



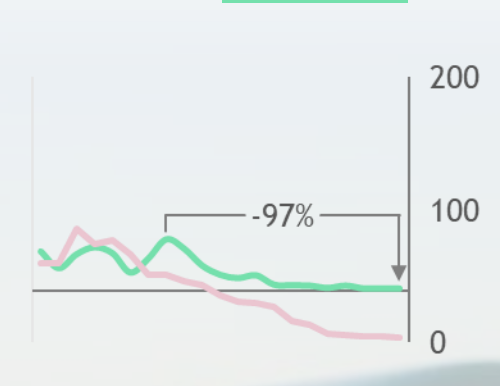
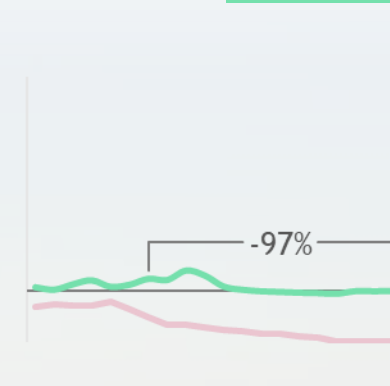
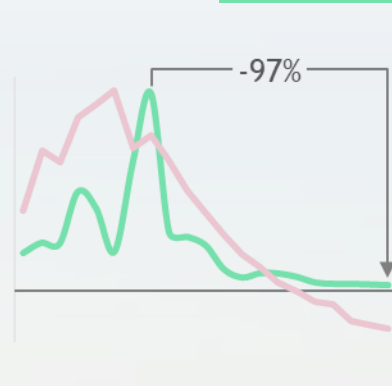
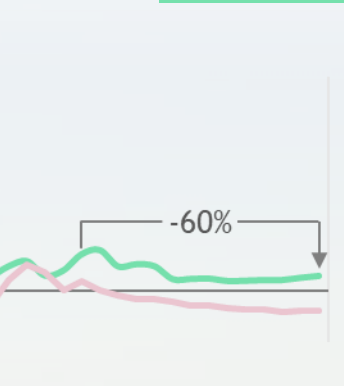
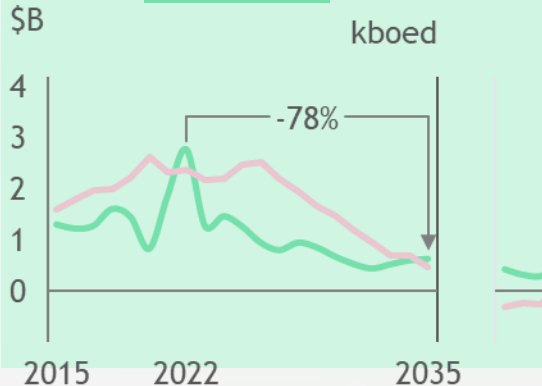
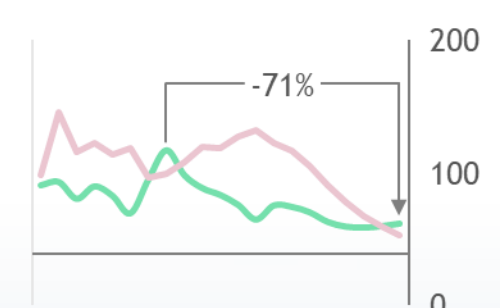
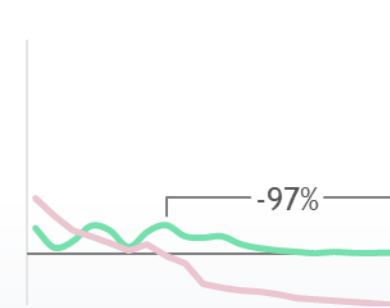
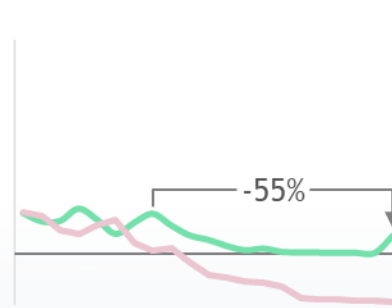
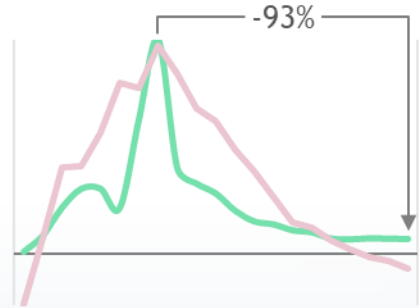
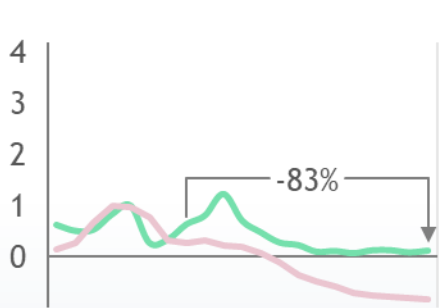
Energy Landscape and Implications for Decom

DECOM NORTH SEA CONFERENCE

By Martha Vasquez

17 MAY 2023

UK O&G: Big liability and declining cashflows



Note 1. CFFO = Revenues - Income Tax - OPEX; Revenues assume production is sold at spot market prices; analysis excludes discoveries and undiscovered resources. Note 2. Left axis is cashflow; right axis is production
 Source: BCG O&G Upstream Decommissioning; Rystad Energy

— CFFO 2015-2035, Billion USD — Production, Kboed

xx Decommissioning Liabilities, Billion USD

Cash needs to go to decom right now



O&G companies' cash levels is at all times high; but UK context is challenging



Short-term outlook is positive; but O&G demand will decline beyond 2030



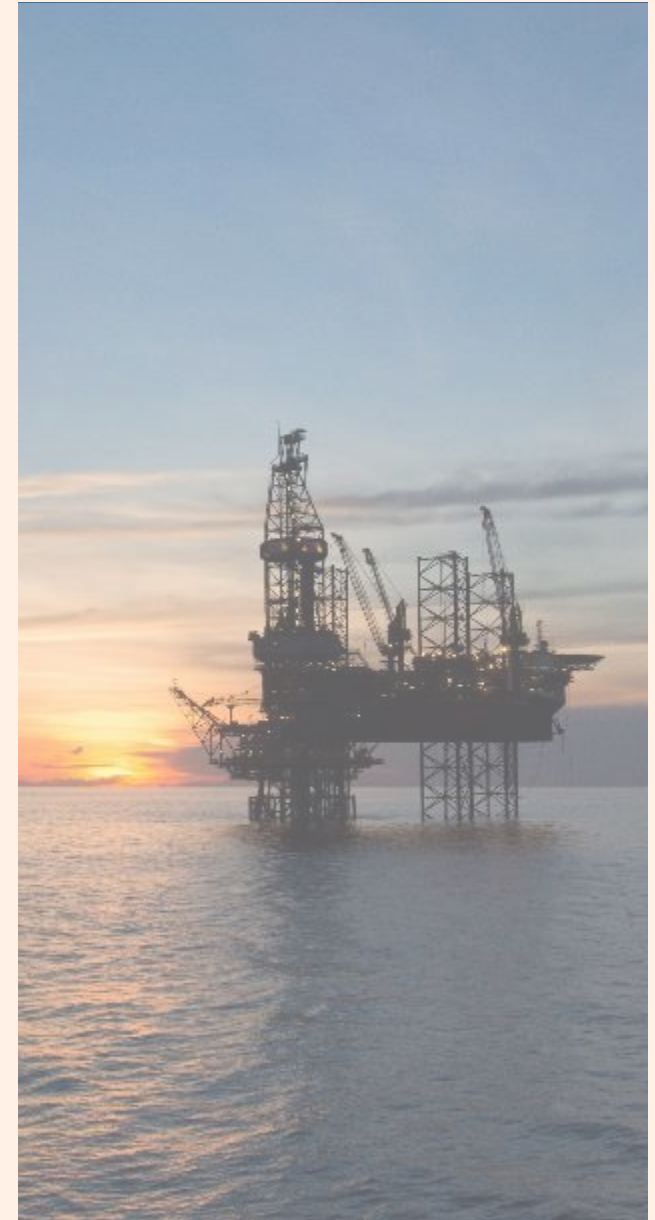
Pressures and commitments are strongly re-directing resources away from core

O&G Companies' Cash Balance Is At All Times High

Exxon generated \$16.3bn in operating cash flow during the quarter.

Even after \$5.8bn of capital expenditures and \$8.1bn of shareholder returns, it grew its cash balance by \$3bn quarter-over-quarter to \$32.7bn.

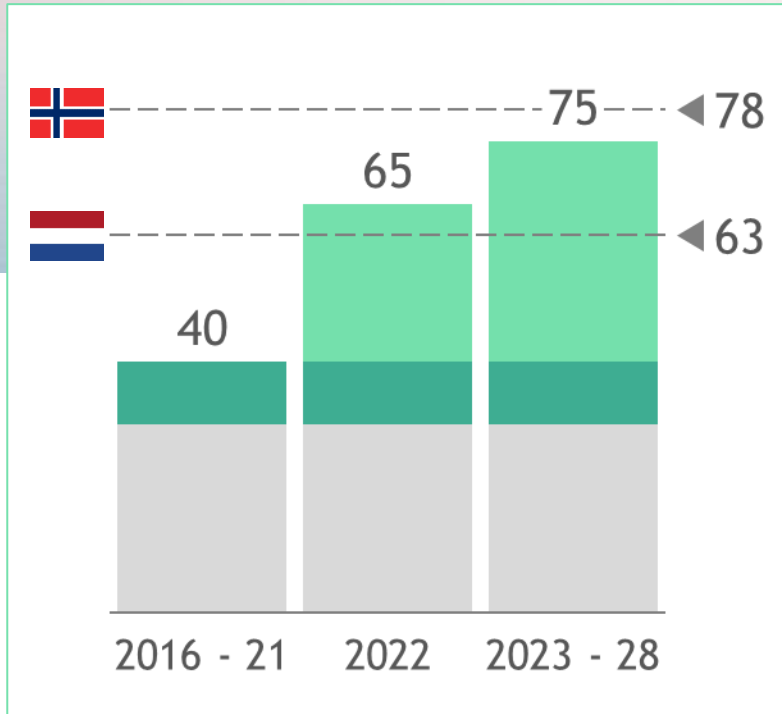
At this rate, it could end the year with nearly \$42bn of cash and cash equivalents. On top of that, the stock, at a record high of over \$119, provides additional firepower in any deal negotiations.



A challenging context: Higher taxes and costs

O&G profits tax at 75%

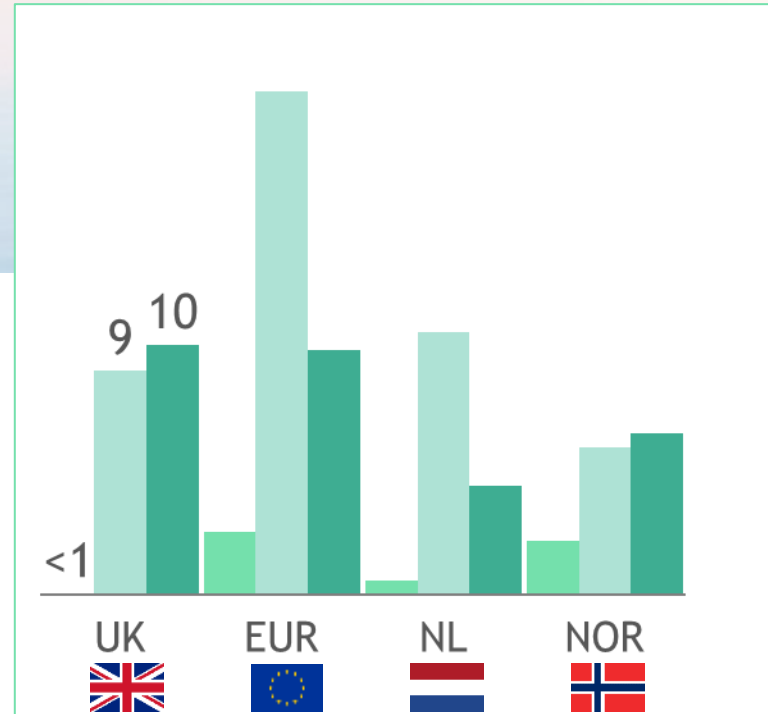
UK O&G Tax Rate, %



- Energy Profits Levy
- Supplementary Charge
- Corporate Income Tax

Inflation increased up to 10x

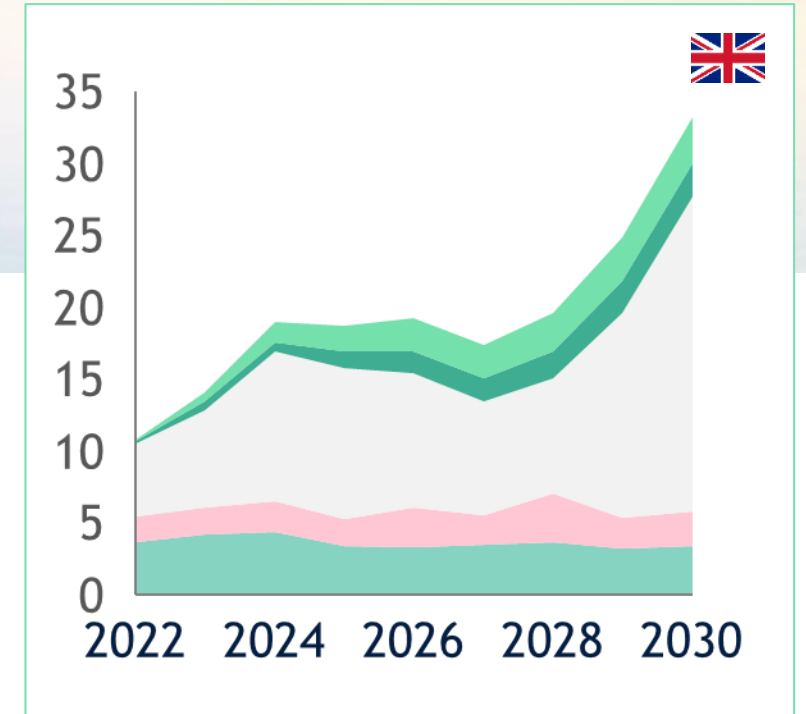
Inflation, CPI % yoy



- 2015
- 2022
- Mar-2023

Huge competition for resources

UK Offshore Capex, £B



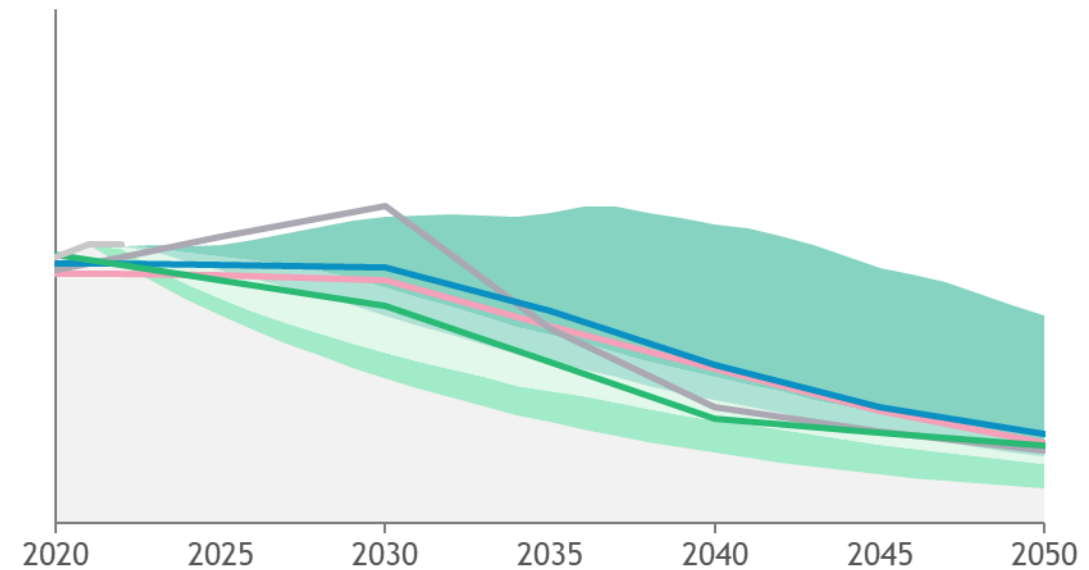
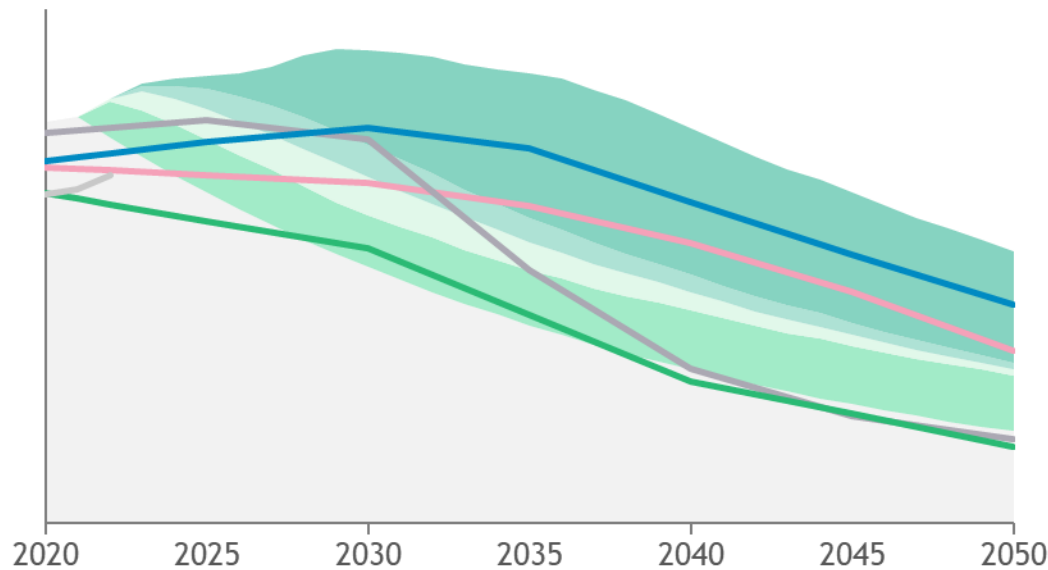
- O&G CAPEX
- O&G ABEX
- Off. Wind CAPEX
- CCS CAPEX/OPEX
- Hydrogen CAPEX/OPEX

Short-term outlook is positive; but demand will decline beyond 2030

O&G remains in energy mix, but demand declines, low-cost/low-carbon barrels are advantaged

\$60/barrel liquids production (MBOE/Day)

\$60/barrel gas production (MBOE/Day)



- 1. Producing assets
- 2. Infill drilling
- 3. North American shale committed
- 4. Projects under development
- 5. Most cost-competitive discoveries
- 6. Less cost-competitive discoveries
- Scenario A¹
- Scenario B²
- Scenario C³
- NZE⁴
- Actuals

1. IPCC C1 Illustrative mitigation pathway (IMP); 2. IPCC C2 selected pathway (POLES ENGAGE Model, EN_INDCi2030_400f Scenario); 3. IPCC C3 IMP; 4. IEA Net Zero Emissions by 2050 Scenario; Note: Values shown from previous years (pre-2023) are modeled values based on specific scenario assumptions in the IPCC report, and therefore are not exactly similar across scenarios; urce: IPCC Sixth Assessment Report, Climate Change 2022: Mitigation of Climate Change, the Working Group III contribution, Scenarios Database; Rystad; BCG O&G Decarbonization

Pressures and commitments

- 01 | Energy trilemma and crisis
- 02 | Market, shareholders and lenders
- 03 | Policy and regulation
- 04 | Employees and society
- 05 | Targets and commitments



Pressures and commitments are strongly re-directing resources

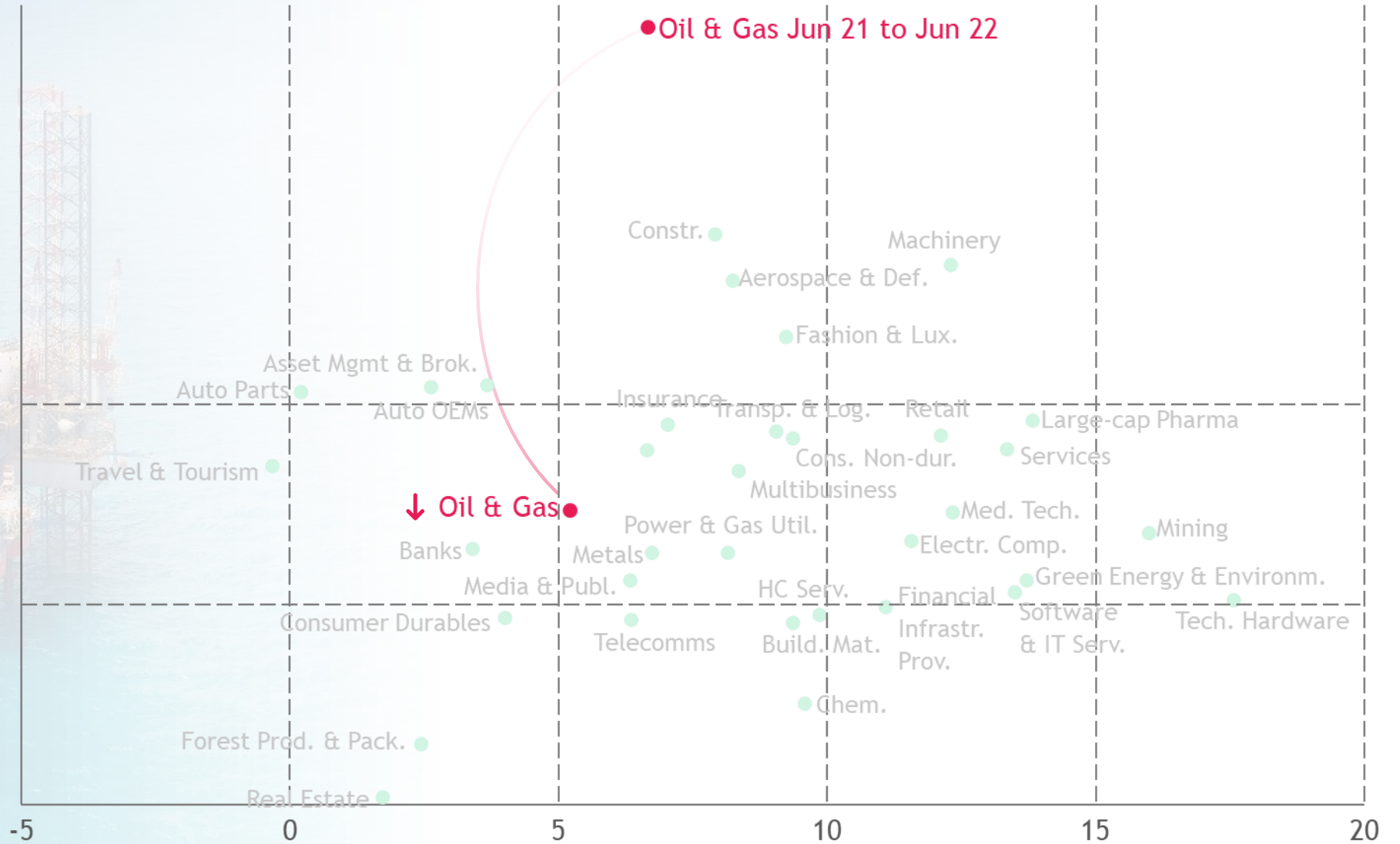
Implications for our industry

- 01 | Low cost and low carbon barrels
- 02 | New energy businesses
- 03 | Jurisdictions with attractive policies and incentives
- 04 | New capabilities (GenAI)
- 05 | New business models



Market pressure: O&G performance is back to normal

1-year Median TSR (30 Apr 22 to 30 Apr 23)



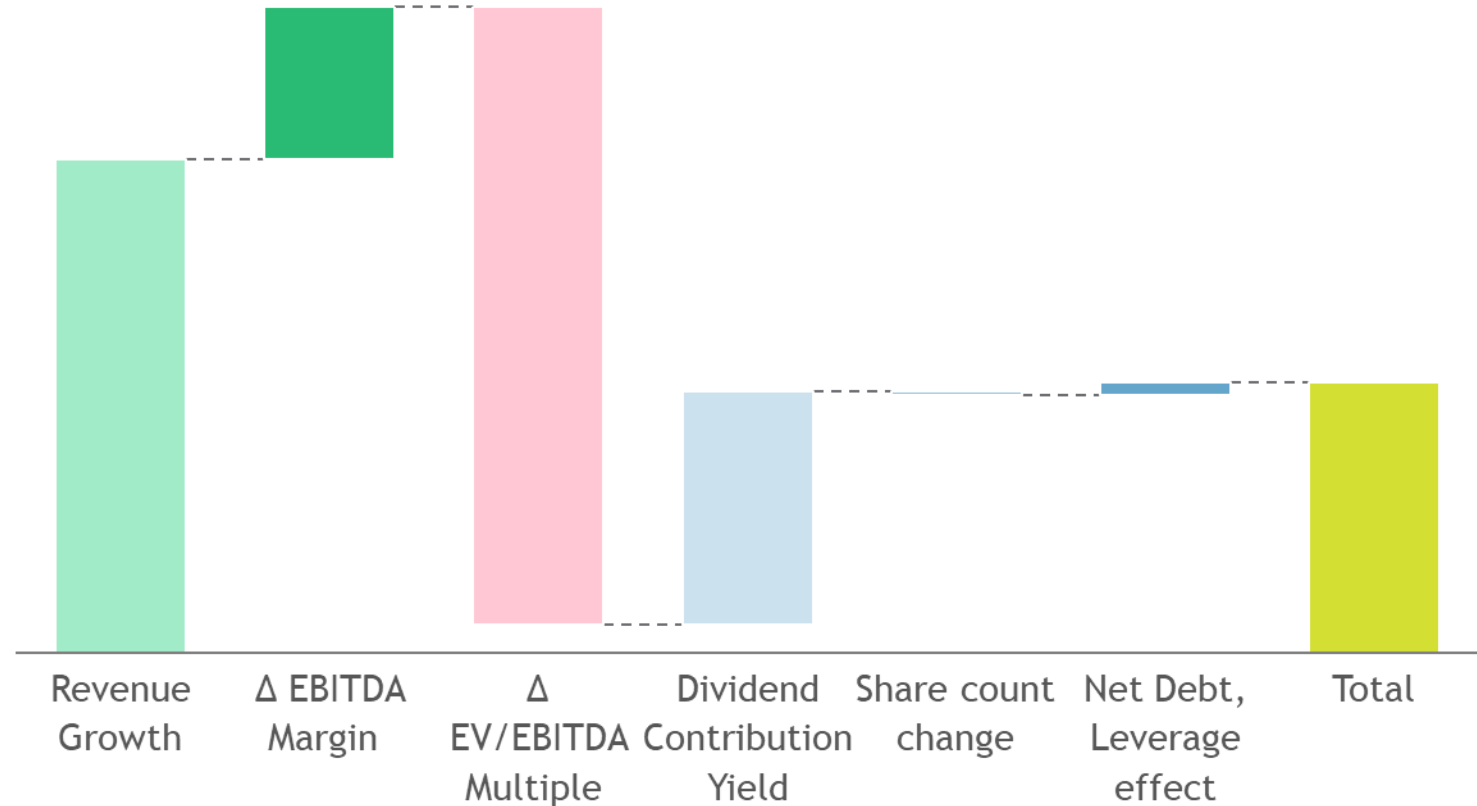
5-year Median TSR (30 Apr 18 to 30 Apr 23)

Note: TSRs use company reporting currency. Median TSR per respective industry sample; VCR: $n=2447$; Russian companies were deliberately omitted from the sample due to suspended trading and collapse of share prices. Turkish companies were intentionally left out due to hyperinflationary environment. Source: S&P Capital IQ; Refinitiv; BCG Value Creators database 2023; BCG ValueScience® Center

Multiple compression outweighs fundamental gains

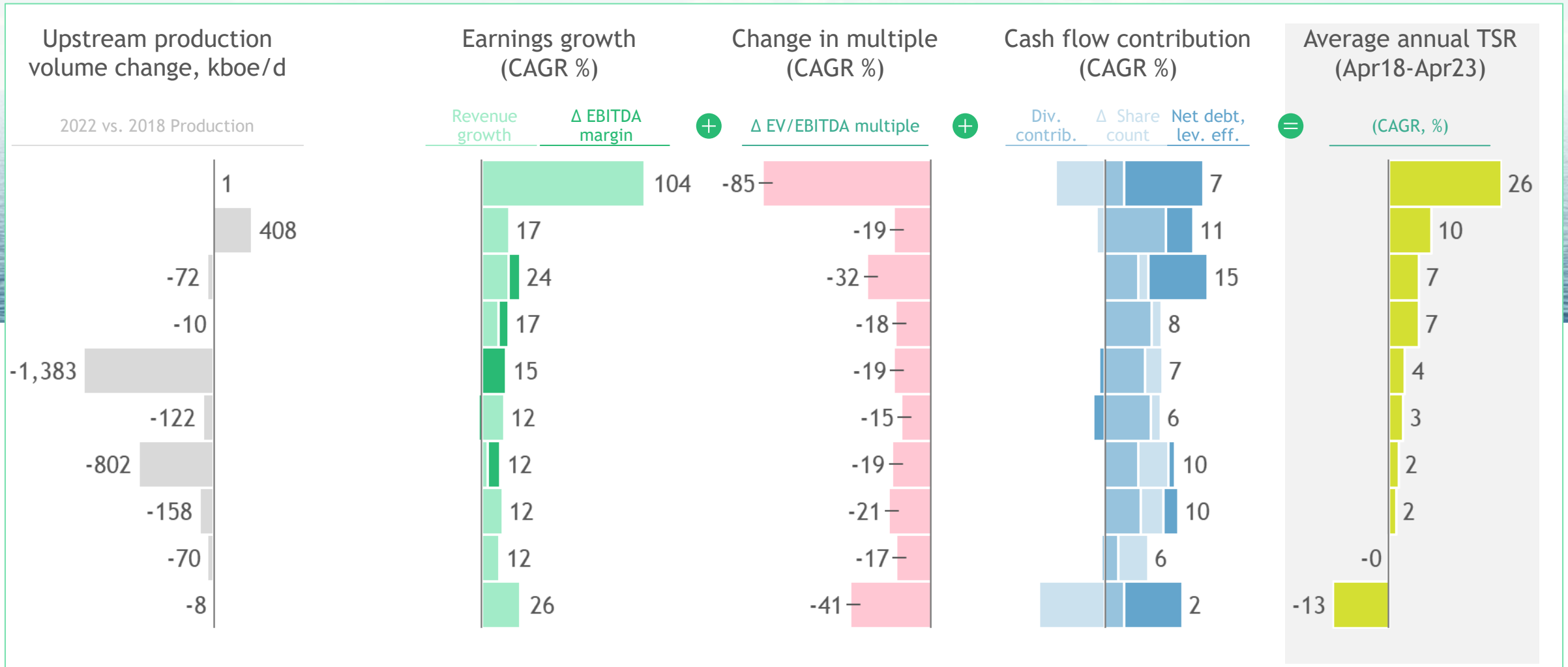
VCR global O&G sample (n=79)¹

Rolling 5-year TSR driver (CAGR %)



1. Russian companies were deliberately omitted from the sample due to suspended trading and collapse of share prices.
 Note: TSR runs from 30Apr18-30Apr23.
 Fundamentals represent LTM with dates deviating depending on data availability and fiscal quarter ends. Dividend contribution includes investment of dividends & special dividends, compounded daily. Components of TSR are multiplicative but converted and shown here as additive with remainders assigned to the margin and multiple change field. Peer group aggregation based on market cap weighted average using start date values. TSRs use company reporting currency.
 Source: S&P Capital IQ; BCG Value Creators database 2023; BCG ValueScience® Center

Market, shareholders and lenders pressure is huge



Note: TSR runs from 30Apr18-30Apr23. Fundamentals represent LTM with dates deviating depending on data availability and fiscal quarter ends. Dividend contribution includes investment of dividends & special dividends, compounded daily. Components of TSR are multiplicative but converted and shown here as additive with remainders assigned to the margin and multiple change field. Peer group aggregation based on market cap weighted average using start date values. TSRs use company reporting currency.

Source: S&P Capital IQ; BCG ValueScience® Center; company annual reports

Low cost and low carbon barrels are advantaged

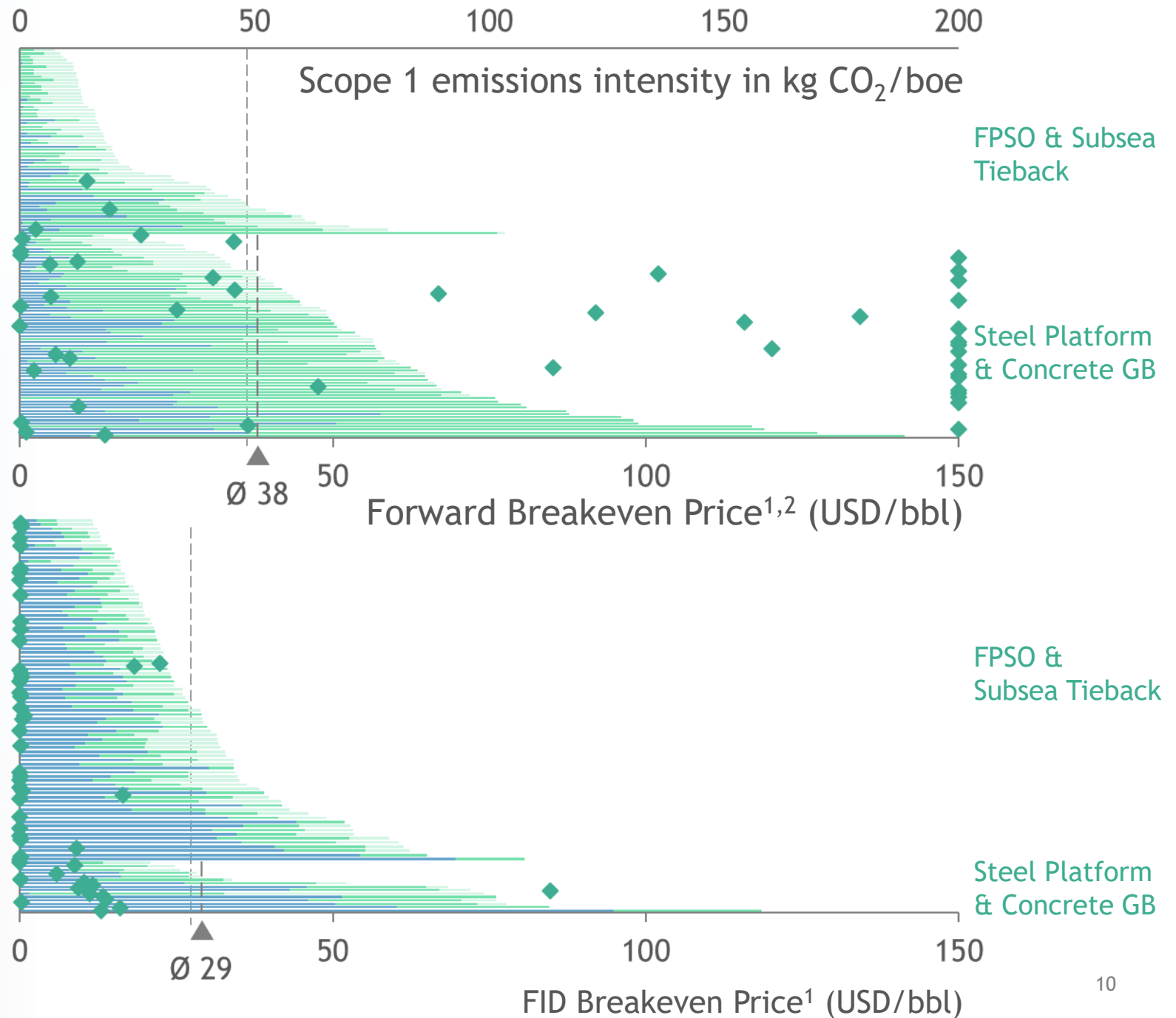
Currently producing assets

Assets starting production by 2040³

- ◆ Emissions intensity
- Government Take
- Opex
- Capex

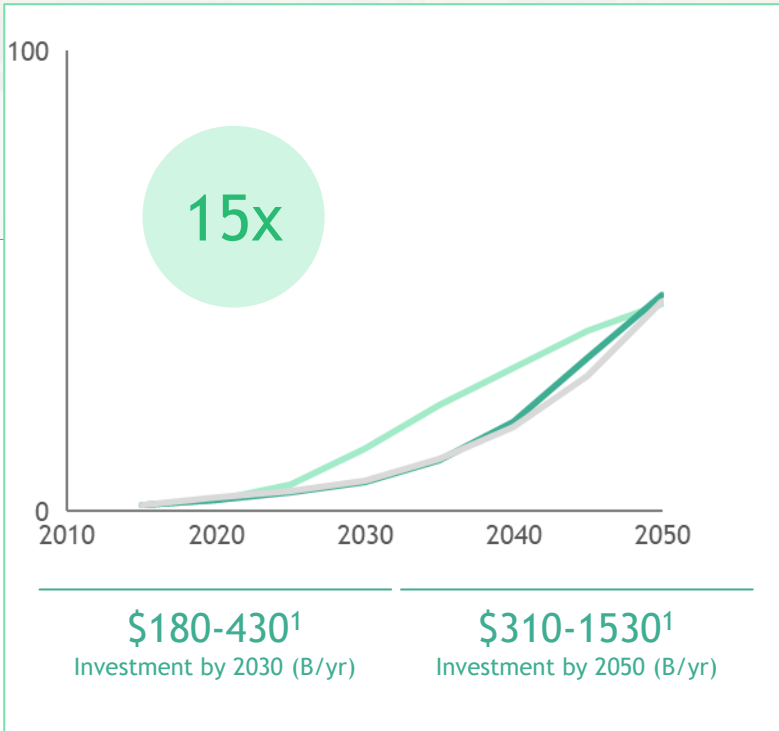


1. At today's oil price (May 2023); 2. BE price capped at 150 for one asset; 3. Assets under development and discovered starting production by 2040; 4. Emissions intensity capped at 200kgCO₂/boe for 15 assets; 5 Vertical dotted line indicates the median
Source: BCG O&G Upstream Decommissioning; Rystad Energy

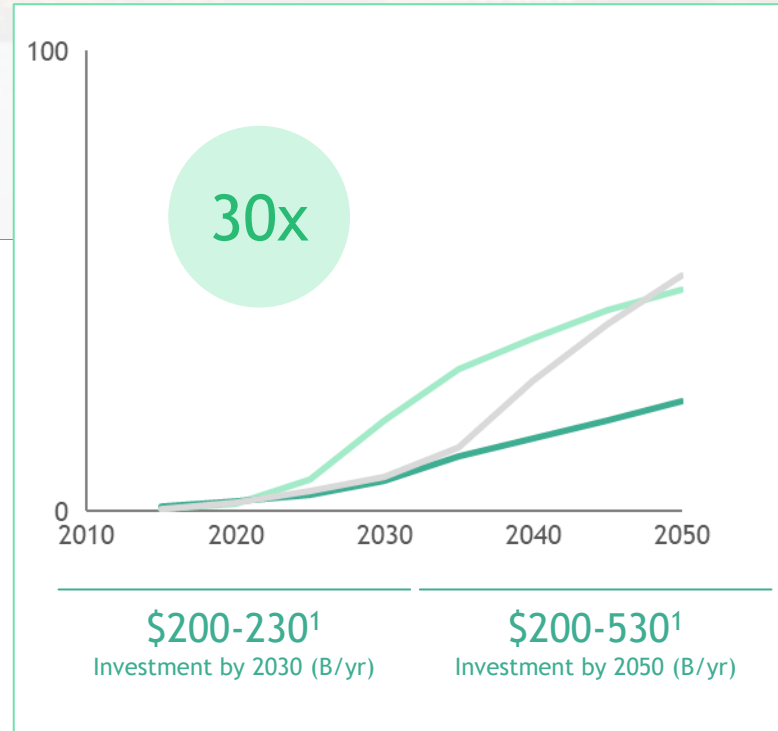


New energy businesses require billions of investment per year to 2030

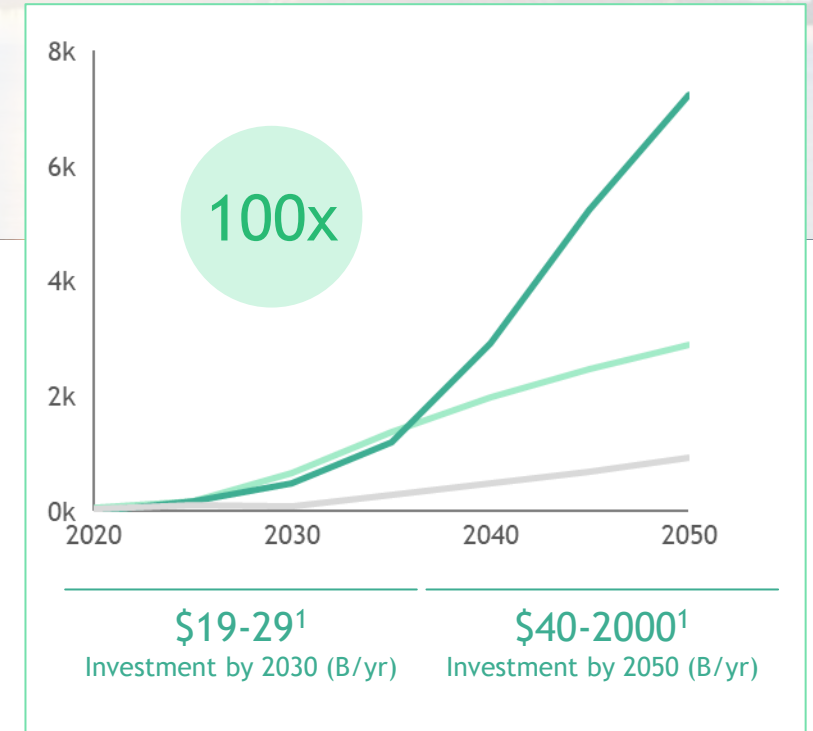
Wind Growth (MBOE/day)



Solar Growth (MBOE/day)



Hydrogen Growth (MTPA)



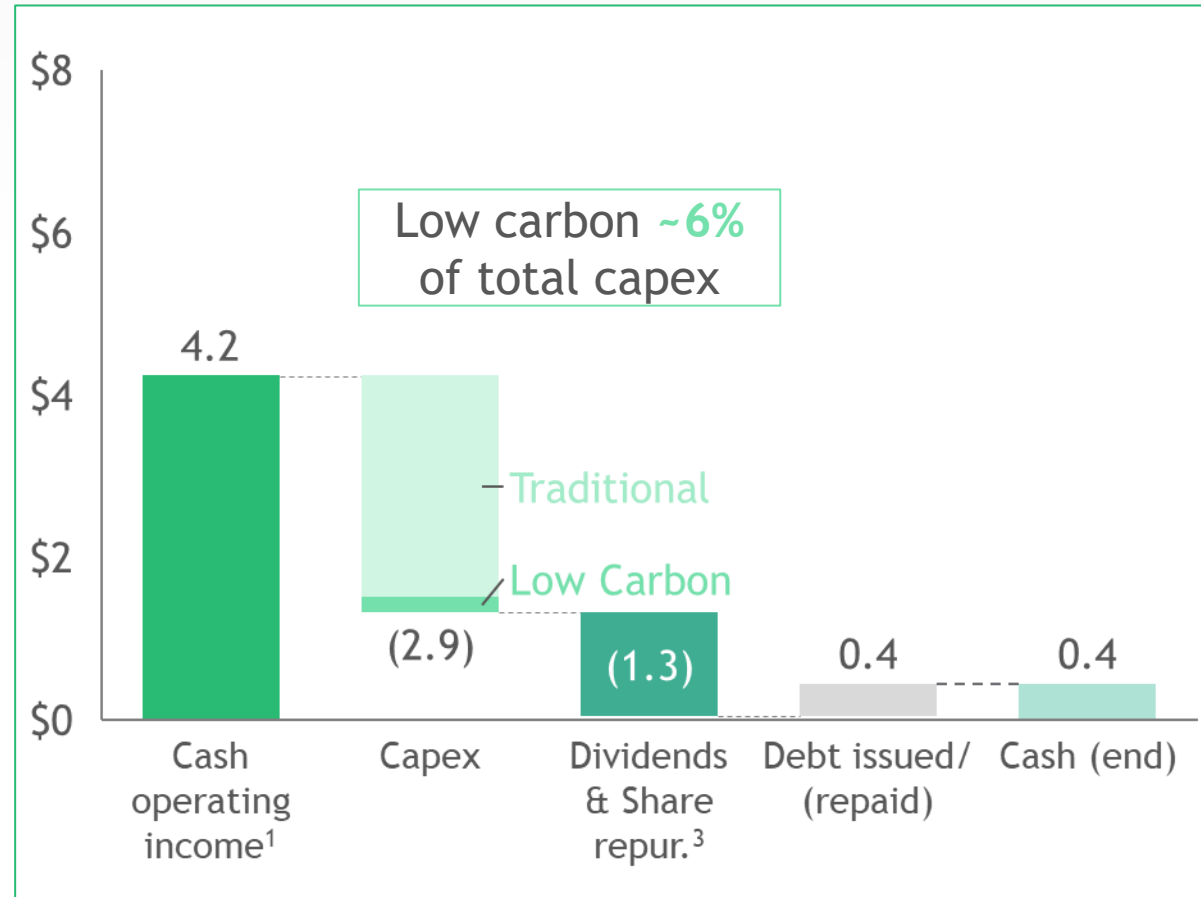
— Scenario A: Limit warming to 1.5°C with no or limited overshoot² — Scenario B: Return warming to 1.5°C after a high overshoot³ — Scenario C: Limit warming to 2°C⁴

1. Only Scenarios B & C have clean energy investment data; 2. IPCC C1 Illustrative mitigation pathway (IMP); 3. IPCC C2 selected pathway (POLES ENGAGE Model, EN_INDCi2030_400f Scenario); 4. IPCC C3 IMP; Note: Non-exhaustive; other low carbon solutions, especially CCS and Biofuels, also needed to grow at similar pace. Values shown from previous years (pre-2023) are modeled values based on specific scenario assumptions in the IPCC report, and therefore are not exactly similar across scenarios; Source: IPCC Sixth Assessment Report, Climate Change 2022: Mitigation of Climate Change, the Working Group III contribution, Scenarios Database

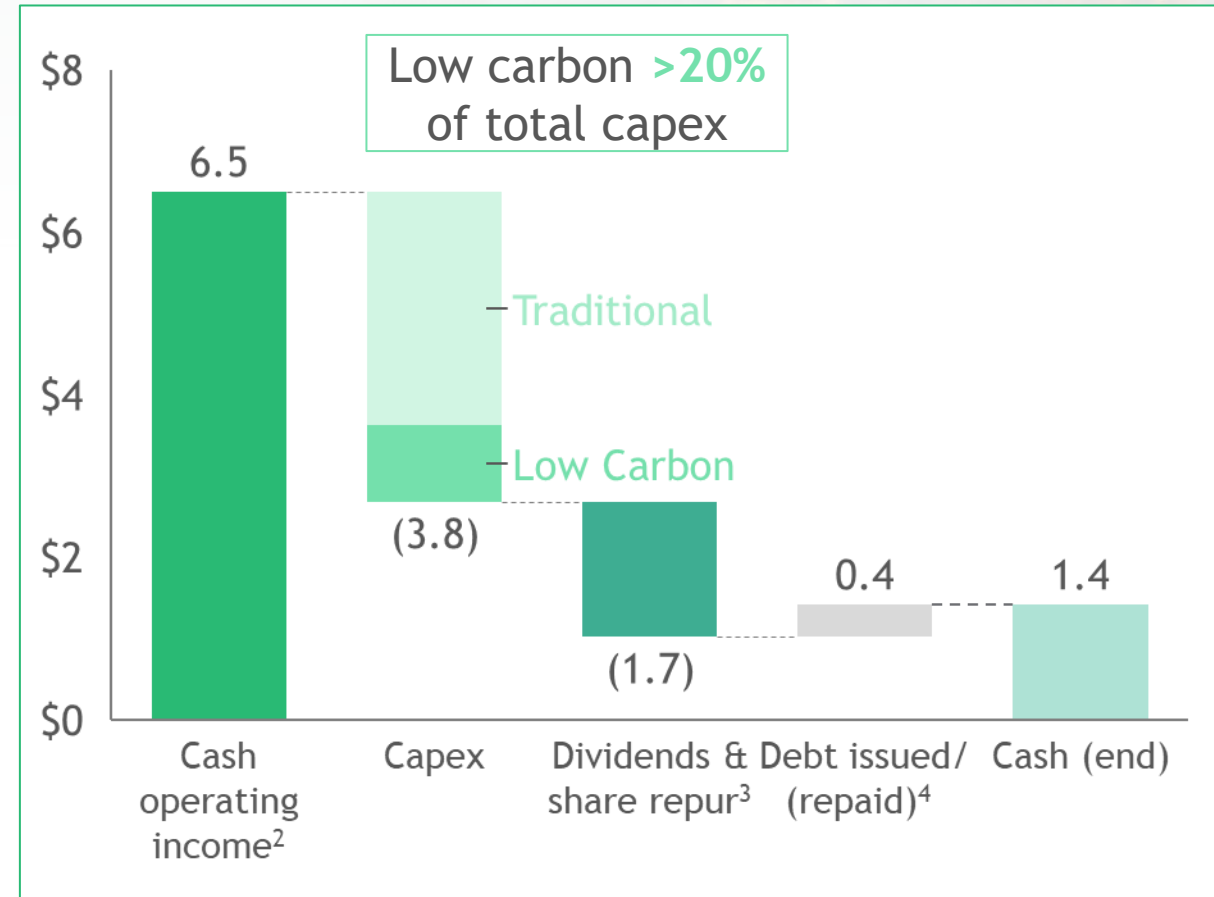
Largest energy companies will direct ~\$1T to low carbon in next 5 years, ~\$1.4T excess cash to allocate

100 largest energy companies' sources & uses of cash

Past 5 Years | 2017-2021, \$T



Next 5 Years | 2022-2026, \$T



1. Cash operating income = cash from operating activities. 2. Forecast cash operating income based on consensus estimate FCF through 2026 less forecast capex 3. Includes net issuance/repayment/repurchase activity 4. Debt forecast same as Q2:2022. Note: Low carbon defined as investment in RES, biofuels, batteries & storage, CCUS, and end use. Source: S&P Capital IQ; S&P Global consensus view to operating income and dividends; Company-reported capex targets; BCG case experience

UK O&G companies focus is in O&G?

Global prod (Kboe/d)	UK prod (Kboe/d)	Scope 1-2 targets	CCS as a business	H ₂	Electrification as a business	Renewables	Repurpose	Decom as a business	Low-Carbon CAPEX (% of total spend) ¹
208.8	195.6	'35: Net Zero (equity basis) 1-2	Acorn Viking	✓	✗	✗	✗	✗	25%
50.7	50.7	'25: -25%; '40: Net Zero		✗	✗	✗	✗	✗	-
49.9	49.8	'50: Net Zero	Morecambe	✓	≈	≈	✓	✗	-
48.4	48.4	'25: -15%; '30: -28%; '40: -55%; '50: Net Zero		✓	✗	✗	✓	≈	24%
46.6	46.6	NSTD targets, '30: -50%; '50: Net Zero		✗	✗	✗	✗	✗	-
51.8	46.1	'23: -10%		✓	✓	≈	✓	✗	37.5%
39.9	30	'50: Net Zero		≈	≈	✗	✗	✗	-
139	14.5	'30: Beyond Net Zero	L10 UK-NO	✓	✓	≈	✗	✗	-
2,928.30	153.1	'25: -15%; ;'30: -40%; '50: Net Zero		✓	≈	✓	✗	✗	29%
3,071.60	131.5	'25: -20%; '30: -50%; '50: Net Zero		✓	≈	✓	✓	✗	24%
3,232.3	99	'30: -20%; '35: -45%; '50: Net Zero		✓	✓	✓	✗	✗	16%
86.3	86.3	NSTD targets, '30: -50%		✗	✗	✗	✗	✗	-
2,009.20	45	'30: -50%; '40: -70% NO ¹ '50: Near Zero NO ¹		✓	✓	✗	✓	✗	35%
1,998.3	42.7	'30: peak emissions; '60: Carbon Neutrality		✓	✗	✗	≈	✗	-
472.1	41.3	Vague, -1Mt/year by 2024		✗	✗	✗	✗	✗	-
1,970	40.1	'30: -35%; '35: -55%; '40: -80%; '50: Net Zero		✓	✓	✗	✓	✗	25%
264.8	36.5	None		✗	≈	✗	✓	✓	-
141.3	34.9	'30: -25%; '50: Net Zero		✓	✓	✗	✗	✗	-
28	22.5	None		✗	✗	✗	✗	✗	-
1,279	12.9	'30: -22MTCO ₂ e; '50: Net Zero		✓	✗	✗	≈	✗	15%

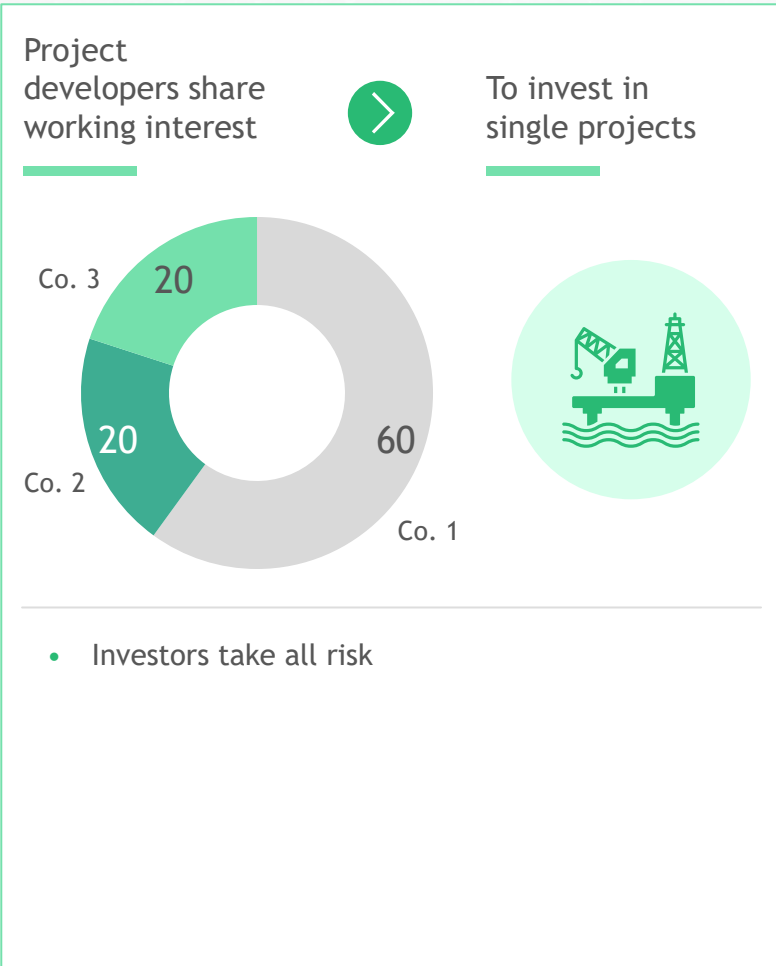
✓ Yes
 ≈ Exploring
 ✗ No

Note: All production data is on a net working interest basis from operated & non-operated assets; 1. Announced for future Source: BCG O&G Upstream Decommissioning; Rystad Energy

New commercial models needed to bridge the capital divide

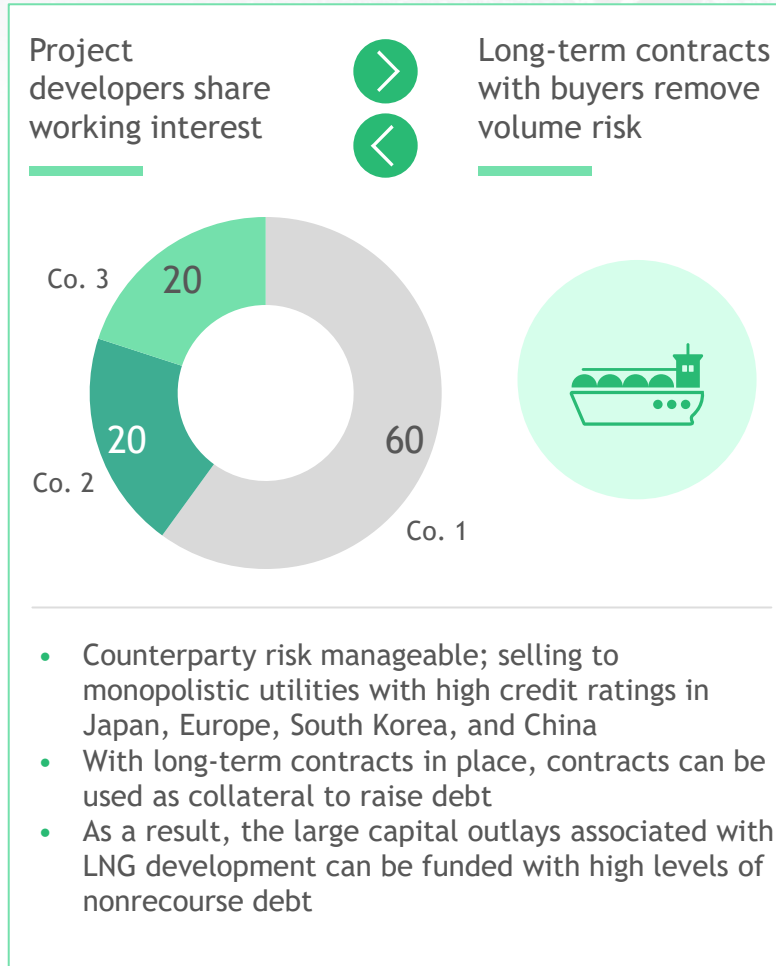
Oil investment risk model

Investors take all risk



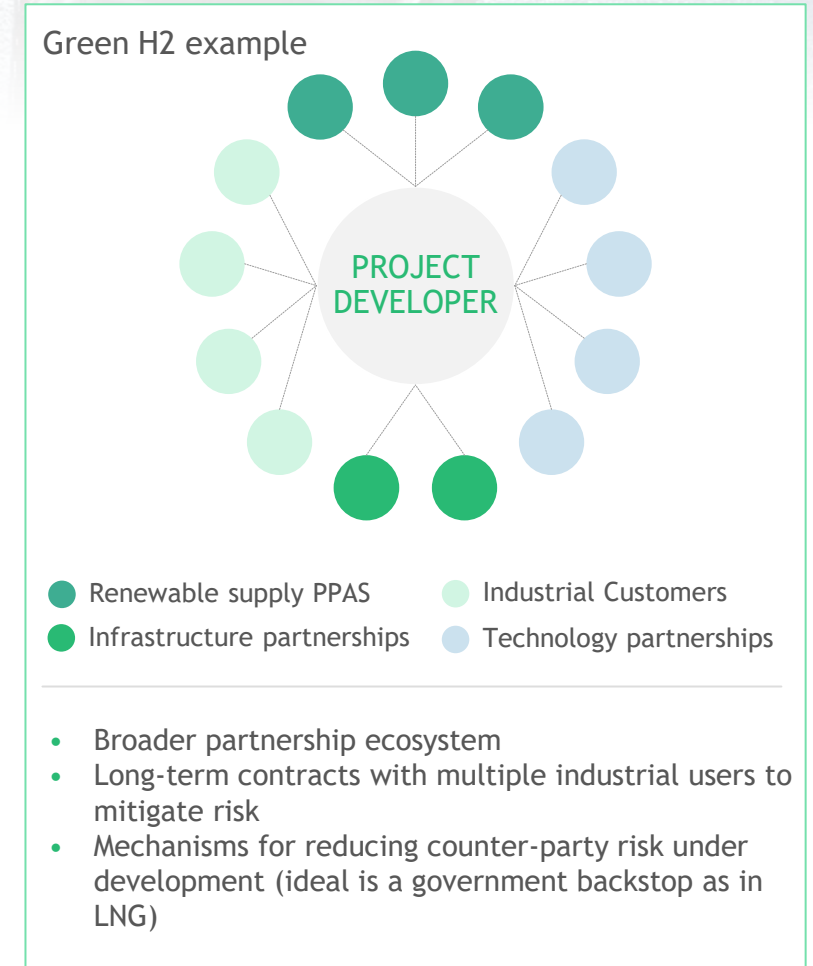
LNG investment risk model

Buyer contracts minimize volume risk



N. Sea rig utilization at 100%

New ecosystems spread risk



Cash needs to go to decom right now



O&G companies' cash levels is at all times high; but UK context is challenging



Short-term outlook is positive; but O&G demand will decline beyond 2030



Pressures and commitments are strongly re-directing resources away from core



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