

GLOBAL CLIMATE DISCLOSURE FRAMEWORK FOR OIL & GAS COMPANIES

An international initiative in partnership with:

Europe

North America

Australia/New Zealand



About IIGCC

The Institutional Investors Group on Climate Change (IIGCC) is a forum for collaboration on climate change for European investors. The group's objective is to accelerate investment in a low-carbon economy by bringing investors together to use their collective influence with companies, policymakers and investors. The group currently has over 50 members, representing assets of around €4trillion.

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About CERES and INCR

Ceres is a leading coalition of investors, environmental groups and other public interest groups working with companies to address sustainability challenges such as climate change. Ceres directs the Investor Network on Climate Risk, an \$8 trillion network of 80 institutional investors focused on addressing the financial risks and investment opportunities posed by climate change.

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About IGCC

The IGCC represents institutional investors operating in Australia and New Zealand, with assets around AU\$500bn, and others in the investment community interested in the impact of climate change on investments. The IGCC aims to ensure that the risks and opportunities associated with climate change are incorporated into investment decisions for the ultimate benefit of individual investors.

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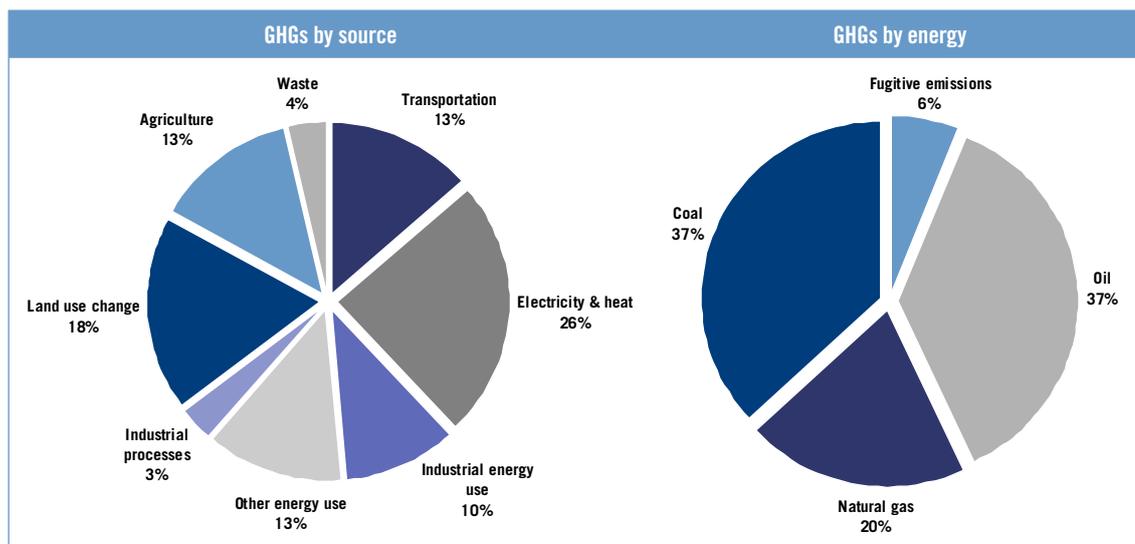
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1 Introduction: Climate change is a key issue for the Oil & Gas sector

The oil and gas sector is in the centre of the changes that will be required to reduce the carbon intensity of the global economy. Growth in the global economy over the past century has been tied to increased use of energy, and emissions of greenhouse gases (GHGs) have closely mirrored economic expansion as a result. Energy-related activities contribute c.70% of global GHG emissions; oil and gas together represent c.60% of those energy-related emissions through their extraction, processing and subsequent combustion.

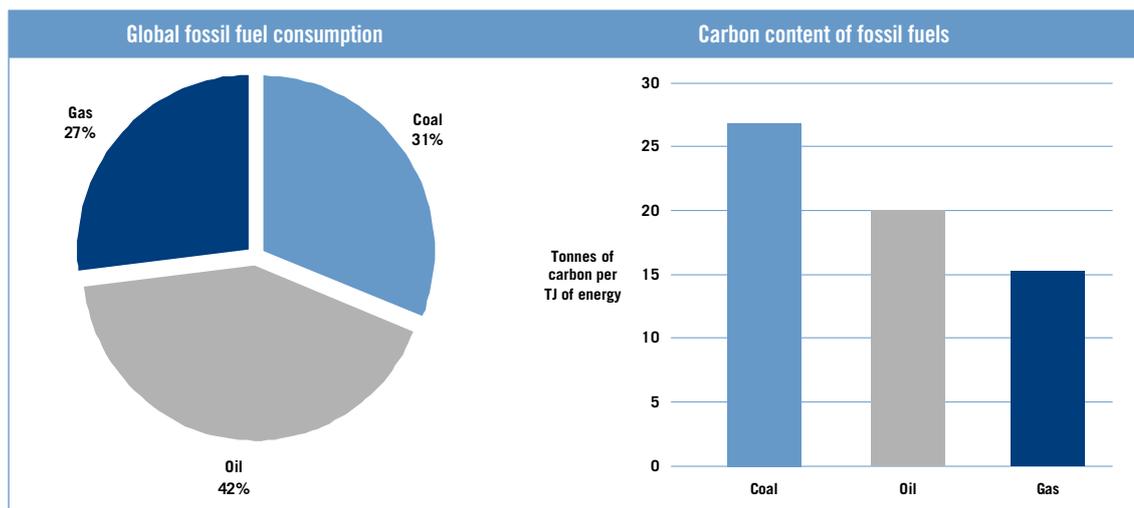
Exhibit 1 Greenhouse gas emissions by source and by energy source



Source: World Resources Institute

More than many sectors heavily exposed to carbon intensive products, the Oil and Gas industry faces a difficult transition to a low carbon economy through a progressive and irreversible shift away from fossil fuels towards less carbon intensive sources of energy. Projections from the Intergovernmental Panel on Climate Change imply that annual emissions of GHGs must be reduced by at least 50% from 1990 levels if risks of “abrupt and irreversible” climate change are to be reduced to acceptable levels. To achieve this goal will require a dramatic reduction in emissions from fossil fuel use. Nonetheless, the Oil and Gas industry continues to rely almost entirely on fossil fuel production for its profitability and value.

Exhibit 2 Global fossil fuel consumption by hydrocarbon & carbon contents of fuel types



Source: World Resources Institute

Whether that emissions reduction is achieved and over what timeframe will hinge on the pace with which regulation is introduced both to the sector and its consuming industries, such as electric utilities and transportation. It is telling that political momentum to address the causes of climate change is gathering pace and governments globally are showing increased commitment to coordinated action to reduce carbon emissions. Understanding how companies plan to adapt to the significant reduction in use of their major product, as well as increasing pressure on the emissions generated by their own operations is a critical question for long term investors in the oil and gas sector, yet the information required for investors to draw meaningful conclusions is not readily available.

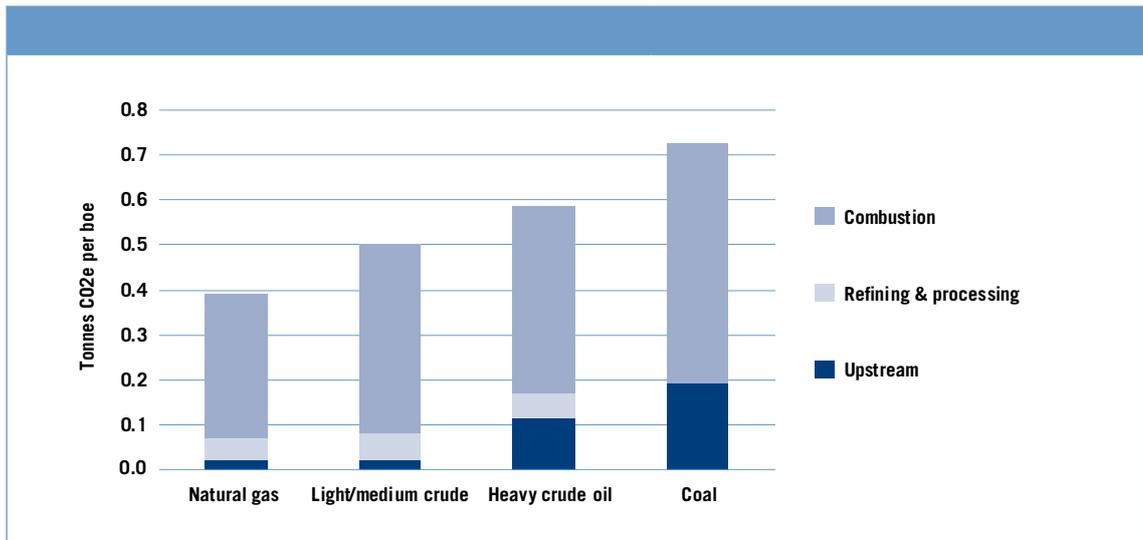
Barring the development of technologies able to significantly reduce the emissions released in the burning of fossil fuels, a transition to a low carbon global economy will require a significant reduction in the use of fossil fuels. A significant improvement is therefore needed in investors' abilities to assess the carbon content of different hydrocarbon fuels and the emissions they will yield in end-use.

1.1 Most of the lifecycle emissions occur downstream of the oil and gas industry

Whilst the direct emissions of the Oil and Gas sector are significant contributors to total global GHG emissions, the bulk of GHG emissions generated through the oil and gas lifecycle are in the consumption and combustion of final products and remain beyond the boundaries of Oil and Gas companies' operations and direct reporting perimeter (see Exhibit 3). An understanding of the pressures the industry will face therefore requires analysis of the full lifecycle emissions of companies' operations and the products they sell.

While indirect emissions are of paramount importance, the rising prominence of unconventional resource basins such as Canadian oil sands and oil shale projects' future production schedules have also focused attention on their greater direct emissions in extraction and refining.

Exhibit 3 Lifecycle emissions by stage in production

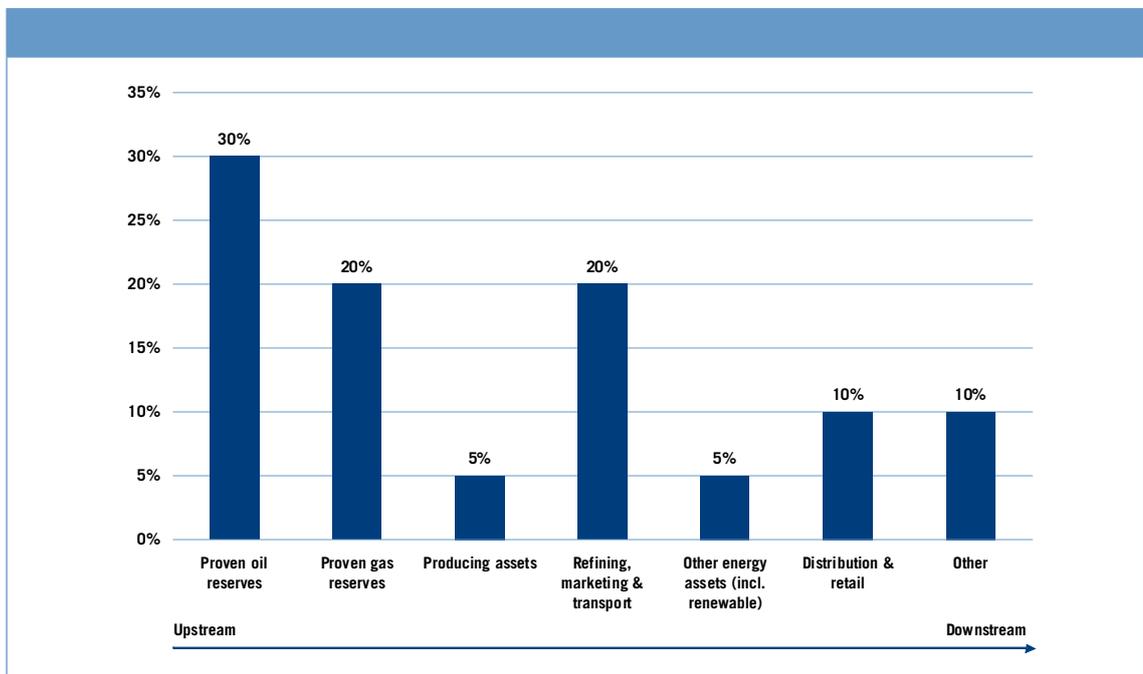


Source: Goldman Sachs, Dexia Asset Management; Industry sources

1.2 Most of the sector’s value lies in its future production

Investors are ultimately concerned by the value of companies, most of which lies in upstream and downstream operations. Exhibit 4 outlines the approximate proportion of the total market value of large, publically listed oil & gas companies attributable to their operations at different stages of the industry value chain.

Exhibit 4 Distribution of value through oil & gas industry value chain



Note: Value attributed to reserves based on estimated development and operating costs, long run real oil price of US\$100/bbl.
Source: Company data, Goldman Sachs Research Estimates

Approximately half of the value of companies in the industry lies in the assets they have yet to exploit – their reserves – the value of which are significantly greater than the value of currently productive assets. As a consequence, analysis of the prospective carbon liabilities associated with those future productive reserves is vital to understanding the extent of value at risk through climate and policy related change in coming years.

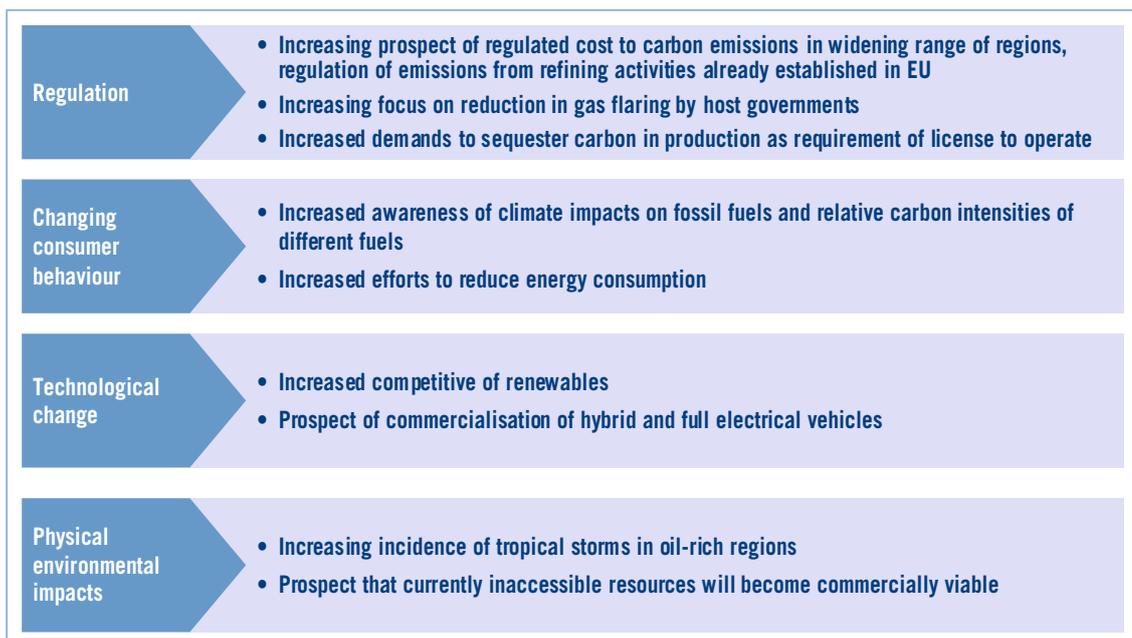
1.3 The sector faces pressures from diverse stakeholder sources

The Oil & Gas industry, like most other sectors, faces pressures from an increasingly diverse range of stakeholders with respect its climate-related impacts. Effectively addressing the wide range of issues companies face across their businesses will prove increasingly important to their future development.

Regulation of companies’ own activities is intensifying; for instance refineries are amongst the six industry groups already included in the EU’s emissions trading scheme, an increasing number of governments are moving to eliminate gas flaring and other governments are considering joining Norway in making carbon sequestration a condition of exploiting resources. Similarly, currently-tabled US carbon legislation proposes the introduction of carbon costs to upstream and refining assets.

Equally importantly, regulation in downstream industries is a key element of the future value creation potential of Oil and Gas companies, through measures aimed at reducing transport emissions and shifts in the power generation fuel mix.

Exhibit 5 Climate-related pressures on oil & gas producers



Source: IIGCC

2 Investors require improved disclosure to fully assess the value impacts of climate change on the industry

In general, companies in the Oil and Gas industry are more transparent than the average of other sectors in respect of their climate-related performances. Response rates to the Carbon Disclosure Project are slightly higher than the average of all sectors (54% of companies surveyed responded to the most recent CDP survey published in 2008). Similarly, Corporate Register data shows that the proportion of companies in the sector producing public reports detailing environmental and social performance is higher than almost all other sectors.

Nonetheless, the information provided by most companies remains inadequate to fully gauge the exposure of companies to evolving climate change related pressures. Companies in the industry typically focus reporting on direct emissions from their own operations but provide little detail on the impact of product liabilities and changes in end-demand despite the accelerating momentum to adapt to lower-emission technologies. Similarly, notwithstanding the evidence of recent years that weather-related disruptions can have significant physical impacts on companies' assets, investors find it difficult to assess the risks faced through the exposure of current or future operations to extreme weather events, reflecting both the volatility of weather patterns in many regions and companies' frequently limited disclosure on the specific locations and exposures of their assets.

We outline below the main areas of reporting we believe are necessary to allow investors to fully assess the impacts of climate-related changes on Oil and Gas companies.

In addition to qualitative descriptions of companies' strategies and plans, investors also require increased transparency and reporting in respect of specific areas of quantifiable performance. Templates for more detailed data tables are included below.

Companies should specify whether they use an equity share or a control approach (financial or operational control) for the data required below. While the equity share approach could provide a better picture of liability and risks supported by investors with regards to greenhouse gas emissions, investors understand that it may be difficult for groups to collect greenhouse gas emissions data from joint-ventures not under their control.

2.1 Overview of greenhouse gas emissions

In order to provide investors with detailed and consistent information on direct and indirect GHG emissions across their entire value chain, companies should:

- Provide the history of GHG emissions from current operations separated by stage of industry value chain, e.g. upstream extraction, refining & processing, transportation (freight), including volume of gas flared. Comment on significant reductions or increases over time. State emissions on a gross basis (before the impact of purchased offsets or sequestration of carbon emissions) and note offset / sequestration impacts separately. Please refer to exhibit 6.
- Describe targets for carbon emission reductions at group and subsidiary / divisional levels where appropriate with timeframe and baseline, and provide descriptions of the actions planned to achieve those targets, stating expected reductions from different actions.
- Provide production history and proven reserves for each type of hydrocarbon, as well as estimate carbon intensity for each stage of the value chain. Please state carbon emissions on a gross basis (e.g. before the impact of sequestration). Refer to exhibit 7.

Exhibit 6 Group greenhouse gas (GHG) emissions by value chain stage

| Tonnes of CO ₂ -eq | Estimated emissions by stage in value chain | | | | | | |
|---------------------------------------|---|------|------|------|------|------|------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Extraction and production | | | | | | | |
| Refining & processing | | | | | | | |
| Transportation (incl fugitive losses) | | | | | | | |
| Emissions in use (combustion) | | | | | | | |
| Cubic metres of gas | Gas flaring across global operations | | | | | | |
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Volume of gas flared | | | | | | | |

Source: IIGCC

NB: Please report emissions from companies' owned operations under "Extraction & Production", "Refining and Processing" and "Transportation (inc fugitive losses)". "Emissions in use (combustion) refers to emissions generated in use by customers, beyond companies' boundaries. Please provide the estimates used to calculate those emissions in the accompanying text.

Exhibit 7 Production, reserves and assumed carbon intensity of production by hydrocarbon type

| Tonnes of CO ₂ -eq / Mboe gross sales volume | Assumed carbon emissions associated with each hydrocarbon based on current production and operations (tonnes CO ₂ e/boe) | | | Emissions in use (combustion) | Production (boe) | | | | | | Proven reserves (boe), 2009 | |
|---|---|-----------------------|--|-------------------------------|------------------|------|------|------|------|------|-----------------------------|------|
| | Extraction & production | Refining & processing | Transportation (incl. fugitive losses) | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | | 2010 |
| Gas | | | | | | | | | | | | |
| Conventional oil | | | | | | | | | | | | |
| Heavy oil | | | | | | | | | | | | |
| Other | | | | | | | | | | | | |

Source: IIGCC

NB: Categories of hydrocarbons detailed above are based on IPECA definitions. Please report all emissions on a gross sales volume basis (ie excluding the effect of carbon capture and storage of offset programs). Please report emissions from companies' owned operations under "Extraction & Production", "Refining and Processing" and "Transportation (inc fugitive losses)". "Emissions in use (combustion) refers to emissions generated in use by customers, beyond companies' boundaries. Please provide the estimates used to calculate those emissions in the accompanying text.

2.2 Impact of climate change policy

To provide a more complete picture of the exposures of business operations to climate change policies and regulation, companies should:

- Describe the extent to which current and potential climate-related policy and regulation will impact the financial performance of their business, in each of the major regions in which they operate (for instance through the introduction of financial costs to carbon emissions).
- Disclose funding provided to third party climate change research or advocacy organizations, including amounts provided, areas on which focused, major recipient organizations and strategic goals of that funding.
- Given the significant carbon emissions of the industry's products in end-use, companies should describe their views on how national and international targets to reduce carbon emissions will impact demand for oil and gas products in the future.

2.3 Investment strategy

Companies should provide transparency into their approaches to strategic adaptation to changing pressures climate change will have on their industry. In particular, companies should provide descriptions of:

- Strategy for development of renewable energy technologies and carbon capture and storage (CCS) technology, including technology areas of focus, distinctive areas of strength the company believes it holds and the legislative view influencing that strategy.
- Importance of clean energy technologies to group financial performance (Sales, investments, EBITDA, net assets). Please refer to exhibit 8.
- The methodology used for the integration of future carbon prices into exploration strategy and investment decisions, with the assumptions used. Where possible, provide illustrative examples of the assumptions made in specific investment decisions.
- Changes the company has seen in the importance of climate-related performance, in particular in maintaining its license to operate and / or access resources and the nature of those changes in specific countries.

Exhibit 8 Financial contribution of renewable and clean energy technologies

| Technology area | Short description of technologies included | Financial performance in reporting currency | | | | | | | | | | |
|-----------------|--|---|------|------|------|------|------|---|------|------|------|------|
| | | Sales generated | | | | | | Investment (capex + research & development) | | | | |
| | | 2005 | 2006 | 2007 | 2008 | 2009 | 2009 | 2006 | 2006 | 2007 | 2008 | 2009 |
| e.g. Solar | | | | | | | | | | | | |
| e.g. Wind | | | | | | | | | | | | |
| e.g. CCS | | | | | | | | | | | | |
| e.g. Biofuels | | | | | | | | | | | | |

| Technology area | Short description of technologies included | Financial performance in reporting currency | | | | | | | | | | |
|-----------------|--|---|------|------|------|------|------|------------|------|------|------|------|
| | | EBITDA | | | | | | Net assets | | | | |
| | | 2005 | 2006 | 2007 | 2008 | 2009 | 2009 | 2006 | 2006 | 2007 | 2008 | 2009 |
| e.g. Solar | | | | | | | | | | | | |
| e.g. Wind | | | | | | | | | | | | |
| e.g. CCS | | | | | | | | | | | | |
| e.g. Biofuels | | | | | | | | | | | | |

Source: IIGCC

2.4 Adaptation to physical effects of climate change

To allow more detailed assessment of the impact changes in the physical environment will have on companies' current and future operations, companies should provide information on the impacts climate change is likely to have on their operations. This should include:

- Description of the risks long-lived changes in weather patterns may pose to companies' operations, with specific reference to the regions of current or future operation considered to be most exposed. For example, through the effect of permafrost melting on arctic operations, rising sea levels on coastal operations or increased water shortages on operations in water scarce regions.

- Descriptions of any investment areas that may be created through the physical effects of climate change (e.g. improved accessibility to remote hydrocarbon basins) and how companies' investment strategies reflect the possibility that previously uneconomic projects may become commercially attractive as a result of long lived changes in climate.
- Value of assets and quantity of proven reserves located in areas exposed to extreme weather events (e.g. hurricanes and tropical storms in the Gulf of Mexico) and description of the methodology used for the integration of extreme weather events into company strategy, investment decisions and risk management. Please specify costs of insuring assets against extreme weather events. Please refer to exhibit 9.

Exhibit 9 Value of net asset exposure to extreme weather events (please provide details for key regions)

| Reporting currency / boe | Assets located in regions exposed to extreme weather events (reporting currency) | | | | | | Proven reserves (boe) |
|--------------------------|--|------|------|------|------|------|-----------------------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | |
| Country A | | | | | | | |
| Country B | | | | | | | |
| Country C | | | | | | | |

Source: IIGCC

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