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WHAT HAPPENED TO THE INTERNATIONAL OIL COMPANIES? SIMULATING THE 1.5/2°C TRANSITION INGRID HOLMES AND DILEIMY OROZCO

2017 may well mark a turning point in getting international oil companies' (IOCs) to align their business operations with a 1.5/2°C target. Looking back, it may also be viewed as the year IOCs seriously began to consider their own managed decline.

Earlier this year over 60% of shareholders in ExxonMobil - the world's largest privately owned IOC - backed a resolution for the company to publish annual assessments of the impact of climate policies on the business. A similar resolution was also proposed at Chevron¹.

To help develop annual climate policy assessments, shareholders have asked both companies to appoint expert independent directors to the board. So far, only Exxon has complied.

Like Shell and BP, the companies now need to set out how they can best protect shareholder interests in a world where demand for their products is highly likely to substantively decline.

This briefing note examines what happened when we simulated the IOC 1.5/2°C transition in an on-line war game developed by the Oxford Smith School, E3G, and Chatham House. The brief goes on to give insights into the difficult conversations that lie ahead for the boards of these companies.

¹ After the company made additional disclosures however, proponents of the measure withdrew the resolution. Instead, opting for dialogue to address missing issues.



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1. Background

In a world committed to global temperature increases of no more than 1.5/2°C, the current business models of international oil companies (IOCs) and the largest domestic listed companies face significant profitability challenges. IOCs are already operating at the margins of profitability and are largely funding their dividend payments to shareholders borrowing from capital markets. Analysis of the 18 biggest IOCs shows between 2013 to 2016, dividend payments fell by an average of 28%, while their free cash flow dropped from 40% to 22%². This financial situation is not sustainable in the long term.

Both public and private actors have significant interests in the financial health of these companies. In the UK, for example in Q1 2017, Shell and BP alone were responsible for £4.8bn of the £12.5bn of total FTSE 100 dividends³. Other global markets are less exposed than the UK – but still face risks from the transition. Given the financial heft of these companies, how they respond to the challenges and opportunities raised by the global low carbon transition should be a matter for urgent consideration.

Profitability challenges for the IOCs are likely to be intensified by several structural factors relating to national oil company (NOC) competition as well as shifting demands for oil and gas. The exact speed and scale of these changes is uncertain. It will depend on policy and regulation to promote clean energy and clean transport; advances in technology; and actions to reduce energy demand through increased energy efficiency. These changes create significant potential for stranded asset risk for the IOCs and therefore significant value loss for private investors. This in turn raises public policy concerns about financial instability and a growing pension deficit in the UK. As such active consideration of how the IOCs could transition to a 1.5/2°C-compatible business model seems advisable⁴.

For the IOCs this means making difficult decisions about how best to design their capital allocation strategy and dividend policy in an uncertain market and policy environment. While the need to reduce carbon emissions from IOC products is clear, it remains to be seen over what timeframe and how this will come to pass. Both the IOCs and their investors need greater clarity on possible 1.5/2°C-transition pathways (i.e. scenarios under which this might unfold) to understand how best to maximise shareholder value in the short and medium term and limit asset stranding.

In this context the Oxford Smith School, E3G, and Chatham House have created a dynamic decision support tool to explore different pathways companies could take

² Mitchell, J and Mitchell, B. to be published. The analysis covers the following 18 oil companies: CNOOC Exxon Mobil, Chevron, Total, Shell, BP, BHP, Rosneft, Petrobras, Sinopec, Lukoil, ENI, Occidental, Anadarko, Statoil, ConocoPhillips, Phillips66, Repsol. Financials for CNOOC and SINOPEC are not included

³ See http://www.capitaassetservices.com/sites/default/files/7955_Capita_DM_Report_April_2017_v5.0.pdf It should be noted the composition of the FTSE100 is structured to be particularly exposed to companies whose value derives from selling fossil fuels

⁴ It is worth noting – but is not covered in this blog that while, in principle, IOCs could cease oil and gas exploration and monetise all their existing assets by 2040 this is certainly not the case for NOCs, who face an even greater risk of stranded assets.

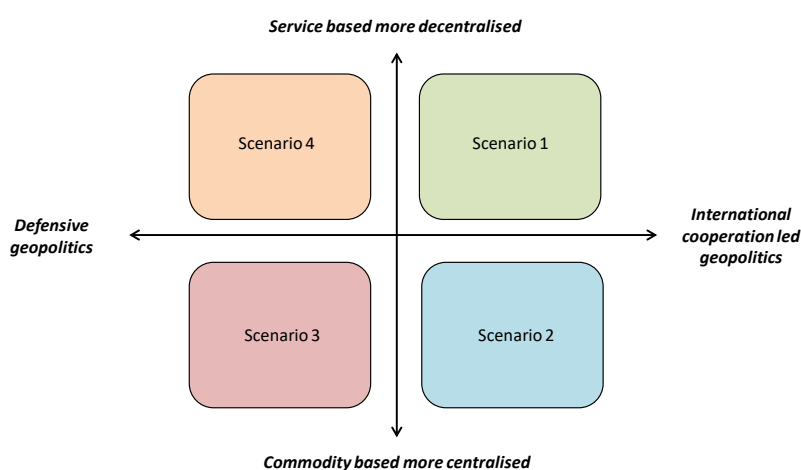
and model impacts on shareholder value. The 2 Degree Pathways decision support tool, is an oil majors war game. This decision support tool helps inform company, investor, government and civil society strategies how to deliver and adapt to various energy transition pathways. The tool does not aim to devise a corporate strategy, but instead highlights the risks and opportunities inherent in a managed transition.

2. What unfolded during the Oil majors war gaming?

Six fictitious IOCs were created for the game: Roxxon, Ewing, Globex, Virtucon, Danconcia and VBCA. Each of IOCs had different portfolios of gas and oil assets at the start of the game that bore resemblance to real IOCs. The player’s task was to role play company board-level decision making. The capital planning time horizon was from 2017 to 2040; decisions were made on a rolling year-by-year basis. Players were presented with key elements of the UK Company Act 2006, which stipulates directors’ duties. These duties include an obligation to promote the success of the company, to consider the community and environment as well as the interests of employees and to be fair to shareholders⁵. Although the UK Company Act 2006 is applicable to the UK only, other jurisdictions such as the USA have similar requirements. Thus, it served as a reminder to players of their ‘virtual responsibilities’ as ‘virtual directors’ in the game.

E3G developed four scenarios for the war game. During this session, two of these transition scenarios were run: scenarios 1 and 3.

Figure 1: Scenarios and drivers



Source: E3G’s scenarios

Scenario 1 set out a rapid and relatively orderly transition to a low carbon global economy. By contrast, Scenario 3 set out a late-stage transition. Scenario 3 is disorderly because of the haphazard introduction of ‘crash policies’ to force a last-

⁵ See <http://www.legislation.gov.uk/ukpga/2006/46/section/172>



minute reduction in carbon emissions to stay on track with a global temperature increase limited to 1.5/2°C. Data was drawn from a variety of sources including the International Energy Agency, Greenpeace, Statoil and others to formulate the scenarios.

Significant asset stranding was observed under both scenarios. This briefing focuses on the results from the orderly transition of Scenario 1. Results from the disorderly Scenario 3 showed even more extreme asset stranding.

3. Main observations from the war gaming

Under Scenario 1, a rapid and orderly transition developed. The majority of IOC players, Roxxon, Ewing, Virtucon and Danconia, used market dynamics more than policy signals to determine their capex and dividend policy. **In other words, player's strategies were largely informed by the actions of their peers.**

Success in the game is defined by the level of market valuation at the end of the game. The winning IOC player (Globex) acted differently to most of the other IOCs – responding to policy signals. In the debriefing session, this player acknowledged they had been **influenced by their duties under the UK Company Act 2006.** Globex achieved success by aggressively divesting its oil assets, before opportunistically buying developed medium cost oil assets when the price crashed. Globex initially kept the level of gas in its portfolio steady, while restricting dividends and borrowing significant amounts from the capital markets to invest in green assets. As the timeline of the game unfolded, Globex liquidated almost all their fossil fuel assets and invested the capital green investments, while gradually increasing dividends as the game ended. Limiting its dividends to allow for the purchase of green assets meant Globex's market valuation fell sharply during the early years of the game, but bounced back significantly as dividends grew towards the end of the game.

According to E3G analysis on options open to the IOCs to align with a 1.5/2°C world, this strategy was closest to a 'Planned transformation strategy'⁶. One tentative conclusion is that a 'Planned transformation' strategy such as this will need to be developed early and retained, despite short-term valuation pressures. While Globex's valuation was initially reduced, in the long run this strategy was vindicated as shareholders received significant dividends and a valuation bounce-back. Despite this however, Globex couldn't fully wind down all its fossil fuel assets. It was left with approximately 24% of its initial fossil fuel assets, concentrated as undeveloped high cost oil and developed high cost oil and gas (see Figure 2).

In the real world, this type of strategy would likely need shareholders to explicitly buy-in to a managed decline/divestment strategy run over longer than usual time-periods (up to 15 years). This is more prolonged than the usual market-based 'long-term' view of 1-3 years. In this context, to deliver an orderly transition it would be as important

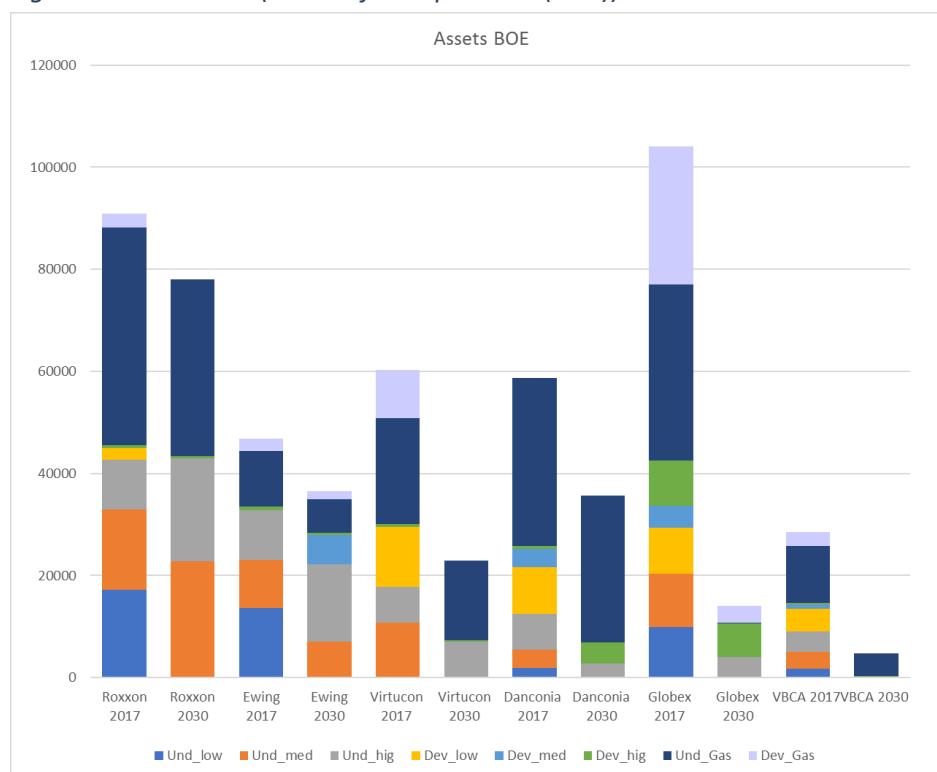
⁶ See https://www.e3g.org/docs/E3G_Briefing_Future_pathways_2degC_oil_FEB2017.pdf



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to shift investors' attitudes and expectations on IOC capex and dividend policies, as to shift IOC's business strategies. Without doing so, a management team trying to execute such a strategy would most likely be ousted before really getting started.

Figure 2: IOCs assets (barrel of oil equivalent (BOE))



Source: Results from the war gaming

VBCA, a much smaller company than Globex, also aimed to 'play out' a managed decline/divestment strategy. According to E3G analysis on options open to the IOCs to align with a 1.5/2°C world, **this strategy looked a lot like a 'First one out strategy'**⁷. VBCA aggressively divested from fossil fuels but without reducing the dividends returned to shareholders. **VBCA saw its market valuation decline but – unlike Globex – the valuation did not bounce back at the end of the game despite having the fewest stranded assets** (based on nominal value) of all players (see Figure 3). This can partly be explained by the amount of debt accrued and invested into green assets by Globex. As well as by the market valuation techniques used in the real world which continue to assign nominal value to assets that may well be – as in the game – stranded.

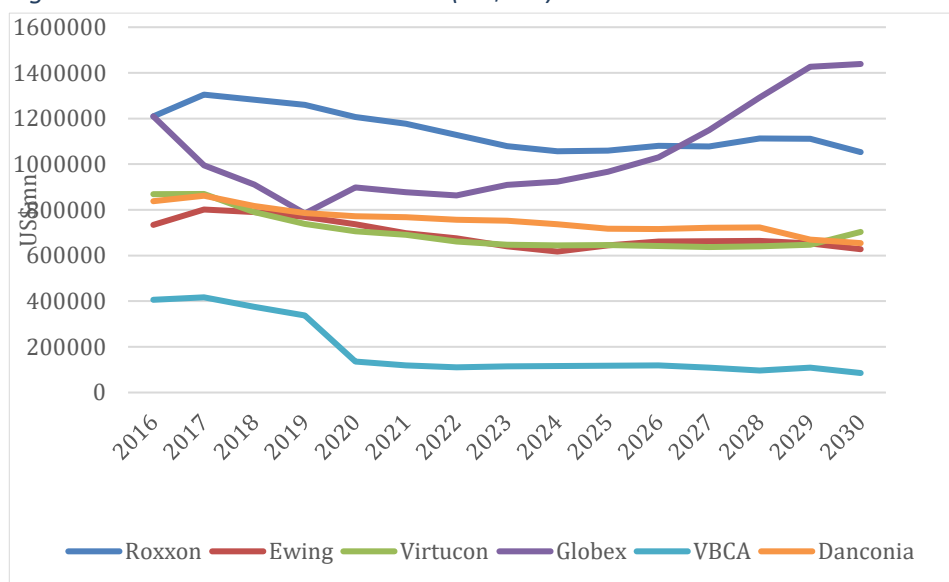
Therefore, one could argue the VBCA strategy was better for shareholders since it limited asset stranding. This is potentially a limitation of the game. The companies were not explicitly penalised for having stranded assets. Nor were they limited in the absolute amount of debt they could raise, providing they were able to service its debt.

⁷ See https://www.e3g.org/docs/E3G_Briefing_Future_pathways_2degC_oil_FEB2017.pdf

In the ‘real world’, as market valuation techniques develop, investors may well value a Globex less than a VBCA given stranded assets have no economic value – and indeed may have negative value due to decommissioning costs⁸. This would need to be assessed ‘in the round’, against the portfolio of green assets built up.

Ewing and Danconia appeared to deploy ‘Drift’ strategies; Roxxon ‘Last one standing’. By the end of the game, **all three IOCs had substantive stranded assets**. Despite this their market valuation remained relatively stable to 2030. As noted above this reflects the market valuation techniques used in the real world and the decision support tool. **In the real world, as market valuation techniques (hopefully) catch up with the real cost of stranded assets, investors are likely to take a dim view of such strategies being deployed as market valuation will sharply decline.**

Figure 3: Market valuation over time (US\$m)



Source: Results from the war gaming

One key observation from the game was that not all assets held by the IOCs could be monetised. Therefore, at some point asset stranding became inevitable as fossil fuel assets became unsellable. **Success by players in the game - much as in real life - relied on good timing in terms of developing and/or selling assets. In fact, players could have made good returns up to 2025 by developing their existing reserves base; after 2025 this strategy becomes exhausted.**

One final observation is that most players seemed to bet on an increased role for gas as a major climate transition fuel. Based on this they aggressively bought up gas assets, held them and waited for demand to recover. As the years passed the

⁸ The decommissioning costs are only applicable to producing fields, but not to undeveloped reserves.

expected gas boom did not come to pass however - **and much of the asset stranding observed was unsurprisingly concentrated in gas and high cost oil.**

4. Conclusions

The **size and shape of company portfolios seemed to limit the 1.5/2°C strategies open to the IOCs.** Unsurprisingly, this significantly impacted market valuation at the end of the game. The game indicates that for **real IOCs an early and realistic consideration of their options going forward is imperative – including whether a ‘First one out’ or ‘Planned transformation’ strategy is the most appropriate for the Directors to advocate** given their obligations under the UK Company Act 2006.

The decline in market valuation that came from the ‘Planned transformation’ strategy deployed by Globex as well as the ‘First one out’ deployed by VBCA has some significant implications for a real world IOC ‘First one out’ strategy.

Namely, the **CEO and management team would need to engage with shareholders at an early stage of strategy development and set out a credible long term plan to align with the reality of a 1.5/2°C world.**

Shareholders would need to resist the temptation to pressure the management to deviate from this approach and stay with them as the company is run down. There will be a particular need to resist exploring new high cost oil reserves that will take decades to develop e.g. in the Arctic. As they may later become stranded due to policy/regulation and/or lack of demand. This in turn relies on the IOCs having a clear view - their own scenarios - of how the transition might unfold. They should then adjust their capital allocation strategy accordingly.

Even if IOCs put transition strategies in place, where growth is achieved by switching their investments towards renewables, shareholders may not be willing to accept this. Shareholders may not believe a transition will deliver more overall value to them. The gaming raises significant concerns in this regard.

Inherent short-termism in markets means **many investors quite simply prefer to ‘buy’ the continued growth story** sold by the IOCs. Arguably investors may prefer the IOCs sell their assets/borrow to keep dividends up rather than develop and deliver a managed decline strategy focused on long term value creation. In the short-term, **a new growth story based on switching capital investment to gas and renewables would seem to be the most credible in keeping shareholders happy.** Even that has significant weaknesses however as discussed in separate papers by E3G9 and Chatham House10.

⁹ See https://www.e3g.org/docs/E3G_Briefing_Future_pathways_2degC_oil_FEB2017.pdf

¹⁰ See <https://www.chathamhouse.org/publication/international-oil-companies-death-old-business-model>



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The Directors of the **IOCs** **have their work cut out for them** in trying to meet their fiduciary obligations under the UK Companies Act and similar legislation in other jurisdictions. **Market valuation techniques need to evolve** to fully reflect the cost of asset stranding. Additionally, **better disclosure and communication of a longer-term strategy is important to give IOCs 'breathing space' to open meaningful dialogue with investors** over how to address disruption to their industry. These actions are also crucial for delivering an orderly transition to 1.5/2°C.



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About E3G

E3G is an independent climate change think tank operating to accelerate the global transition to a low carbon economy. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere. In 2016, E3G was ranked the number one environmental think tank in the UK.

More information is available at www.e3g.org

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