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# Filling the information black hole:

How are fossil fuel  
companies reporting on  
the stranded asset risk?



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Fossil fuel companies have significant assets that may have to 'stay in the ground' and never realise benefits to them because of the need of the world to limit carbon emissions and climate change. Low prices for oil and coal may be a current reflection of that. Investors and society in general are showing increasing interest in these stranded asset and carbon risks. This survey looks at how fossil fuel companies have been responding in their reporting to this. Integrated Reporting (IR) is a relatively new framework being used by some companies. With its emphasis on longer term value creation and the recognition of natural capital, those companies using the IR framework might be expected to report in more depth on the stranded asset risk.

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## Filling the information black hole: how are fossil fuel companies reporting on the stranded asset risk?

Investors and regulators are becoming increasingly aware of the potential threat from 'stranded assets' to financial stability and to fossil fuel company market valuations. With this awareness comes the need for greater information to help investors and others understand these risks better and appreciate the extent to which companies are taking mitigating action. At the same time, companies in many sectors are beginning to experiment with 'integrated reporting' – a new approach to corporate reporting that seeks to explain companies' value creation potential over the short, medium and long term.

This report looks at:

- why stranded assets have become an issue for shareholders, regulators and governments
- the information that investors and others seek from fossil fuel companies on their stranded asset risk
- aspects of integrated reporting that could in theory result in enhanced disclosures of stranded asset risks
- the extent to which fossil fuel companies are currently providing the desired information in traditional financial reports and accounts
- whether 'integrated reports' issued by fossil fuel companies provide any greater insight than more traditional annual reports and accounts.

# 1: Stranded assets and integrated reporting in context

The University of Oxford's Stranded Assets Programme defines stranded assets as: 'assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities' (Smith School 2015).

## STRANDED ASSETS DEFINED

The University of Oxford's Stranded Assets Programme defines stranded assets as: 'assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities' (Smith School 2015). Assets can become stranded as a result of a number of different factors, including 'creative destruction', but risk factors related to the environment are growing in significance and include:

- environmental challenges (eg climate change)
- changing resource landscapes (eg shale gas abundance)
- new government regulations (eg 'carbon bubble', carbon pricing, air pollution regulation)
- falling clean technology costs (eg onshore wind, electric vehicles, electric storage)
- evolving social norms (eg fossil fuel divestment campaigns) and consumer behaviour
- litigation (eg carbon liability) and changing statutory interpretations (eg fiduciary duty, disclosure requirements).

The above Oxford definition encompasses sub-definitions used by energy economists, competition regulators and accountants.

Also relevant here is the definition used by the International Energy Agency, which sees stranded assets as: 'those investments which have already been made but which, at some time prior to the end of their economic life (as assumed at the investment decision point), are no longer able to earn an economic return, as a result of changes in the market and regulatory environment brought about by climate policy' (Smith School 2015).

The Carbon Tracker Initiative – a not-for-profit NGO – uses a variant of this definition for the energy sector, stating that: 'stranded assets are fossil fuel energy and generation resources which, at some time prior to the end of their economic life (as assumed at the investment decision point), are no longer able to earn an economic return (ie meet the company's internal rate of return), as a result of changes in the market and regulatory environment associated with the transition to a low-carbon economy' (Carbon Tracker Initiative, n.d.).

## WHY STRANDED ASSETS HAVE RAISED CONCERNS WITH SHAREHOLDERS, REGULATORS AND GOVERNMENTS

If assets become stranded and need to be prematurely written down, this will affect the stock market valuations of fossil fuel companies. As ACCA has previously highlighted: 'The impact on the key financial markets of New York and London from a sudden revaluation of fossil fuel reserves would be substantial' (ACCA and Carbon Tracker Initiative 2013). Nonetheless, such a shock could be prevented if the markets can factor in stranded asset risks soon enough.

Once the preserve of environmental campaign groups, the concept of stranded assets caused by environment-related risks (such as physical climate change impacts and societal responses to climate change) – and appreciation of the potential impacts they could have – has become mainstream. This is because of a number of factors, closely associated with the risk factors for stranded assets identified above.

### Low oil prices

The dramatic collapse in the oil price – from \$115 a barrel in the summer of 2014 to around \$65 by summer 2015 – has changed the economics of the oil industry. Key reasons for the price fall include the huge increase in US shale oil production (Bawden 2015), continued high oil production in Saudi Arabia and a slowing in the rate of increase in demand (particularly in China) (BP 2015). Though oil futures markets show prices 'modestly increasing' over the next year (IMF 2015), no major increase is expected soon. Saudi Arabia, for example, has said it will not cut production even if oil prices fall to \$20 a barrel (Das 2015).

Bob Dudley, group chief executive of BP, has said the events of 2014 'may well come to be viewed as symptomatic of a broader shifting in some of the tectonic plates that make up the energy landscape' (BP 2015).

Those shifting 'tectonic plates' mean that some once-viable oil reserves may no longer be so. Goldman Sachs estimates there is currently over \$600bn of potential capital expenditure with a breakeven cost of \$85 per barrel (Standard Life Investments 2014). If oil prices remain at around \$65 a barrel (as in mid 2015), then such assets would appear to be stranded. The oil industry has already responded: two-thirds of North Sea operators have cancelled projects in the region, according to a summer 2015 report



from the Aberdeen & Grampian Chamber of Commerce (Bawden 2015). Western oil companies may need to change their strategies in the face of long-term low oil prices (Kaletsky 2014): 'In a competitive market, the rational strategy for Western oil companies would be [to] stop all exploration, while continuing to provide technology, geology and other profitable oil field services to the nationalized owners of readily accessible reserves'. The same *International New York Times* article also suggests that Saudi Arabia may be keen to pump out as much oil as it can while it still can – in recognition of the risk that much of its oil could become 'a worthless "stranded asset" that can never be sold or burned' because the global atmosphere is 'approaching its carbon limits' and technological progress is gradually reducing the price of non-fossil fuels.

#### **Falling costs and improved effectiveness of alternative energy**

In six years, manufacturing costs for solar power have fallen 80% and onshore wind power has become 40% cheaper (Aldrick 2015). It has been estimated that solar will be as cheap as fossil fuels in 19 US states within five years, as production costs tumble (Aldrick 2015).

Oil-rich Saudi Arabia is planning to become 'a global power in solar and wind energy', and investment has been pouring into the sector: \$150bn was invested in solar generation globally in 2014, and \$100bn in wind (Aldrick 2015). In the US, President Barack Obama's revised Clean Power Plan announced in August 2015 places significant emphasis on wind and solar power and other renewable energy sources (BBC 2015). The revised plan marks a significant shift from the earlier version, which sought to speed up a transition from coal-fired to natural gas plants. It is thought the intention now is to keep the share of natural gas in US power generation at current levels, but this could be at odds with the climate strategies of some large energy companies, which focus on a shift from oil to gas.

The cost of energy storage has been a barrier to the take-up of renewable energy sources, but such costs are falling. Car manufacturer Tesla expects the cost of batteries to fall to \$180 per kWh by 2020, down from \$300–\$400 in 2014 (Standard Life Investments 2014).

#### **Mounting research into stranded assets and climate change**

The first report suggesting that climate change policy could create stranded assets appeared in 1989 (Krause et al. 1989). Following on from this, the 2011 report, *Unburnable Carbon – Are the World's Financial Markets Carrying a Carbon Bubble?*, argued that 'only one-fifth of the world's proven coal, oil and gas reserves could be burnt unabated by 2050 if we are to reduce the likelihood of exceeding 2°C warming to 20%' (Carbon Tracker Initiative 2011). It raised the fear that stranded assets could arise from climate policy, and the risk that a collapse in fossil fuel company valuations would cause shocks in major stock markets. A follow-up report issued in 2013 argued that capital spent on finding and developing more reserves was largely wasted, and that company valuations and ratings were not routinely pricing stranded assets (Carbon Tracker Initiative and Grantham Research Institute on Climate Change and the Environment 2013).

Since then, further research has continued to stimulate the stranded assets debate. For example, early in 2015 academics from the University College London Institute for Sustainable Resources published findings indicating that 80% of known coal reserves, 50% of gas and 30% of oil reserves should remain in the ground if the world is to have a 50% chance of limiting average global temperature increases to two degrees Celsius (McGlade and Ekins 2015). A separate study, which frames the climate change threat in a slightly different but tangible and vivid way, has warned that burning all remaining fossil fuel resources could result in the melting of the entire Antarctic ice sheet (Winkelmann et al. 2015). This would cause the sea level to rise by more than 50 metres over the next 1,000 years. Major cities such as London, New York and Shanghai would be inundated with water, with devastatingly destructive impact.

#### **Divestment campaigns**

A campaign to encourage divestment from fossil fuel companies is being led by the NGO 350.org. Set up in the US in 2008, the organisation coordinates climate change and divestment campaigns around the world (ACCA 2014). Some investors are responding. For example, managers of the Rockefeller fortune have already divested from coal, while the University of Glasgow's investment fund will avoid fossil fuels altogether (Harrabin 2015). The UK's British Medical Association also voted in 2014 to end its

investments in fossil fuel companies (Medact 2014). Elsewhere, two socially responsible investment funds run by New Zealand state-owned Grosvenor Financial Services Group have divested from fossil fuels (Environmental Finance n.d.).

#### **INVESTORS ARE REQUIRING MORE INFORMATION**

Shareholder activism in relation to stranded asset disclosures is growing, with investors requiring more information from fossil fuel companies. Institutional investors (62 signatories) representing nearly \$2 trillion in assets under management wrote to the Securities and Exchange Commission (SEC) in April 2015 expressing their concern that oil and gas companies are 'not disclosing sufficient information about several converging factors that, together, will profoundly affect the economics of the industry' (Ceres 2015). They identified these factors as including capital expenditures on increasingly high-cost, carbon-intensive oil and gas exploration projects, government efforts to limit carbon emissions, and the possibility of reduced global demand for oil as early as 2020.

In April 2015 some 98% of BP's shareholders voted for a resolution (backed by the board) requiring the company to disclose more information on carbon-asset risk (Baxter 2015). A similar resolution was voted through at Royal Dutch Shell's annual general meeting in May 2015. In response, the company issued a presentation giving its view on the resilience of its investment portfolio under different price, supply and demand, and CO<sub>2</sub> emissions scenarios (Royal Dutch Shell 2015).

Standard Life believes that 'thermal coal is the fossil fuel most vulnerable to stranding owing to its substitutable nature and inextricable link to energy demand' (Standard Life Investments 2014). The company is monitoring factors that are changing the outlook for all fossil fuels, including divestment campaigns, environmental regulation and technological innovation. The investor is working to identify companies exposed to stranded assets, and has developed a framework for assessing the relative exposure of companies to fossil fuel stranding. It appreciates that, 'If companies are investing in projects that have a high breakeven cost, environmental or social risk, and long duration, they are exposed to long-term stranding' (Standard Life Investments 2014).

HSBC is also seeking to raise awareness of the risk of stranded assets, summing up why they are a concern in an April 2015 research note discussing how investors can manage increasing fossil fuel risks (HSBC 2015). This stated: 'Stranded assets are those that lose value or turn into liabilities before the end of their expected economic life. In the context of fossil fuels, this means those that will not be burned – they remain stranded in the ground. We believe the risks of this occurring are growing.'

### **HOW REGULATORS ARE RESPONDING**

As awareness of stranded asset risk grows, so regulators are seeking to understand the implications for financial stability and investment strategies.

In September 2015 the Bank of England's Prudential Regulation Authority (PRA) published a Climate Change Adaptation Report focused in insurance. The report provides a framework for considering the risks arising from climate change through the lens of the PRA's statutory objectives in relation to insurers – ie the safety and soundness of firms and appropriate protection of policyholders. It identified three primary channels through which the insurance sector could be impacted by climate change: physical risks arising from weather-related events; transition risks related to the move to a lower-carbon economy; and liability risks arising for insurers from parties who have suffered loss. The report stated: 'Across these risk factors, the PRA's analysis suggests that there is potential for climate change to present a substantial challenge to the business model of insurers' (PRA 2015). It also noted the variety of research activity underway to assess the risk of stranded assets.

Separately Paul Fisher, deputy head of the PRA, has warned insurers of the risk of investing in assets that 'could be left "stranded" by policy changes which limit the use of fossil fuels', adding: 'As the world increasingly limits carbon emissions, and moves to alternative energy sources, investment in fossil fuels and related technologies... may take a huge hit' (Bank of England 2015). Meanwhile Mark Carney, governor of the Bank of England, has indicated that he expects the Bank's Financial Policy Committee to consider the issue of stranded assets 'as part of its regular horizon scanning work on financial stability risks' (Carney 2014).

Concern about the impact of stranded assets on financial systems is not confined to the UK. The G20 nations have now launched their own probe, asking the Financial Stability Board in Basel to convene a public-private inquiry into the fall-out faced by the financial sector as climate rules become much stricter (Evans-Pritchard 2015). Meanwhile, the World Bank is carrying out its own review of energy assets in its portfolio, and is studying 'sovereign risk' for the most vulnerable carbon-based economies (Evans-Pritchard 2015).

**'Recent events show how high profile the topics of the carbon bubble, stranded assets and markets disclosure are becoming. Carbon Tracker Initiative endorses constructive debate and dialogue in this area and we are greatly encouraged that regulators, market participants and disclosure advisory bodies are increasingly focusing on these issues.'**

**Mike Knight, Head of Financial Regulatory Research and Reform, Carbon Tracker Initiative**

### **HOW THE LARGEST FOSSIL FUEL COMPANIES HAVE RESPONDED TO THE STRANDED ASSET DEBATE**

Large fossil fuel companies have challenged the idea that their reserves may become stranded, for a number of reasons including:

- expected increases in demand for energy around the world
- assumed timelines for the development of reserves being too short to be affected by changes in policy, markets or technology
- belief in the impact that developing carbon capture and storage (CCS) techniques could have.

What follows focuses on the messages companies are publishing outside their year-end reporting, before the spotlight is turned on their annual reports and accounts in Chapter 2.

#### **Royal Dutch Shell**

Royal Dutch Shell issued an open letter in May 2014 in response to enquiries from shareholders about the stranded assets issue (Royal Dutch Shell 2014a). It stated that the company 'does not believe that any of its proven reserves will become "stranded" as a result of current or reasonably foreseeable future legislation on carbon...A fundamental transition of the energy system will be needed but that will take considerably longer than some alarmist interpretations of the unburnable carbon issue would have the public believe. Shell is focused on finding real solutions based on current energy realities to the widely acknowledged and real threat of climate change.'

The company said it was 'actively managing' its CO<sub>2</sub> footprint by developing its natural gas business and by investing in low carbon bio-fuels, in CCS and in the energy efficiency of its own operations.

Shell has continued to hold its position in 2015. In a speech of February 2015, CEO Ben van Beurden referred to the growing demand for energy across the world, particularly in developing nations, saying that 'the world's energy needs will underpin the use of fossil fuels for decades to come' (Shell Global 2015). Instead of ruling out these fuels, he argued that the focus should remain on lowering their carbon emissions by shifting from coal to natural gas, and through CCS and a well-executed carbon pricing system. The emphasis on natural gas, however, would now seem at odds with the US's revised Clean Power Plan, noted earlier.

#### **ExxonMobil**

In a report published in 2014, ExxonMobil stated that it included a comprehensive analysis of the global outlook for energy in its investment decision making: 'Based on this analysis, we are confident that none of our hydrocarbon reserves are now or will become "stranded". We believe producing these assets is essential to meeting growing energy demand worldwide, and in preventing consumers – especially those in the least developed and most vulnerable economies – from themselves becoming stranded in the global pursuit of higher living standards and greater economic opportunity' (ExxonMobil 2014a).

#### **BP**

BP has 'dismissed the idea that BP might have "stranded assets" which could not be burned if the 2C [sic] limit is to stay intact, saying that the major stock-listed companies owned a tiny percentage of the world's total reserves' (Macalister 2015).

Its website states that valuations are based on proved reserves, which are not stranded assets, and asserts that the company's investment strategy can be adapted to take account of changing conditions (BP n.d.).

#### **Current debate**

The response of the fossil fuel industry has not silenced the debate, with some challenging the assumptions made by the companies. 'Carbon Tracker believes that fossil fuel management are [sic] overly focused on demand and price scenarios that assume business as usual and so there may be a risk assessment "gap" between a management's view of the future and that which would result from action on climate change, technology developments and economic assumptions.' (Carbon Tracker Initiative and Energy Transition Advisers 2015)

It is not only technological and economic assumptions that are in dispute. Social and ecological arguments about the impact of fossil fuels on poor nations are also in progress. For example, the World Bank has stopped funding new coal projects except in rare circumstances. Its climate change envoy has said that continued use of coal is exacting

a heavy cost on some of the world's poorest countries, in local health impacts as well as climate change (Goldenberg 2015).

### **WHAT INFORMATION DO INVESTORS AND OTHERS SEEK FROM FOSSIL FUEL COMPANIES ON THEIR STRANDED ASSET RISKS?**

Investors are seeking information ranging from the strategic considerations of companies to details of their scenario analysis.

Standard Life is engaging with the fossil fuel companies in which it invests. It has developed a set of key questions for investigating their exposure to stranded assets (Standard Life Investments 2014).

- Has the company considered the risk of stranded assets? What is its view of the carbon budget debate?
- Has the company run scenario analysis across its whole portfolio to identify the assets most at risk from demand changes under a 2°C warming scenario? If so, what were the outcomes and what is its view of the probability of the event?
- What assumptions are being made about environmental regulation and technological innovation in fossil fuel demand forecasting models?
- Does the company consider environmental, social and governance issues in its capital expenditure decisions?
- Is the company investing in technologies/business activities that will benefit from increasing environmental regulation?

The Carbon Tracker Initiative, in a letter to the SEC, proposed two disclosure improvements that it believes would help investors understand the risks to fossil fuel companies' business models of trends towards a low-carbon economy: disclosures of future capital expenditure by break-even price bands and the carbon content of reserves and resources (Carbon Tracker Initiative 2015a). The organisation believes these proposals would provide investors with leading indicators as to which companies are adjusting their business models to a carbon-constrained world.

Previous work by ACCA has identified a number of disclosures that companies could make to help understanding of climate risks (ACCA and Carbon Tracker Initiative 2013). This concluded that, in particular, companies should:

- convert reserves into potential carbon dioxide emissions
- produce sensitivity analysis of reserves levels in different price/demand scenarios

- publish valuations of reserves using a range of disclosed price/demand scenarios
- discuss the implications of this data when explaining their capital expenditure strategy and risks to the business model.

Investor interest in stranded asset disclosures came through strongly during a roundtable discussion held by ACCA in October 2014. Participants indicated they would be interested in receiving a range of information related to stranded asset risks. This includes disclosures on strategy (eg how a company perceives the stranded asset risk and how it is responding) and the assumptions companies make (eg about future energy demand, prices and climate mitigation policies and emissions controls). Investors also expressed interest in more analysis of reserves (eg categorised as proven, probable and possible and by different types) and in sensitivity analysis (eg sensitivity of different reserves to different price and demand levels or scenario planning for risks presented by regulation and market forces).

### **ASPECTS OF INTEGRATED REPORTING THAT COULD RESULT IN ENHANCED DISCLOSURES OF STRANDED ASSET RISKS**

The concept of 'integrated reporting' is based on the idea that companies should be reporting on a wider range of issues than are addressed in the traditional annual report and financial statements. The International Integrated Reporting Council (IIRC) has identified six different types of resource and relationship that organisations use and affect – termed 'capitals'. These are financial, manufactured, intellectual, human, social and relationship, and natural.

The IIRC believes that by reporting on all these capitals, where material, companies are more likely to give higher-quality information to providers of financial capital 'to enable a more efficient and productive allocation of capital' (IIRC 2013). Another important goal is to 'support integrated thinking, decision-making and actions that focus on the creation of value over the short, medium and long term'.

Given its goals and wide scope, could integrated reporting provide investors with more of the information they need to understand stranded asset risks? In theory, this seems likely to be the case. Integrated reporting has a number of characteristics that should encourage relevant stranded asset disclosures:

- a longer-term timeframe: integrated reporting encourages companies to look further into the future and consider their ability to create value – making it more likely that risks associated with unburnable fossil fuel reserves should be considered

- the inclusion of natural capital: fossil fuel reserves are by definition 'natural capital' – detailed reporting on their management and potential to create value over the longer term should therefore be addressed
- the inclusion of intellectual capital: as fossil fuel companies explore the potential of new technologies such as CCS or alternative fuel and energy sources, so their activities could potentially be covered in any discussion on how they are developing and applying intellectual capital in their businesses
- the inclusion of social and relationship capital: fossil fuel companies can have a substantial impact on the societies in which they operate, particularly through their impact on the local environment. A poor track record here could affect their licence to operate and potentially further threaten their ability to access reserves in the ground.

As with traditional financial reporting, companies applying the IIRC's International Integrated Reporting Framework are required to disclose 'material' information, ie information about 'matters that substantively affect the organization's ability to create value over the short, medium and long term' (IIRC 2013). They also make judgements about whether some information may be commercially sensitive and so not disclosed. The IIRC's Framework notes that integrated reporters are not required to disclose material information that would cause 'significant competitive harm'. It states: 'In including information about material matters dealing with competitive advantage (e.g., critical strategies), an organization considers how to describe the essence of the matter without identifying specific information that might cause a significant loss of competitive advantage. Accordingly, the organization considers what advantage a competitor could actually gain from information in an integrated report, and balances this against the need for the integrated report to achieve its primary purpose...' This primary purpose is 'to explain to providers of financial capital how an organization creates value over time'. It would seem strange, therefore, if companies applying integrated reporting made no mention of stranded assets or a potential carbon bubble, given the growing awareness of how big an impact they could have on a fossil fuel company's market value.

The next chapter of this report reviews how a selection of fossil fuel companies are reporting on stranded assets, and discusses any differences between information reported in annual reports and in integrated reports.

## AN EXTERNAL VIEW ON SHELL

Shell's 2014 Sustainability Report includes an 'independent opinion' produced by a six-strong External Review Committee (ERC). The members (an international and distinguished group) meet with Shell management as part of their review of the company's sustainability report. Their findings provide an additional perspective on issues such as whether the company is providing sufficient information on its sustainable development strategy.

The ERC's opinion confirms the growing uncertainties faced by the fossil fuel industry. 'In the ERC's opinion, the uncertainties faced by the oil and gas industry in our increasingly turbulent world are more pronounced than in the past, aggravated as they are by the significant decrease in the price of oil, by political instabilities in key energy producing regions, and by climate change disruption, among other acute and chronic stresses' (Royal Dutch Shell 2014b).

The ERC sees scope for greater disclosure about the company's response. For example, it encourages Shell to 'provide more insights on the impacts of research & development capital expenditure in accelerating lower-carbon solutions. Public information in this domain is important to signal the level of commitment of the company to helping bring about a low-carbon future'.

In addition, the ERC poses some key questions that it believes Shell could usefully answer in relation to the potential renewable energy threat, its own business model and capital investment plans. 'While the [sustainability] report explains Shell's present strategy in the context of the energy transition, it does not yet present a long-term vision with goals that make clear how Shell envisions its future role. Are future energy solutions including renewables perceived as a threat to Shell's business model or does Shell welcome and support the future they herald? How and in what time frame will Shell capital investment evolve from today's fossil fuel predominance? Additionally, the ERC would like to see Shell disclosing how the energy transition will further impact the company's business strategy, influence its targets and determine its future actions.' (Royal Dutch Shell 2014b).

## A SELECTION OF VIEWS

Individuals interested in the stranded assets issue – representing investors, academics and reporting specialists – share their opinions.

### **Fossil fuel company reporting – shareholders deserve better**

**Natasha Landell-Mills, Head of ESG, Sarasin & Partners**

In August 2015, consultancy IHS reported that in North America alone fossil fuel exploration and production companies had reported a combined \$60bn of impairments over the preceding six months as a result of low oil and gas prices, making it the most costly for shareholders for 10 years (IHS Herold 2015).

Falling oil (and gas) prices can clearly destroy shareholder capital. Why then does it appear from the ACCA review that so few directors are assessing the potential capital destruction that could result from global action to combat climate change? This action is aimed at phasing out almost all demand for fossil fuels by the turn of the century.

Of course, a structural decline in demand for fossil fuels does not have to mean the destruction of shareholder capital. The transformation to a cleaner energy system will take decades, allowing time for companies to redefine themselves to benefit. This may mean diversifying portfolios towards cleaner fuels; investing in new technologies that clean existing fossil fuels; or it may mean winding themselves down and returning cash to shareholders.

Worryingly, the paper compiled by ACCA suggests, on the basis of public reporting, that few substantive steps are being taken to embed climate risks into strategic thinking or operational procedures.

Shareholders should expect more. Specifically, there are four channels through which a UK listed company should be communicating these risks to investors.

**1) Financial statements must report likely losses.** A company's audited accounts must present a 'true and fair view' of the entity's

underlying capital position and performance. The legislation requires the inclusion of 'likely losses'. Where assets are likely to be impaired, and the impact is measurable, then this ought to be reported. The challenge for boards is determining when climate regulations will bite, and measuring impacts.

**2) Reserve reporting should show risks to commercial viability.** Greater disclosure by companies about the status, longevity and break-even price for reserves is vital. Scenario analysis setting out the potential for asset stranding at different price trajectories (ie commercial viability) would make clear how vulnerable a company is to falling demand.

**3) Forward-looking narratives must explain climate risks.** Companies are required to provide a 'strategic report', including the main factors that are likely to affect the future performance and position of the company. Company reporting must be 'fair, balanced and understandable'. More substantive disclosures on material climate risks are needed.

**4) The viability statement (from 2015).** To support the strategic report, the UK Corporate Governance Code (paragraph C.2.1) requires directors to provide a viability statement which should 'confirm...that they have carried out a robust assessment of the principal risks facing the company, including those that would threaten the business model, future performance, solvency or liquidity. Directors should describe these risks and explain how they are being managed or mitigated' (Financial Reporting Council 2014). Again, any fossil fuel company that fails to grapple with the threat posed by climate regulation would appear to fail to meet these requirements.

Given the scale of shareholder capital at stake, fossil fuel company directors naturally worry about 'scaring' the market with disclosures about climate risks. Downplaying the impacts of climate regulation, however, is likely to be riskier for directors than full disclosure. In the end, boards are tasked with protecting capital. Shareholders deserve to know how they are fulfilling this responsibility.



**Information to help understand the contradictions posed by the current demand for fossil fuels in the oil, gas, and coal sector**

**Dr Paul Cox, Investment Adviser, The National Employment Savings Trust (NEST)**

Searching questions are currently being asked about the compatibility of investing in the fossil fuel sector and the long-term needs of society around energy and the environment. Rather than view these as inevitably separate, our interest is in understanding how companies in the sector can successfully accomplish a resolution between the two frameworks.

All companies in the oil, gas, and coal sector have highly developed risk evaluation processes embedded in their management accounting and capital investment decisions. Information remaining largely obscured that would be constructive for us to know about concerns the accounting judgements being made so we may develop our own interpretation about the economics of projects in the sector and the appropriateness of the substantial capital investment made – financially, environmentally, intergenerationally.

One judgement that we'd like to be able to evaluate more thoroughly is how the cost of capital used by companies adjusts for the risk of projects, as well as the time-horizon. Where long-term negative externalities are present there's a case for using discount rates that rise over time. For example, where the sector's output contributes to global warming, negative externalities build over time, so the discount rate should also rise with time. A lower value should be placed on future projects in today's terms so fewer negative externality projects are undertaken. Time-adjusted discounted rates are common in the public sector, but little is known about their use in the corporate sector.

A second judgement we'd like to understand more about is the assumed 'carbon' price input into cost of capital and net present value calculations when valuing capital expenditure projects. Sensitivity analysis of profits to variation in the 'carbon' price would further help our understanding of the risks.

A third judgement of interest to us concerns the incorporation of climate thresholds above which future climate change scenarios may pose a threat to the achievement of expected performance. For example, a small change in temperature leading to high frequency or major weather events may disproportionately disrupt business and the accomplishment of expected performance.

**Big data and stranded assets**

**Ben Caldecott, Director, Stranded Assets Programme, Smith School of Enterprise and the Environment, University of Oxford**

Corporate sustainability reporting is key to managing environment-related risks that can create stranded assets. Yet such reporting is currently characterised by unsatisfactory annual reporting cycles, voluntary participation (though compliance regimes are emerging), and rates of participation and data accuracy that could be significantly improved.

Anecdotal evidence suggests that costs of participation have increased as questionnaires have lengthened and the number of reporting bodies has grown. This expanding complexity has been mentioned as a concern from investors using the data, companies submitting the data, and data providers hosting or analysing the data. The growth of integrated reporting has probably added to this data reporting and management burden.

This is not to say the corporate sustainability reporting in its current form is not incredibly important. For it helps investors, as well as civil society, policy makers, and investee companies, to better measure and manage a range of material issues for both corporate performance and environmental sustainability.

However, the development of advanced analytics and big data techniques might be able to augment and improve current sustainability reporting frameworks and infrastructure. These complementary new methods and datasets are critically important if we are to secure the timely, accurate, and comprehensive information required to manage the risk of stranded assets. This is a key research priority for the University of Oxford's Stranded Assets Programme and we urge existing disclosure frameworks and regulators, as well as the users, producers, and aggregators of existing corporate sustainability reporting, to help us to take this forward.

**Harnessing the power of information**

**Lois Guthrie, Executive Director, Climate Disclosure Standards Board**

Shocks simmering beneath layers of financial instrument structuring, high returns and decent credit ratings were ignored in the lead up to the financial crisis despite warning signs. The International Organization of Securities Commissions' May 2008 report points to 'some institutional investors [having been] misled by inadequate disclosure about these complex structured finance instruments'.

Despite the Intergovernmental Panel on Climate Change's conclusion that limiting the 'unequivocal' warming of the climate system renders two-thirds of global fossil fuel reserves 'unburnable', the risks so compellingly described by Carbon Tracker Initiative are generally inadequately reported and largely unobserved save for the divestment practices of certain investors.

Although the economic risks of stranded carbon assets – estimated to range from \$6 to \$28 trillion – are serious, bail outs alone will not save us from the full range of consequences should the carbon bubble burst. We need to do more work now to try to prevent the risks materialising and/or to get a plan ready to act on should the risks crystallise. In order to do that, we need reliable information about the nature of the risks.

CDSB's 'Proposals for reporting on Carbon Asset Stranding Risks' (CASRs) (CDSB 2014) examine the types of corporate reporting requirements that could be developed to support disclosure of CASRs. Existing activity, such as CDP's Oil and Gas Module, transparency initiatives and even new financial reporting standards form a solid basis for developing or even formalising CDSB's proposals. We have an opportunity to avoid the multi-faceted pain of a carbon bubble burst through the power of information – at least let's try.

### To what extent do fossil fuel companies recognise the risk of stranded assets in their corporate reporting?

To what extent do fossil fuel companies recognise the risk of stranded assets in their corporate reporting? Is there any difference between the content provided by integrated reporters and that published by companies issuing more traditional annual reports and sustainability reports? This chapter summarises the findings of a high-level review of corporate reporting by selected fossil fuel companies for the 2014 reporting season. Content was also reviewed for coverage of issues related to stranded assets, such as the impact of the fall in oil price, any reduced investments or impairments, commentary on the risk of climate change and how it could be tackled, and information on fossil fuel reserves.

#### KEY FINDINGS

- Some companies recognise the stranded assets issue – but downplay the risk.
- Companies with an interest in coal place no more emphasis on stranded asset risks than oil companies.
- Companies are reporting an impact from the drop in the oil price.
- Companies are reducing investments in exploration and recognising some asset impairments.
- Some companies clearly recognise the risks of climate change and of associated regulation for their businesses.
- Companies provide reserves data in varying levels of detail.
- Integrated reporting does not appear to result in greater disclosure in relation to stranded assets.

#### METHODOLOGY

The annual reports (and where published, the sustainability reports) of 11 fossil fuel reporters for the 2014 reporting season were reviewed for this study. These were selected by reference to Carbon Tracker Initiative's listing of companies whose fossil fuel reserves would produce the highest potential carbon emissions (as shown in the 2011 report *Unburnable Carbon* (Carbon Tracker Initiative 2011) and subsequently updated by the organisation for a follow-up report published in 2013 (Carbon Tracker Initiative 2013)). The companies are:

- Lukoil Holdings
- ExxonMobil Corporation
- BP PLC
- Gazprom OAO
- Chevron Corporation
- ConocoPhillips
- Total S.A.
- Anglo American PLC
- Royal Dutch Shell PLC
- BHP Billiton
- Petrobras.

A sample of integrated reporters were identified from among the fossil fuel companies listed in South Africa on the Johannesburg Stock Exchange. Some of these companies did not issue their integrated reports in a timely manner, and those that did were of relatively small size. Therefore Eni was included in the review, being a participant in the IIRC's Integrated Reporting pilot programme and a company of a size more comparable to the traditional reporters. As a result the final sample of integrated reporters included:

- Sasol Ltd
- Exxaro Resources Ltd
- Sentula Mining Ltd
- Eni S.p.A.

In all cases the aim was to review the most recent annual, sustainability and integrated reports – those for the 2014 reporting season issued by the end of July 2015.

### SOME COMPANIES RECOGNISE THE STRANDED ASSETS ISSUE – BUT DOWNPLAY THE RISK

Chapter 1 of this report discussed the way that some companies are referring to the topic of stranded assets in some of their communications. A number of companies – including ExxonMobil, BP and Royal Dutch Shell – also make some reference to the issue of stranded assets or a carbon bubble in the narrative sections of their year-end reporting. Royal Dutch Shell, for example, states in its sustainability report: ‘Some external parties say that fossil fuel reserves could become stranded, due to government policies to reduce CO<sub>2</sub> emissions’ (Royal Dutch Shell 2014b).

Where companies do refer to the concept of stranded assets, their approach is generally to assert that the assets they hold are not stranded. At the least, their stance is somewhat defensive on the issue. Companies typically argue that demand for fossil fuels will continue or grow in the future, and that alternatives (ie renewables) are not yet at a stage where they can meet demand. Such arguments are consistent with messages presented in other types of reporting apart from the year-end reports.

**‘We believe all economic energy sources will be necessary to meet growing demand, and the transition of the energy system to lower carbon sources will take many decades due to its enormous scale, capital intensity and complexity. As such, we believe that none of our proven hydrocarbon reserves are, or will become, stranded.’**

Source: ExxonMobil, *Corporate Citizenship Report 2014* (emphasis added)

BHP Billiton provides one of the more detailed examinations of the stranded asset issue in its sustainability report. Its definition of the ‘carbon bubble’ is open to question, however, because the valuation of an asset on a balance sheet – its ‘book value’ – is not necessarily the same as its market value.

#### ‘Stranded assets and the “carbon bubble”

**‘The potential gap between the current valuation of fossil fuel reserves on the balance sheets of companies and in global equities markets and the reduced value that could result if a significant proportion of reserves were rendered incapable of extraction in an economically viable fashion due to responses to climate change, is known as the ‘carbon bubble’.** Although this concept has been discussed by non-government organisations and academics for several years, there has recently been renewed interest in this topic, particularly from ratings agencies and investment analysts. There is, however, little consensus on what specific carbon prices, fossil fuel demand or market prices might trigger this devaluation.

‘Providing access to the affordable energy required to continue economic growth is essential for maintaining living standards and alleviating poverty. **Under all current plausible scenarios, fossil fuels will continue to be a significant part of the energy mix for decades.**

‘BHP Billiton uses a scenario framework, including forecasting commodity prices that considers critical global uncertainties (e.g. macroeconomic and geopolitical) and their impacts on supply and demand assumptions. Using a range of carbon prices and commodity demand and pricing assumptions across a variety of internally consistent scenarios, **we have determined that BHP Billiton’s overall asset valuation is not at material risk, the pay-back periods for most present and future investments in fossil fuels production are relatively short and the portfolio remains robust.**’

Source: BHP Billiton, *Sustainability Report 2014* (emphasis added)

ConocoPhillips also offers a relatively detailed perspective, but does not use the term stranded assets, referring instead to ‘carbon asset risk’ and a ‘carbon bubble’. This approach reflects that taken by a number of interest groups (#CarbonAssetRisk has a reasonable amount of twitter activity) and relates the concept of stranded assets specifically to carbon and energy issues.

**‘We are aware that some stakeholders are concerned that at some point, the use of fossil fuels could be restricted in order to limit GHG concentrations in the atmosphere in an effort to limit changes in global temperatures. This concept is being called “carbon asset risk” or “unburnable carbon”. The issue appears to be that some stakeholders are concerned that reserve and resource projections might be overstated or that there may be a “carbon bubble”.’**

Source: ConocoPhillips, *Sustainable Development 2014 Report* (emphasis added)

ConocoPhillips also quotes from the June 2014 factsheet, *Exploring the Concept of ‘Unburnable Carbon’*, issued by IPIECA (the oil and gas industry association for environmental and social issues) to argue that there is no clear evidence of a speculative ‘carbon bubble’, as follows: ‘Markets are pricing oil and gas companies rationally. This is based on their expectations of future earnings, taking into account the size and type of mineral reserves, the risks arising from future climate policies and many other factors’. It adds: ‘IPIECA concludes that oil and gas companies, including ConocoPhillips, are taking the necessary steps to build carbon-constrained scenarios into their long-range plans and strategic portfolio decisions’ (IPIECA 2014).

BP's statement on stranded assets – which reiterates messages given by the company in other forms of communication (as highlighted earlier in Chapter 1) is interesting because it makes the point that the company's valuations are based on 'proved reserves' (BP 2014a). This seems to imply that because the assets are proved, they cannot become stranded. This would seem to miss the point – that regardless of whether reserves are proved or not, they could be in practice be unburnable, depending on wider issues such as regulations and market forces. Proved or not, they could be at risk of becoming stranded if divestment campaigns gain momentum, oil prices remain at low levels and consensus grows on the need to keep a certain percentage of reserves in the ground to reduce the risk of unacceptable global warming.

**'Valuations are based on proved reserves, which are not "stranded assets".'**

The value of the upstream part of BP's business is mainly based on proved reserves, and less so estimates of probable or possible reserves. BP's proved reserves are produced, and historically replaced, over a 13-year timeframe on average. On this wavelength we can adapt our investment strategy to changes in policy, market or technology conditions.

'To do this, we take a dynamic approach:

- GHG regulation: We assess how potential carbon policy could affect our businesses now and in the future. We apply a carbon price to our investment decisions, where relevant.
- Supply and demand: We make regional and global assessments of energy supply and demand in our Energy Outlook 2035 and we undertake detailed analysis of the transport sector.
- Fluctuating oil prices: We test our investments against a range of oil and gas prices to check they are profitable over the long term. We take into account current price levels and our long-term outlook.
- Evolving technology: We undertake periodic and thorough reviews of potential innovation out to 2050 and collaborate with external technology-focused bodies.'

Source: BP, Sustainability Report 2014 (emphasis added)

**COMPANIES WITH AN INTEREST IN COAL PLACE NO MORE EMPHASIS ON STRANDED ASSET RISKS THAN OIL COMPANIES**

The majority of the fossil fuel majors in the survey are oil companies. However, among the traditional reporters, Anglo American and BHP Billiton have significant interests in thermal coal, as do Sasol, Sentula Mining and Exxaro Resources from the integrated reporting sample. As noted earlier in this report, Standard Life believes that 'thermal coal is the fossil fuel most vulnerable to stranding' (Standard Life Investments 2014). Coal is particularly subject to a number of the underlying drivers of stranded assets, such as falling demand. For example, China's coal consumption fell in 2014 for the first time in 14 years, partly as a result of the government's policy shift towards cleaner energy (Critchlow 2015). Coal has a higher carbon impact than oil and gas for the energy it produces, so is an obvious target for substitution when trying to meet emissions targets, while gas also has the attractions of higher availability and a lower price. Some research studies (eg McGlade & Ekins 2015, referred to earlier) have suggested that a higher proportion of coal reserves than of other fossil fuels will need to stay in the ground (and so could become 'stranded') in order to limit global warming.

Given the particular vulnerability of coal to stranding, coal companies might well be expected to provide most discussion and disclosure related to the stranded asset risk, but do they?

In the reporting reviewed, Anglo American makes no specific reference at all to the stranded asset issue, though its annual report does refer to reduced demand for thermal coal from China and the impact of this on prices, as follows: 'During 2014, prices of most of the commodities we mine weakened as a result of lacklustre economic conditions in many of our key markets and increased supply of some products. This trend is expected to continue for some time' (Anglo American 2014). The company also states its view that, while there will be a transition to a low-carbon future, coal will continue to play a role in alleviating poverty even within 'two degree Celsius' scenarios.

'Anglo American believes that there will be a transition over the long term towards a low carbon future that will encompass a progressively more diverse energy mix. Coal has played a vital role in supporting poverty alleviation and sustaining prosperity. Independent forecasters foresee a significant continuing role for coal in the energy mix, up to 2040, including under policy scenarios that successfully limit global warming to two degrees Celsius...The demand for coal is forecast to continue to grow – a demand which has to be met – and we believe that responsible mining companies, such as Anglo American, need to be part of the solution.'

Source: Anglo American, Annual Report 2014 (emphasis added)

BHP Billiton, as noted above, makes considerable reference to the stranded asset issue – though not necessarily at greater length than some of the oil companies reviewed. It is also noteworthy that the company makes no specific comment about the status of coal – one of its core products – as being particularly at risk of stranding.

The integrated reporting coal companies make no reference to stranded assets, a silence also maintained by integrated reporting oil companies. This finding will be considered in more depth later in this chapter.



### **COMPANIES ARE REPORTING AN IMPACT FROM THE DROP IN OIL PRICE**

Most companies surveyed recognise and report on the 2014/15 price drop in Brent crude oil from \$115 a barrel in the summer of 2014 to around \$65 by summer 2015, and the fact that this has had an impact on operations.

Companies also recognise the risk arising from continuing low prices, which could have a material impact on operations and their financial position. BP, for example, expresses the expectation that lower or volatile prices will continue through 2015 and probably even longer. Petrobras recognises that extended periods of lower oil prices may affect the value of its proved reserves. This is an issue associated with stranded assets, ie reserve values are dependent on the market value of the product.

**‘Substantial or extended declines in international crude oil prices may have a material adverse effect on our business, results of operations and financial condition, and may also affect the value of our proved reserves.’**

Source: Petrobras, *Form 20-F Annual Report 2014* (emphasis added)

However, despite the low oil price, in their reports most companies express the view that demand for fossil fuels as an energy source will be sustained or grow in the future. Reasons given for this view included energy demand in non-OECD countries, population growth, and spreading affluence. Several companies (eg BP and Shell) express the view that natural gas will have increasing importance in meeting energy demand. BP’s annual report states that by 2035: ‘gas is expected to provide 26% of global energy, matching the share of coal’ (BP 2014b). It will be interesting to see in future if such views are adjusted, for example, to reflect the lesser emphasis on natural gas in US President Barack

Obama’s Clean Power Plan announced only in the summer of 2015 (BBC 2015). In fact, a range of sources suggest that there could be a future oversupply of natural gas. Analysis by Carbon Tracker Initiative has indicated that \$283bn of possible liquefied natural gas (LNG) projects to 2025 are likely to be surplus to requirements in a low-demand scenario (Carbon Tracker Initiative 2015b). Research by the Stockholm Environment Institute has also warned of the need for gas investments to be scaled back (Erickson et al. 2015).

Companies also recognise the need for a more diversified energy mix. ExxonMobil’s sustainability report states: ‘Oil and natural gas will be essential in meeting the rising [energy] need, in conjunction with nuclear and renewable energy supplies’ (ExxonMobil 2014b).

### **COMPANIES ARE REDUCING INVESTMENTS IN EXPLORATION AND RECOGNISING SOME ASSET IMPAIRMENTS**

Company reporting reveals signs of an industry-wide (though not universal) trend to reduce investment in fossil fuel exploration during 2014/15. Companies making such reductions include BP, Chevron, ConocoPhillips, Total, BHP Billiton, Petrobras, Exxaro and Eni. In general, companies attribute – or at least link – their reduced investment to the lower price environment and the need for capital discipline.

**‘Capital investment in 2015 is expected to decrease, largely reflecting the lower oil price environment and our commitment to continued capital discipline. The reduction is expected to come primarily from prioritizing activity in our operations, paring back exploration and access spend, and shelving a number of marginal projects.’**

Source: BP, *Annual Report and Form 20-F 2014*

**‘We announced a 2015 capital and exploratory budget of \$35 billion. The 2015 budget is 13 percent lower than total investments for 2014, reflecting our focus on being more selective with our investments in the current lower-price environment.’**

Source: Chevron, *2014 Annual Report*

**‘We continue to invest selectively in those projects that meet our demanding criteria. In FY2014, we reduced our share of exploration and capital expenditure by 32 per cent to US\$15.2 billion and expect this to decline to US\$14.8 billion in FY2015.’**

Source: BHP Billiton, *Annual Report 2014*

A number of companies (including BP, Gazprom, Chevron, Royal Dutch Shell and Petrobras) recognise that a prolonged period of low commodity prices would affect their cash flows, reducing exploratory budgets, challenging their ability to maintain long-term investment programmes and potentially leading to some asset sales or impairments.

Some companies have already recorded some asset impairments. Integrated reporter Eni, for example, reported ‘asset impairments driven by a lower price environment in the near to medium term impacting the recoverable amounts of oil&gas [sic] properties and of rigs and construction vessels’ (Eni 2014). Exxaro’s *Integrated Report 2014* highlights an impairment (R202m) of the licence (an intangible asset) relating to technology linked to an underground coal gasification project, explaining that the impairment decision was based on ‘the current economic environment and the expected capital expenditure required for the project’.

Total also disclosed an impairment in relation to its oil sands assets in Canada, citing the economic climate as a cause.

**‘Taking into account the current economic environment, the Group impaired its oil sands assets in Canada by approximately \$2.2 billion, its unconventional gas notably in the United States by \$2.1 billion, its refining in Europe by \$1.4 billion, as well as certain other assets in the Upstream.’**

**Source: Total, Registration Document 2014 (including annual financial report)**

#### **SOME COMPANIES CLEARLY RECOGNISE THE RISKS OF CLIMATE CHANGE AND OF ASSOCIATED REGULATION FOR THEIR BUSINESSES**

Several companies clearly recognise the risks of climate change. For example, Chevron recognises ‘that the use of fossil fuels to meet the world’s energy needs is a contributor to rising greenhouse gases (GHGs) in the earth’s atmosphere’ (Chevron 2014).

Some companies refer to the role they can play in tackling climate change. For example, Total’s sustainability report notes: ‘Natural gas is the lowest-carbon fossil fuel. To reap quick climate benefits, we consider it a priority to replace as much coal as possible with natural gas to fire power plants’ (Total 2014). The company again comments on the theme in its annual report, while ConocoPhillips does so in its sustainability report.

**‘The Group’s approach to climate and energy is to satisfy a growing demand for energy while providing concrete solutions, as needed, to limit the effects of climate change. To do so, the Group has built its action around five focal points:**

1. focusing on the development of natural gas as the primary fossil energy source due to its low carbon intensity;
2. developing the solar energy offer as the renewable energy of choice in the evolution of the energy mix;
3. improving the energy efficiency of the Group’s facilities, products and services, and maintaining efforts in terms of direct emissions of greenhouse gas (GHG);
4. increasing access to a more sustainable energy, for the highest number of people; and
5. making public commitments regarding the industry’s acknowledgment of climate issues and working on the challenge posed by climate change.’

**Source: Total, Registration Document 2014 (including annual financial report)**

**‘As economies around the world continue to develop, fossil fuels will play an important role in meeting the growing global demand for energy. Meeting the challenge of taking action on climate change while providing adequate, affordable supplies of reliable energy will require financial investments, skilled people, technical innovation and responsible stewardship from policy makers, energy producers and consumers.’**

**Source: ConocoPhillips, Sustainable Development 2014 Report**

Most companies provide detail on emissions reductions from their operations and report on other issues, such as reduced flaring. ExxonMobil, for example, says in its sustainability report that it is ‘working to increase energy efficiency while reducing flaring, venting and fugitive emissions in our operations’ (ExxonMobil 2014b).

Some companies, including Total and Royal Dutch Shell, voice support for the setting of a global carbon pricing mechanism.

**‘All sectors of society must work together to combat climate change effectively. One vital and pressing step is to set up effective systems for putting a price on carbon emissions. It is an efficient way to encourage companies to change their activities in ways that have a deep and lasting impact on emissions.’**

**Source: Royal Dutch Shell, Annual Report and Form 20-F 2014**

A few companies explain that they include an internal carbon cost or ‘shadow’ carbon price when assessing the economic viability of projects. These include BP (\$40 per tonne of CO<sub>2</sub> equivalent), ConocoPhillips (\$6 – \$51 per tonne), Shell (\$40 per tonne), BHP (an unnamed price) and Total (\$25 per tonne). ExxonMobil discusses a cost of carbon that ‘in some geographies may approach \$80 per ton by 2040’ (ExxonMobil 2014b). The variation in these prices is striking.

### COMPANIES PROVIDE RESERVES DATA IN VARYING LEVELS OF DETAIL

Reserves data is widely reported by companies, though in varying levels of detail. Fully analysing this area of corporate reporting would require its own focused project. Nonetheless, this review of a sample of fossil fuel companies finds that many produce tables and charts containing a range of information, including:

- proved oil and gas reserves by geography
- total proved probable and possible oil and gas reserves
- estimated net proved reserves across liquid fuels (crude oil and natural gas liquids), natural gas and total hydrocarbons
- carbon intensity by fuel type
- average realised price by fuel type.

BHP Billiton provides particularly detailed information on its proved and probable reserves, including the life of the reserves, shown in Figure 2.1.

ConocoPhillips provides a useful set of graphs early in its 2014 Annual Report, including a split of proved reserves (crude oil, liquid and natural gas) over a three-year period. It also produces useful factsheets, to which links are provided in the annual report, detailing further reserve breakdowns by region.

### INTEGRATED REPORTING DOES NOT APPEAR TO RESULT IN GREATER DISCLOSURE IN RELATION TO STRANDED ASSETS

Among this study's sample of companies issuing integrated reports, no explicit references were found to stranded assets or a carbon bubble. Therefore the Integrated Reporting framework of itself, as currently being applied by the fossil fuel companies reviewed, does not appear to result in greater disclosure about stranded assets.

One integrated reporter, Eni, did undertake quite an extensive review of the 'challenging market' in which it was operating (Eni 2014). This included commentary on the context, market changes, wider geopolitical (and climate change) risks that are driving developments, and provided links to performance and

targets in relation to areas such as capital expenditure and strategy. So although Eni did not mention stranded assets, it did address a range of related contextual issues.

No real evidence was found that integrated reporting has encouraged more discussion of the impact of a falling oil price than in traditional annual reports. However, Eni provided some of the greatest detail on scenarios of possible future oil prices. For example, it explored the scenario of a 2015 price of \$55/barrel, with projected capital expenditure based on a price of \$63 in 2015/16, then a recovery to \$85 in 2017/18 and a longer-term price of \$90.

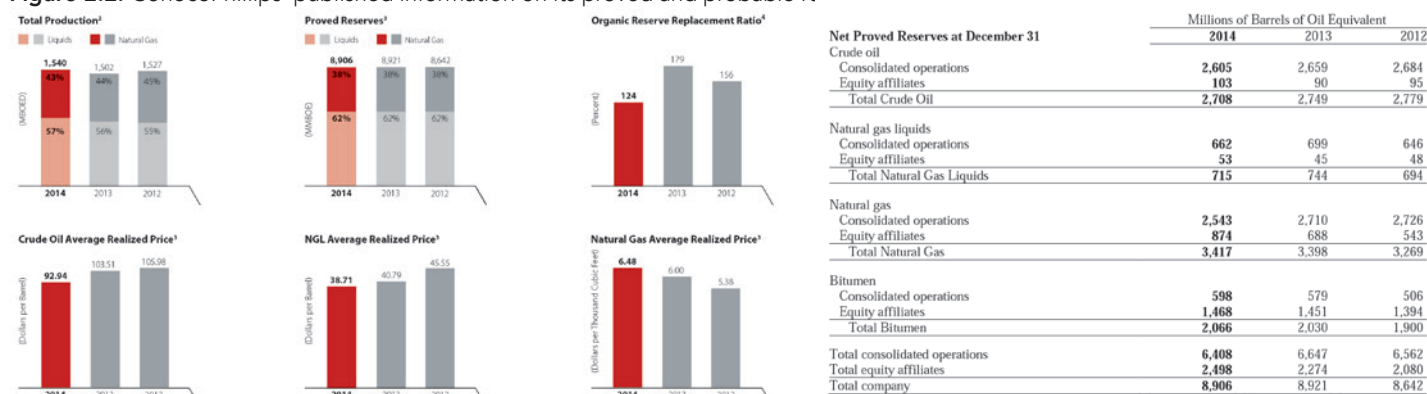
One factor to note is that most of the integrated reporters (excluding Eni) are substantially smaller companies than those surveyed in the traditional annual report group. So could size affect the quality and content of company reporting in this context? It is possible, for example, that the largest fossil fuel companies, because they have a higher global profile, are subject to more attention from investors, activists and the media about their exposure to stranded assets and carbon risk, and so are primed to address these issues in their corporate reports.

Figure 2.1: BHP Billiton's published information on its proved and probable reserves

As at 30 June 2014																	As at 30 June 2013								
Commodity Deposit	Mining Method	Coal Type	Proved Coal Reserves	Probable Coal Reserves	Total Coal Reserves	Proved Marketable Coal Reserves				Probable Marketable Coal Reserves				Total Marketable Coal Reserves				Reserve Life (years)	BHP Billiton Interest %	Total Marketable Coal Reserves				Reserve Life (years)	
			Mt	Mt	Mt	Mt	%Ash	%VM	%S	Mt	%Ash	%VM	%S	Mt	%Ash	%VM	%S			Mt	%Ash	%VM	%S		
<b>Metallurgical Coal</b>																									
<b>Queensland Coal</b>																									
<b>CQCA JV</b>																									
Goonyella Riverside	OC	Met	321	224	545	244	9.3	22.7	0.50	160	10.5	22.7	0.50	404	9.8	22.7	0.50	30	50	417	9.8	22.7	0.50	32	
Broadmeadow	UG	Met	43	160	203	35	8.0	23.0	0.52	109	9.3	23.6	0.54	144	9.0	23.4	0.54			146	7.0	24.2	0.52		
Peak Downs <sup>(1)</sup>	OC	Met	492	548	1,040	296	10.6	22.3	0.60	317	10.3	21.9	0.59	613	10.5	22.1	0.60	34	50	626	10.5	22.1	0.60	34	
Saraji	OC	Met	386	153	539	240	10.6	18.0	0.60	87	10.6	18.5	0.70	327	10.6	18.1	0.63	37	50	336	10.6	18.1	0.63	39	
Norwich Park <sup>(2)</sup>	OC	Met	154	76	230	112	10.3	16.9	0.70	52	10.3	16.9	0.70	164	10.3	16.9	0.70	27	50	164	10.3	16.9	0.70	27	
Blackwater <sup>(3)</sup>	OC	Met/Th	143	379	522	126	8.0	26.7	0.40	333	9.1	26.1	0.40	459	8.8	26.3	0.40	30	50	472	8.8	26.3	0.40	35	
Dzunia <sup>(1)</sup>	OC	Met	88	50	138	72	8.2	20.8	0.36	40	8.4	20.5	0.34	112	8.3	20.7	0.35	25	50	116	8.2	20.7	0.36	32	
<b>Gregory JV</b>																									
Gregory Crinum <sup>(4)</sup>	OC	Met	6.6	0.3	6.9	5.4	7.0	34.8	0.60	0.2	7.0	35.3	0.60	5.6	7.0	34.8	0.60	2.8	50	5.6	7.0	34.8	0.60	3	
	UG	Met	-	13	13	-	-	-	-	11	7.2	33.8	0.58	11	7.2	33.8	0.58			14	7.5	33.7	0.60		
<b>BHP Billiton Mitsui</b>																									
South Walker Creek <sup>(5)</sup>	OC	Met	68	21	89	50	9.0	14.3	0.32	15	9.0	13.9	0.31	65	9.0	14.2	0.32	11	80	85	9.0	14.3	0.30	21	
Poitrel-Winchester <sup>(6)</sup>	OC	Met	34	38	72	23	8.3	23.3	0.33	26	8.3	24.0	0.34	49	8.3	23.6	0.33	15	80	48	8.5	23.6	0.30	17	
<b>Illawarra Coal</b>																									
Appin	UG	Met/Th	24	133	157	20	8.9	23.5	0.37	112	8.9	24.9	0.36	132	8.9	24.7	0.36	25	100	134	8.9	24.7	0.36	26	
West Cliff	UG	Met/Th	5.4	0.4	5.8	3.8	8.9	20.6	0.36	0.3	8.9	20.1	0.36	4.1	8.9	20.6	0.36	2.0	100	5.8	8.9	20.7	0.36	3	
Dendrobium	UG	Met/Th	21	24	45	-	-	-	-	-	-	-	-	-	-	-	-	-	8.9	100	-	-	-	-	10
	UG	Met	-	-	-	8.6	9.7	23.8	0.59	9.9	9.7	24.2	0.59	18	9.7	24.0	0.59			20	9.7	24.0	0.59		
	UG	Th	-	-	-	5.2	23.0	-	-	6.3	23.0	-	-	12	23.0	-	-			13	23.0	-	-		

Source: BHP Billiton, Annual Report 2014

Figure 2.2: ConocoPhillips' published information on its proved and probable reserves



Source: ConocoPhillips, 2014 Annual Report

The concept of stranded assets and the risk they pose to investors, stock markets and financial stability is now widely accepted.

The concept of stranded assets and the risk they pose to investors, stock markets and financial stability is now widely accepted. There are, however, differing views on the extent to which stranded assets may exist now or in the future, with fossil fuel companies among those downplaying the risk.

The recent year-end reporting by fossil fuel companies reiterates messages given in other forms of corporate communications (including special reports and websites). In general, fossil fuel companies believe the continuing need for traditional coal, oil and gas fuels – particularly in developing economies – means that their current reserves are not threatened by stranding. Nevertheless, they are providing some commentary on their strategies for responding to global warming, such as shifting their emphasis from coal to natural gas and developing alternative energy sources. They are also reporting an impact from the drop in oil price and some are (for a range of reasons) reducing investments in exploration activities and recognising asset impairments.

Such information is welcome, but the quality and quantity of these disclosures varies considerably. Surprisingly, some companies even fail to provide any comfort to shareholders that they have considered and are responding to the threat to their capital values posed by the risk that their reserves will become unusable. This is unacceptable.

From this study's (albeit small) sample of integrated reporters, integrated reporting does not appear to increase the quality or quantity of reporting on stranded asset risks. In fact, the integrated reporters in the sample were lagging behind the traditional reporters – none specifically addressed the stranded assets debate. This is despite certain characteristics of integrated reporting that might suggest otherwise, such as its emphasis on a longer-term focus and on reporting on a wide range of capitals.

This is not necessarily the result expected at the start of this research project. Since that time, however, as noted below, the issue of stranded assets has become far more mainstream and awareness of the associated risks is now widespread. Arguably, this high level of interest has encouraged the non-integrated reporters to give the issue more attention than they might otherwise have done, so diminishing the distinction between the output that might be expected from the two reporting approaches (traditional financial and integrated).

## FAST-CHANGING LANDSCAPE

This research project began in 2014 and extended into 2015. It was noticeable how the landscape continued to evolve – with the publication of new research into stranded asset risks, divestment campaigns gaining momentum and developments in the stances of regulators and governments. The revised Clean Power Plan for the US, for example, was announced after the crop of annual reports reviewed here had been issued.

As the study found, some fossil fuel companies had stated not only that their proved reserves were not currently stranded, but also that they would not become stranded in future. Yet what will happen if the socio-political landscape continues to change and governments push ahead with low carbon emissions commitments? What if moves away from natural gas continue? What if the oil price falls further? If multiple risks for fossil fuel companies crystallise together, could the companies' confidence in their reserves prove unfounded?

Predicting the future with certainty is impossible. It is clear, however, that investors would like all fossil fuel companies – both traditional and integrated reporters – to provide more detailed information than they do currently in relation to their reserves and stranded asset risks. Scenario analysis, for example, examining the impact of different oil prices, could increase understanding of the risk that projects will fail to meet breakeven requirements. The extent of such reported information currently varies widely. The findings of this study show that current annual reporting is not giving investors the detailed information on stranded asset risks that they want and deserve.

Interest in stranded assets is unlikely to fade. In contrast, it is likely to grow if oil prices remain low (as expected), divestment campaign groups remain active and alternative energy sources continue to develop. It is important that all interested parties – including investors, regulators and researchers – communicate their needs and concerns clearly with fossil fuel companies so that experimentation with reporting in this area continues.



- ACCA (2014), *Divestment from Fossil Fuel Companies: Views and Opinions from the ACCA Global Forum for Sustainability* <<http://www.accaglobal.com/content/dam/acca/global/PDF-technical/sustainability-reporting/tech-tp-dfffa.pdf>>, accessed 27 October 2015.
- ACCA and Carbon Tracker Initiative (2013), *Carbon Avoidance? Accounting for the Emissions Hidden in Reserves* <<http://www.accaglobal.com/content/dam/acca/global/PDF-technical/sustainability-reporting/tech-tp-ca.pdf>>, accessed 27 October 2015.
- Aldrick, P. (2015), 'Solar Power Will Soon be Replacing Oil...Even Saudi Arabia Believes it', *The Times* 3 June <<http://www.thetimes.co.uk/tto/business/columnists/philipaldrick/article4458533.ece>>, accessed 11 June 2015.
- Anglo American (2014), *Annual Report 2014*
- Bank of England (2015), 'Confronting the Challenges of Tomorrow's World', Economist's Insurance Summit 2015, London, 3 March <<http://www.bankofengland.co.uk/publications/Documents/speeches/2015/speech804.pdf>>, accessed 27 October 2015.
- Bawden, T. (2015), 'Rise of US Fracking Causes Seismic Shift in North Sea Oil', *The Independent*, 11 June <<http://www.independent.co.uk/news/business/analysis-and-features/rise-of-us-fracking-causes-seismic-shift-in-north-sea-oil-10312222.html>>, accessed 26 October 2015.
- Baxter, S. (2015), 'BP Climate Change Resolution Gets 98 per cent Backing', *BusinessGreen*, 16 April <<http://www.businessgreen.com/bg/news/2404454/bp-climate-change-resolution-gets-98-per-cent-backing>>, accessed 24 July 2015.
- BBC (2015), 'Climate Change: Obama Unveils Clean Power Plan', 3 August <<http://www.bbc.co.uk/news/world-us-canada-33753067>>, accessed 14 October 2015.
- BP (n.d.), 'Unburnable Carbon' <<http://www.bp.com/en/global/corporate/sustainability/the-energy-future/climate-change/unburnable-carbon.html>>, accessed 14 October 2015.
- BP (2014a), *Sustainability Report 2014*
- BP (2014b), *Annual Report and Form 20-F 2014*
- BP (2015), *BP Statistical Review of World Energy* <<http://www.bp.com/content/dam/bp/pdf/Energy-economics/statistical-review-2015/bp-statistical-review-of-world-energy-2015-full-report.pdf>>, accessed 26 October 2015.
- Carbon Tracker Initiative (2011), *Unburnable Carbon – Are the World's Financial Markets Carrying a Carbon Bubble?* <<http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-Full-rev2-1.pdf>>, accessed 27 October 2015.
- Carbon Tracker Initiative (2013), *Unburnable Carbon 2013: Wasted Capital and Stranded Assets* <<http://www.carbontracker.org/report/wasted-capital-and-stranded-assets/>>, accessed 28 October 2015.
- Carbon Tracker Initiative (2015a), 'Fossil Fuel Company Disclosures Failing to Address Climate Risks', 13 February <<http://www.carbontracker.org/news/fossil-fuel-company-disclosures-failing-to-address-climate-risks/>>, accessed 14 October 2015.
- Carbon Tracker Initiative (2015b), *Carbon Supply Cost Curves: Evaluating Financial Risk to Gas Capital Expenditures* <<http://www.carbontracker.org/wp-content/uploads/2015/06/CTI-gas-report-Final-WEB.pdf>>, accessed 27 October 2015.
- Carbon Tracker Initiative (n.d.), *Resources* <<http://www.carbontracker.org/resources/>>, accessed 14 October 2015.
- Carbon Tracker Initiative and Energy Transition Advisers (2015), *The Fossil Fuel Transition Blueprint* <<http://www.carbontracker.org/wp-content/uploads/2015/04/Blueprint-Carbon-Tracker-230415.pdf>>, accessed 27 October 2015.
- Carbon Tracker Initiative and Grantham Research Institute on Climate Change and the Environment (2013), *Unburnable Carbon 2013: Wasted Capital and Stranded Assets* <<http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-2-Web-Version.pdf>>, accessed 27 October 2015.
- Carney, M. (2014), 30 October, 'Dear Ms. Walley' <<http://www.parliament.uk/documents/commons-committees/environmental-audit/Letter-from-Mark-Carney-on-Stranded-Assets.pdf>>, accessed 27 October 2015.
- CDSB (2014), *Proposals for Reporting on Carbon Asset Stranding Risks* <[http://www.cdsb.net/sites/cdsbnet/files/cdsb\\_proposals\\_for\\_reporting\\_on\\_carbon\\_asset\\_stranding\\_risks.pdf](http://www.cdsb.net/sites/cdsbnet/files/cdsb_proposals_for_reporting_on_carbon_asset_stranding_risks.pdf)>, accessed 27 October 2015.
- Ceres (2015), 17 April, 'Re: Inadequate Carbon Asset Risk Disclosure by Oil and Gas Companies' <<http://www.ceres.org/files/confidential/investor-sec-letter-inadequate-carbon-asset-risk-disclosure-by-oil-and-gas-companies>>, accessed 27 October 2015.
- Chevron (2014), *Corporate Responsibility Report Highlights*
- Critchlow, A. (2015), 'China's Bursting Coal Bubble Raises Fear of Stranded Assets', *The Telegraph* <<http://www.telegraph.co.uk/finance/newsbysector/energy/11443648/Chinas-bursting-coal-bubble-raises-fear-of-stranded-assets.html>>, accessed 27 October 2015.
- Das, S. (2015), 'The Price of Oil is Likely to Remain Low – but Volatile', *The Independent* <<http://www.independent.co.uk/news/business/news/the-price-of-oil-is-likely-to-remain-low-but-volatile-10112768.html>>, accessed 27 October 2015.
- Eni (2014), *Integrated Annual Report 2014*
- Environmental Finance (n.d.), 'Two Grosvenor Funds Ditch Fossil Fuels' <<https://www.environmental-finance.com/content/news/two-grosvenor-funds-ditch-fossil-fuels.html>>, accessed 14 October 2015.
- Erickson, P., Kartha, S., Lazarus, M. and Tempest, K. (2015), *Leaving Room for 'Green Growth': Identifying Near-term Actions to Avoid Long-term Carbon Lock-in* <<http://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-PB-2015-Avoiding-carbon-lock-in.pdf>>, accessed 27 October 2015.
- Evans-Pritchard, A. (2015), 'G20: Fossil Fuel Fears Could Hammer Global Financial System', *The Telegraph* <<http://www.telegraph.co.uk/finance/economics/11563768/G20-to-probe-carbon-bubble-risk-to-global-financial-system.html>>, accessed 27 October 2015.
- ExxonMobil (2014a), *Energy and Carbon – Managing the Risks* <<http://cdn.exxonmobil.com/~media/global/files/other/2014/report---energy-and-carbon---managing-the-risks.pdf>>, accessed 27 October 2015.
- ExxonMobil (2014b), *Corporate Citizenship Report 2014*
- Financial Reporting Council (2014), *The UK Corporate Governance Code* <<https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-2014.pdf>>, accessed 27 October 2015.
- Goldenberg, S. (2015), 'World Bank Rejects Energy Industry Notion that Coal can Cure Poverty', *The Guardian* <<http://www.theguardian.com/environment/2015/jul/29/world-bank-coal-cure-poverty-rejects>>, accessed 27 October 2015.
- Harrabin, R. (2015), 'Fossil Fuels: The "Untouchable Reserves"' <<http://www.bbc.co.uk/news/science-environment-30716664>>, accessed 27 October 2015.
- HSBC (2015), *Stranded Assets: What Next?* <[http://www.businessgreen.com/digital\\_assets/8779/hsbc\\_Stranded\\_assets\\_what\\_next.pdf](http://www.businessgreen.com/digital_assets/8779/hsbc_Stranded_assets_what_next.pdf)>, accessed 27 October 2015.
- IHS Herold (2015), *IHS Herold 2015 Global Upstream Performance Review*
- IIRC (2013), *The International <IR> Framework* <<http://integratedreporting.org/wp-content/uploads/2013/12/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf>>, accessed 27 October 2015.
- IMF (2015), *Commodity Prices Outlook & Risks, June 2015* <<http://www.imf.org/external/np/res/commmod/pdf/cpor/2015/cpor0615.pdf>>, accessed 26 October 2015.
- IPIECA (2014), *Exploring the Concept of 'Unburnable Carbon'* <<http://www.ipieca.org/publication/unburnable-carbon>>, accessed 28 October 2015.
- Kaletsky, A. (2014), 'Saudi Hints on Oil Prices are Warning', *International New York Times*, 5 December

Krause, F., Bach, W. and Koomey, J. (1989), *Energy Policy in the Greenhouse: From Warming Fate to Warming Limit*

Macalister, T. (2015), 'BP Boss Widens Transatlantic Rift in Energy Industry Over Climate Change', *The Guardian* <<http://www.theguardian.com/business/2015/jun/10/bp-boss-widens-transatlantic-rift-in-energy-industry-over-climate-change>>, accessed 27 October 2015.

McGlade, C. and Ekins, P. (2015), 'The Geographical Distribution of Fossil Fuels Unused when Limiting Global Warming to 2°C', *Nature* <<http://www.nature.com/nature/journal/v517/n7533/pdf/nature14016.pdf>>, accessed 27 October 2015.

Medact (2014), 'UK Doctors Vote to End Investments in the Fossil Fuel Industry' <<http://www.medact.org/news/uk-doctors-vote-end-investments-fossil-fuel-industry/>>, accessed 14 October 2015.

PRA (2015), *The Impact of Climate Change on the UK Insurance Sector* <<http://www.bankofengland.co.uk/pradefra0915.pdf>>, accessed 27 October 2015.

Royal Dutch Shell (2014a), 'To Whom it May Concern', 16 May <<http://www.qualenergia.it/sites/default/files/articolo-doc/sri-web-response-climate-change-may14.pdf>>, accessed 14 October 2015.

Royal Dutch Shell (2014b), *Sustainability Report* <[http://reports.shell.com/sustainability-report/2014/servicepages/downloads/files/entire\\_shell\\_sr14.pdf](http://reports.shell.com/sustainability-report/2014/servicepages/downloads/files/entire_shell_sr14.pdf)>, accessed 27 October 2015.

Royal Dutch Shell (2015), *Response to Shareholder Resolution on Climate Change* <<http://s01.static-shell.com/content/dam/shell-new/local/corporate/corporate/downloads/pdf/investor/agm/response-to-shareholder-resolution-on-climate-change.pdf>>, accessed 27 October 2015.

Shell Global (2015), 'Less Aloof, More Assertive', 12 February <<http://www.shell.com/global/aboutshell/media/speeches-and-articles/2015/less-alooof-more-assertive.html>>, accessed 14 October 2015.

Smith School of Enterprise and the Environment (2015), *Stranded Assets Programme* <<http://www.smithschool.ox.ac.uk/research-programmes/stranded-assets/definitions-stranded-assets.php>>, accessed 14 October 2015.

Standard Life Investments (2014), *Stranded Assets: Challenging the Status Quo* <[http://www.standardlifeinvestments.com/WP\\_Stranded\\_Assets\\_White\\_Paper/getLatest.pdf](http://www.standardlifeinvestments.com/WP_Stranded_Assets_White_Paper/getLatest.pdf)>, accessed 26 October 2015.

Total (2014), *Sustainable Growth Report 2014*

Winkelmann, R., Levermann, A., Ridgwell, A. and Caldeira, K. (2015), 'Combustion of Available Fossil Fuel Resources Sufficient to Eliminate the Antarctic Ice Sheet', *Science Advances* <<http://advances.sciencemag.org/content/1/8/e1500589>>, accessed 27 October 2015.



**EA-STRANDED-ASSETS**