Beyond the cycle

Which oil and gas companies are ready for the low-carbon transition?
Executive Summary

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This report updates and expands CDP's research and League Table for oil & gas companies, first published in November 2016. It ranks 24 of the largest and highest-impact publicly listed oil & gas companies on business readiness for a low-carbon transition. The companies in aggregate represent 31% of global oil & gas production and 11% of proved reserves.

The oil & gas industry is amongst the most emissions intensive, with the production and use of oil & gas accounting for over half of global greenhouse gas emissions associated with energy consumption. This equates to more than 17 gigatonnes of carbon dioxide equivalent per year,[1] with about 90% of these emissions coming in the downstream use of hydrocarbons (Scope 3 emissions).

Oil & gas companies are coming under increasing pressure to demonstrate portfolio resilience and adapt business models to align with a low-carbon energy transition. Post-Paris they have faced increasing investor scrutiny and with the recommendations from the G20 Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), they now face a new normal in climate risk reporting.

This reflects a turn of the tide for oil & gas companies, made all the more imperative by the IPCC's recent report detailing the impact of 2°C vs. 1.5°C of global warming. The median IPCC scenario for achieving a 1.5°C limit to warming above pre-industrial levels requires net zero global emissions by 2050.

There are four key areas assessed in the League Table, which are aligned with the recommendations from the TCFD:

Transition risks: We assess company portfolios, looking at production and reserve splits by hydrocarbon type as well as looking across various measures of carbon efficiency such as emissions intensity (including methane and flaring levels) and Wood Mackenzie's NPV/tonne metric.[2]

Physical risks: We analyse company exposure to localized water stress issues on a facility-by-facility basis across onshore upstream production and downstream assets. We compare this water stress exposure with companies' fresh water withdrawal intensity and governance frameworks.

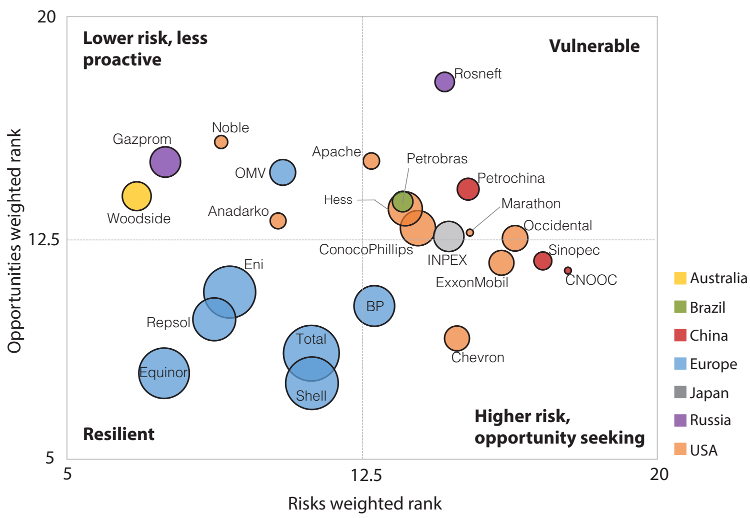
Transition opportunities: We examine which companies are investing in low-carbon assets, R&D and embracing innovative technologies. We also analyse levels of capital flexibility; looking across exploration and production costs, reserve life, discretionary future spend, cash margins and financial gearing.

Climate governance and strategy: We analyse companies' governance frameworks including emissions reduction targets and the alignment of governance and remuneration structures with low-carbon objectives. We look at which companies are conducting scenario analysis and stress-testing their portfolios against a low-carbon energy transition.

Key findings

- **Equinor** convincingly retains first place with **Total, Shell** and **Eni** all closely ranked together in second, third and fourth respectively.
- Lowest ranked companies are **CNOOC, Rosneft** and **Marathon Oil.**
- **Transatlantic divide remains** – European companies come out on top across most key areas. They are pivoting portfolios towards gas, setting climate-related targets and investing in low-carbon technologies.
- **Since 2010 the 24 companies have invested US$22 billion in alternative energies.** However, spend on low-carbon assets for the sector as a whole remains low, expected to account for only 1.3% of total 2018 CAPEX.
- **5 companies have divested from oil sands assets.**
- **18 companies have disclosed Scope 3 emissions** figures alongside Scope 1+2 for 2017.
- The 24 companies in the study are **losing on average 3.3% of their natural gas production** through flaring, venting and methane leakages – worth almost US$5bn at the current Henry Hub gas price.
- **Companies are shifting focus to multi-staged developments and shorter-cycle opportunities** to maintain capital flexibility.
- **Ten companies are involved in CCUS projects** and collectively account for **68% of current global capacity.** Expertise in this technology may form part of the oil & gas industry's social license to operate in coming years.
- **Votes for shareholder resolutions relating to 2°C analysis grew** from an average of 21% in 2014 to 53% in 2018.
- **Lack of disclosure by Chinese companies** – no emissions data reported by Petrochina.
- **15 companies have set emissions reduction targets.** The sector has launched a number of initiatives aimed at cutting routine flaring and reducing methane emissions. Repsol, Shell and Total have all set long-term ambitions to reduce their net carbon footprint (which includes Scope 3 emissions).
- **Only five companies have officially supported the TCFD.**
- Nine companies have published 2-degree scenario analysis with others looking to do the same. **Under low-carbon scenarios the winning barrels will be low-cost, low-risk and lower-carbon.** Managing the resource theme mix is key to attaining a lower-carbon footprint.

Figure 1: Opportunity vs. risk for low-carbon transition



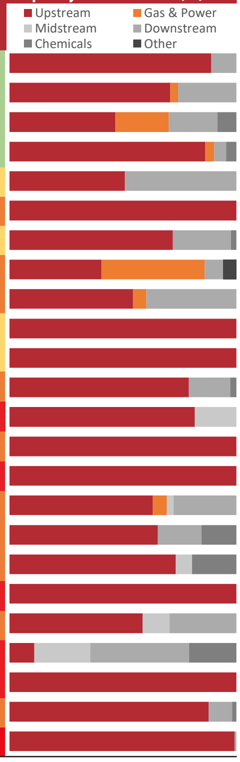
Bubble size: Larger bubble size = stronger performance on climate governance & strategy
Source: CDP

1. Calculated using IEA and EDGAR carbon and emissions data.
2. Wood Mackenzie: "New metrics for evaluating oil and gas portfolio resilience in a low-carbon future"

The summary League Table below presents headline company findings. It is based on detailed analysis across a range of carbon and transitional indicators which could have a significant impact on company performance. The League Table is designed to serve as a proxy for business readiness in an industry which will undergo significant change as governments increase efforts to implement the Paris Agreement. Companies placed towards the bottom are deemed less prepared for a low-carbon transition.

Figure 2: League Table summary [i]

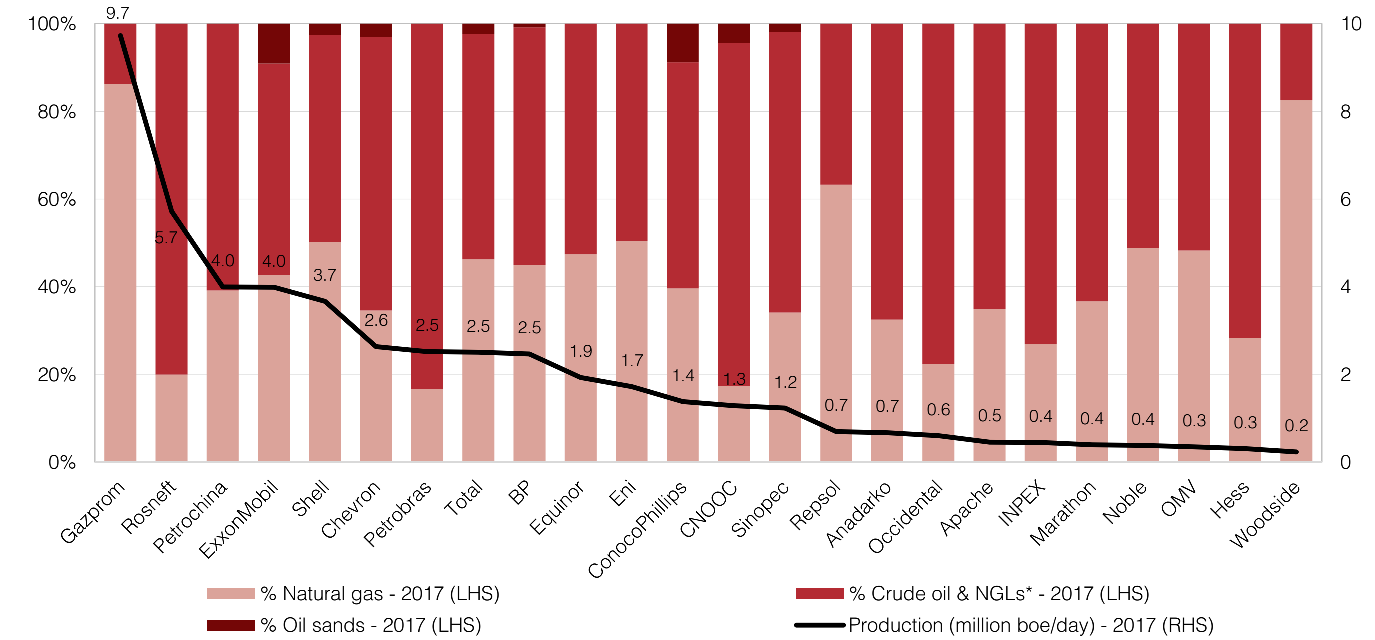
LT rank	Company [v]	Country	Average market cap Q3 2018 (US$bn)[ii]	Production 2017 (million boe/d)	2017 Emissions (S1+2 Mt CO_2)	Weighted rank	Transition risks rank	Physical risks rank	Transition opportunities rank	Climate governance & strategy rank	2017 Adjusted EBITDA split by business area (%)[iv]
1	Equinor	Norway	78	1.9	16	6.72	3	4	2	4	
2	Total	France	152	2.5	40	8.10	10	5	3	1	
3	Shell	UK / Netherlands	275	3.7	84	8.11	9	14	1	2	
4	Eni	Italy	64	1.7	43	8.16	6	8	7	3	
5	Repsol	Spain	29	0.7	23	8.58	5	12	5	5	
6	Woodside	Australia	22	0.2	10	10.29	2	1	18	11	
7	BP[iii]	UK	139	2.5	56	10.75	11	16	6	6	
8	Gazprom	Russia	54	9.7	247	10.81	4	3	21	9	
9	OMV	Austria	19	0.3	11	12.50	7	17	20	12	
10	ConocoPhillips	USA	72	1.4	21	12.57	15	9	14	7	
11	Hess	USA	17	0.3	4.1	12.73	14	7	16	8	
12	Chevron	USA	230	2.6	60	12.89	16	15	4	14	
13	Anadarko	USA	32	0.7	6.6	12.91	8	6	15	21	
14	INPEX	Japan	17	0.4	0.9	13.32	20	13	12	10	
15	Noble Energy	USA	15	0.4	2.5	13.33	1	21	23	22	
16	Petrobras	Brazil	73	2.5	67	14.08	17	2	17	17	
17	ExxonMobil[iii]	USA	343	4.0	125	14.17	23	20	9	15	
18	Occidental	USA	56	0.6	16	14.51	22	22	11	13	
19	Apache[iii]	USA	16	0.5	8.9	14.54	13	10	22	20	
20	Petrochina[iii]	China	215	4.0	193	14.84	12	23	19	16	
21	Sinopec	China	117	1.2	163	15.34	18	24	10	19	
22	Marathon Oil	USA	15	0.4	3.8	15.85	19	18	13	23	
23	Rosneft	Russia	61	5.7	76	15.89	21	11	24	18	
24	CNOOC	China	68	1.3	7.8	16.60	24	19	8	24	
Weighting							**35%**	**10%**	**30%**	**25%**	



(i) Weighted ranks are calculated for each area. We display non-weighted ranks in this summary for simplicity only.
(ii) Average market cap for last 12 months up to Q3 2018.
(iii) Analysis for BP excludes its share in Rosneft. Scope 1+2 emissions figures are for 2016 for Apache and ExxonMobil and is an estimated figure for Petrochina.
(iv) For Adjusted EBITDA split by business area, Downstream includes Midstream and / or Chemicals if split is not available.
(v) Apache, BP, Chevron, CNOOC, ExxonMobil and Marathon Oil are non-responders to CDP's 2018 climate change questionnaire. We encourage investors to raise this lack of transparency in discussions with company management.

Source CDP

Figure 3: Company production split by hydrocarbon



*Natural Gas Liquids (NGLs)
Source: CDP, company reports

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