repeated financial crises, that investors demonstrate responsible stewardship of the assets under their management.

Three initiatives highlight the scale of this trend.

- *Disclosure.* Over the past 10 years, the Carbon Disclosure Project has mobilized investors to improve voluntary corporate disclosure on climate change risks and opportunities. In 2013, 722 institutions with US\$87 trillion in assets under management supported the request for information from the world's largest 500 companies. The information collected enables investors to make informed decisions so as to protect and enhance the value of their assets. Similar disclosure initiatives are also underway for water and forestry. The positive track record of voluntary disclosure has provided a platform for increasing numbers of countries to introduce mandatory environmental and climate reporting.
- *Responsibility.* Launched in 2006, the Principles for Responsible Investment have won the backing of over 1,000 signatories representing US\$32 trillion in assets under management. Signatories commit to integrating ESG factors into financial analysis and decision-making as well as to incorporating ESG into their activities as owners. Collectively, Principles for Responsible Investment signatories are driving the integration of ESG factors into a range of asset classes, including equities, hedge funds, infrastructure, property and sovereign bonds. A recent report (UNPRI, 2013) has profiled best practices for integrating ESG factors into equity valuation.
- *Climate Change.* Over 259 investment institutions with more US\$22 trillion in assets under management are also members of four regional networks that form the Global Investor Coalition on Climate Change. Along with the United Nations Environment Programme Finance Initiative and the Principles for Responsible Investment, these networks have issued annual policy statements and set out a 2013–2015 action plan (Global Investor Coalition on Climate Change, 2013). Actions include facilitating low-carbon investments, encouraging investor stewardship and engagement, and seeking government policies that reduce the risks associated with climate change.

One of the main environmental risks that has emerged in market valuations is the potential for productive assets to become stranded as the result of the shift to the low-carbon economy.

3.0 The Low-Carbon Transition Is Disruptive for Market Valuations

In the context of climate change, the task for investors is to generate returns within the available carbon budget for the global economy. At Cancún in 2010, the world's governments agreed to hold global warming below 2°C. This translates into a global carbon budget, indicating the maximum amount of emissions that can be generated while still realizing this target. According to the Carbon Tracker Initiative, to have an 80 per cent probability of meeting the target, the carbon budget is 900 gigatonnes of carbon dioxide until 2050; accepting a higher risk of 50 per cent produces a larger budget of around 1075 gigatonnes (Carbon Tracker Initiative, n.d.). Annual carbon dioxide emissions are running at over 31 gigatonnes per year and continue to rise, suggesting that the budget could be depleted well before mid-century. According to the International Energy Agency, global emissions need to peak before 2020 and decline steadily thereafter; oil and coal demand would likewise need to peak by the end of this decade. More profoundly, the world's proven fossil fuel reserves alone contain within them 2,860 gigatonnes of embedded carbon dioxide. The International Energy Agency (2012) has concluded that two-thirds of reserves cannot be commercialized before 2050 if we are to limit temperature increases to 2°C. Carbon capture and storage could certainly enable more fossil fuels to be used, but this is only relevant for power generation and industry, and it has yet to be deployed at scale.

As a result, the transition to a low-carbon future is set to be disruptive for traditional business models and investment strategies. If we look at the emergence of the digital economy, productive assets—such as factories making film cameras—have become stranded in the innovation process. In the climate economy, high-carbon assets could also be stranded assets.

Stranded assets can be defined as assets that suffer from unanticipated or premature write-offs or downward revaluations, or that are converted to liabilities as a result of environmental challenges (e.g., climate change), changing resource landscapes (e.g., water stress), new government regulations (e.g., air pollution standards), technological innovation (e.g., falling clean tech costs) and changing social norms (e.g., divestment and consumer behaviour) (University of Oxford, 2013).

Overall, we are better off in the digital economy, just as we will be better off in the low-carbon economy. The challenge is to minimize the economic costs and volatility this transition may cause by anticipating trends and developing new assets with the same or better returns. At present, however, markets are not pricing these risks, because of a combination of lack of investor trust in climate policy and market failures such as short-term decision-making. Andrew Haldane, director of financial stability at the Bank of England, has concluded that short-termism is “both statistically and economically significant in capital markets,” meaning that investors are neither making rational financial decisions nor integrating long-term factors such as climate change (Haldane & Davies, 2011).

At HSBC, we have started to develop scenarios to quantify the value at risk in the low-carbon economy.

- In the coal sector, we concluded that a move to zero growth in global coal demand in 2020 would reduce the discounted cash flow valuation of coal assets held by four major UK-listed mining majors by 44 per cent. The individual company impacts would be much lower, at 4 to 15 percent, because coal is just one of many minerals produced by these stocks (HSBC, 2012).

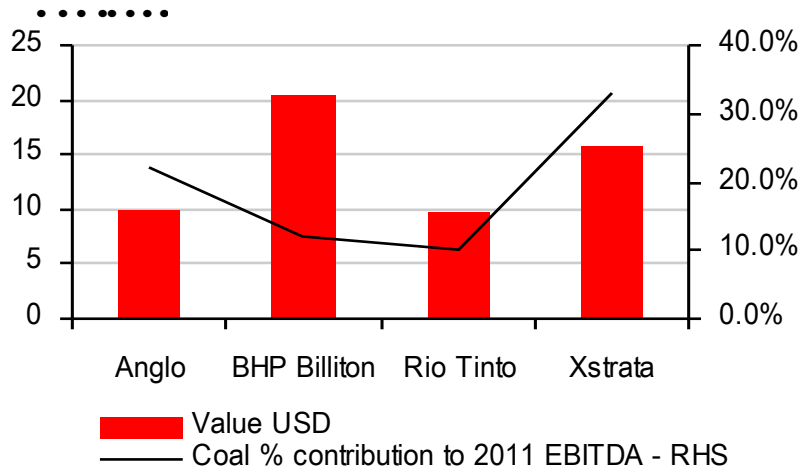


FIGURE 1. COAL CONTRIBUTES UP TO 30 PER CENT OF EARNINGS BEFORE INTEREST, TAXES, DEPRECIATION AND AMORTIZATION (EBITDA) AMONG THE BIG FOUR. THE MARKET IS NOT PRICING IN THESE RISKS, EVEN THOUGH THEY ARE MATERIAL. "RHS" REFERS TO THE AXIS ON THE RIGHT-HAND SIDE OF THE CHART.

Source: HSBC company data.

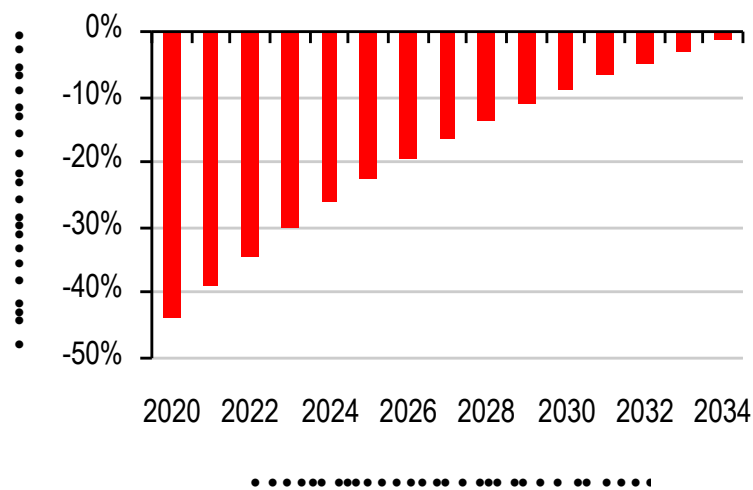


FIGURE 2. IMPACT ON DISCOUNTED CASH FLOW (DCF) OF THE TIMING OF REVERSION TO ZERO GROWTH. LONG LEAD TIMES MAKE THIS RELEVANT TO CAPITAL EXPENDITURE PLANS TODAY.

Source: HSBC analysis.

- In the oil and gas sector, we modeled a low-carbon scenario that reduced demand for oil, driving the price down to US\$50 per barrel. Using this ceiling test, we concluded that 40 to 60 per cent of the market capitalization of major European oil and gas companies would be at risk (HSBC, 2013b).

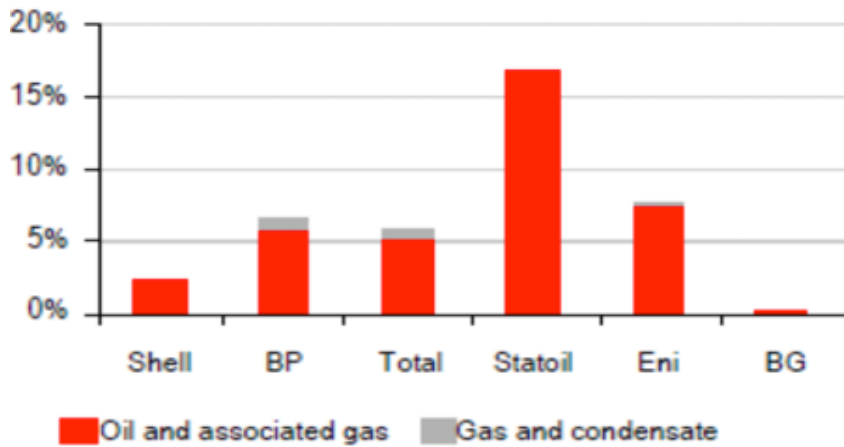


FIGURE 3. UNBURNABLE OIL & GAS RESERVES FOR EUROPEAN STOCKS (% OF MARKET CAP). FUTURE PROJECTS MAKE UP BULK OF LOST VALUE.

Source: Company data, Wood Mackenzie; HSBC calculations.

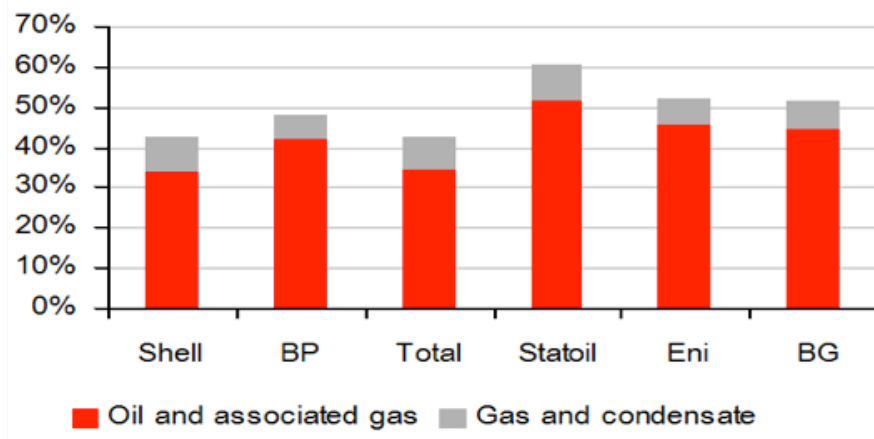


FIGURE 4. UNBURNABLE CARBON AND PRICE EFFECT FOR EUROPEAN STOCKS (% OF MARKET CAP). THE CHART SHOWS THE PRICE IMPACT OF LOWER DEMAND, WITH LOWER FUTURE DEMAND TRANSLATING TO GREATER RISK.

Source: HSBC analysis; Wood Mackenzie data

The long lead times for energy infrastructure mean that these scenarios are relevant for capital expenditure decisions today. The climate factor places more emphasis on energy companies delivering lower-cost and lower-carbon assets. Although both coal and oil demand would fall in a low-carbon future, gas consumption would continue to rise in the 2020s.

Other factors apart from climate change will also impact fossil fuel demand, notably efforts to curb local air pollution and deal with rising water stress in key economies such as China. HSBC analysts have evaluated the implications of rising water stress in China's coal and power sectors. If coal mining became constrained by a lack of water beginning in 2030, the valuation of China Shenhua could fall by 26 per cent, and of China Coal by 45 per cent. Likewise, if coal-fired power stations were shut from a lack of water beginning in 2030, the valuation of Huaneng Power, for example, could be impacted by 30 per cent (HSBC, 2013b).

4.0 Aligning Capital Markets with Climate Security

Building on this analysis, we believe that there are four themes that could help shape the response of capital markets through 2020 and beyond: capital stewardship for high-carbon sectors, focusing financial incentives, climate-proofing financial regulation and setting course for climate targets.

1. *Capital stewardship in high-carbon sectors.* Our work on the risks of stranded assets in coal, oil and gas sectors has highlighted the critical role that investors can play in stress-testing capital expenditure plans in these and other high carbon sectors to ensure that they can deliver attractive returns in a 2°C scenario – and redirecting capital if this is not the case. This links powerfully with the post-financial crisis emphasis on stewardship more broadly. This theme is gaining traction with leading institutional investors (Mackenzie, 2013).

2. *Focusing financial incentives.* Global pensions and investments receive considerable fiscal support to encourage long-term savings. To date, some countries have directed small sums toward environmental investing. But none have yet introduced links between this support and the responsible management of ESG factors such as climate change. In other policy areas, cross-compliance is becoming well-established. For example, as part of agricultural reform in the European Union, environmental and other conditions are applied to farmers who claim payments. Discussion is now beginning on how fiscal support for savings can be aligned with sustainability objectives. For example, in the United Kingdom, the Green Alliance has suggested ways in which annual support of £40 billion could be linked to responsible investment and long-term stewardship (Hewett, 2012).

3. *Climate proofing financial regulation.* The design of post-crisis financial regulation has revealed that the climate and wider sustainability drivers of financial risk and market stability are still largely absent. Many low-carbon options, such as renewables and energy efficiency, are capital intensive and therefore sensitive to financial regulation. A recent paper from the Institute for Sustainable Development and International Relations concluded that Basel III rules for banks will reduce the capacity of banks to provide long-term credit (Institute for Sustainable Development and International Relations, 2013). Without mobilization of new capital sources and financing models, there could be a shortage of long-term financing for low-carbon infrastructure. Furthermore, climate and other environmental risks are still not incorporated into the management of financial stability. Discussions are underway between investors and regulators in the United Kingdom to establish how to best incorporate environmental risks into financial stability management. Over the next decade, it will be important for climate/sustainability to be integrated into financial policy to ensure a “soft landing”: as the disruptive shift to a low-carbon economy progresses.

4. *Setting portfolio climate targets.* Experience at the country and corporate level shows that well-designed climate targets are an important driver of performance. Ultimately, asset owners hold responsibility for financial and ESG performance—and looking ahead to 2020, we see the introduction of climate targets by institutional investors as a useful way of guiding their investment decisions, ownership actions and policy dialogue. Universal investors such as pension funds invest across the economy, deriving returns from overall macro-economic performance. If global carbon emissions need to peak before 2020, one could argue that emissions from universal investors should also peak at that time (HSBC, 2013c).

References

- Carbon Tracker Initiative. (n.d.) *Unburnable carbon*. Retrieved from <http://www.carbontracker.org/unburnable-carbon>
- Global Investor Coalition on Climate Change. (2013). *Global investor action plan on climate change: 2013-2015*. Retrieved from <http://globalinvestorcoalition.org/wp-content/uploads/2013/07/Global-Investor-Action-Plan-On-Climate-Change-2013-2015.pdf>
- Haldane, A. G. & Davies, R. (2011, May). The short long. Paper presented at 29th Société Universitaire Européenne de Recherches Financières Colloquium: New Paradigms in Money and Finance?, Brussels. Retrieved from <http://www.bankofengland.co.uk/publications/Documents/speeches/2011/speech495.pdf>
- Hewett, Chris. (2012). *Saving for a sustainable future: Increasing public benefit from UK tax relief for savings*. Retrieved from http://www.green-alliance.org.uk/uploadedFiles/Publications/reports/Saving_for_a_sus_future_web.pdf
- HSBC. (2012). *Coal and carbon: Stranded assets: Assessing the risk*. Retrieved from <https://www.research.hsbc.com/midas/Res/RDV?p=pdf&key=dXwE9bC8qs&n=333473.PDF>
- HSBC. (2013a). *China coal and power: The water-related challenges of China's coal and power industries*. Retrieved from <https://www.research.hsbc.com/R/20/Th5dBHdMW0Xn>
- HSBC. (2013b). *Oil and carbon revisited: Value at risk from 'unburnable reserves.'* Retrieved from <http://gofossilfree.org/files/2013/02/HSBCOilJan13.pdf>
- HSBC. (2013c). *Shifting capital markets by 2 degrees: Implications and strategies for long-term investors*. Retrieved from http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCkQFjAA&url=http%3A%2F%2Fwww.churchinvestorsgroup.org.uk%2Fsystem%2Ffiles%2Fdocuments%2FJames%2520Corah%2FH%2FSBC%2520-%2520Nick%2520Robins.pdf&ei=Q8HNUpC5IYfZoATMgYLADA&usg=AFQjCNGaL0Q1P334B_PpyxuOqi1ndKkHKQ&bvm=bv.58187178,d.cGU
- Institute for Sustainable Development and International Relations. (2013). *EU low-carbon investment and new financial sector regulation: What impacts and what policy response?* Retrieved from http://www.iddri.org/Publications/Collections/Idees-pour-le-debat/WP0513_TS%20JS_financial%20regulation.pdf
- International Energy Agency. (2012). *World energy outlook 2012*. Paris, France: International Energy Agency.
- Mackenzie, Craig. (2013). *Is the tide turning on 'big carbon'? The surprising step change in the stranded assets debate*. Retrieved from http://www.responsible-investor.com/home/article/c_mac_sa
- United Nations Principles for Responsible Investment (UNPRI). (2013). *Integrated analysis: How investors are addressing environmental, social and governance factors in fundamental equity valuation*. Retrieved from http://www.unpri.org/viewer/?file=wp-content/uploads/Integrated_Analysis_2013.pdf
- University of Oxford, Smith School of Enterprise and the Environment. (2013). *Stranded assets programme*. Retrieved from <http://www.smithschool.ox.ac.uk/research/stranded-assets>

International Institute for Sustainable Development (IISD)

The International Institute for Sustainable Development (IISD) is an international, policy-focused think tank. Over its more than two decades in existence, it has focused internationally mainly on the nexus of sustainability and economic issues, including trade and investment as it relates to international governance, national policy making and private sustainability standards. It has worked in China for over a decade, partnering with the DRC and also the Ministry of Commerce, and the Ministry of Environmental Protection through its involvement in the China Council for International Co-operation on Environment and Development.

The IISD program on Sustainable Finance aims to explore how the financial system and the financial services sector might be re-engineered to deliver on sustainable and equitable development. IISD defines sustainable finance as provision of financial capital and financial risk management services in a manner that provides for economic growth, social justice and stewardship of the natural environment.

Hongkong and Shanghai Banking Corporation (HSBC)

The HSBC Group is one of the world's largest banking and financial services organisations. The Group has around 8,000 offices in 87 countries and territories in Europe, the Asia-Pacific region, the Americas, the Middle East and Africa.

HSBC provides a comprehensive range of financial services through four customer groups and global businesses: Retail Banking and Wealth Management; Commercial Banking; Corporate, Investment Banking and Markets; and Private Banking. The HSBC Group Fact Sheet gives an overall view of the Group's global services. Established in Hong Kong in March 1865 and in Shanghai one month later, The Hongkong and Shanghai Banking Corporation is the founding member of the HSBC Group. It is the Group's flagship in the Asia-Pacific region and the largest bank incorporated in Hong Kong.

Published by the International Institute for Sustainable Development.

International Institute for Sustainable Development

Head Office

161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, Canada R3B 0Y4

Tel: +1 (204) 958-7700 | Fax: +1 (204) 958-7710 | Website: www.iisd.org