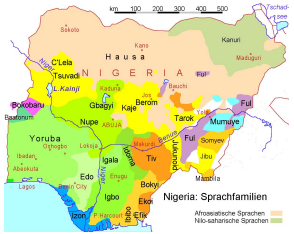
Beatrice Siyanbola

Production Operations Engineer, Shell UK

My Background



MANCHESTER 1824
The University of Manchester

- Grew up in Ile-Ife, Nigeria
- Moved to Kent, UK
- Chemical Engineering
- Industrial Placement
- Production Operations Internship
- Production Operations Graduate (2019)

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About Me

400+ Days as an Energy Industry Graduate: Industry Changes and Where it's Heading

Beatrice Siyanbola
Production Operations Engineer, Shell UK

Focus Areas

- The Industry’s Journey so far
- Current Picture & the COVID-19 effect
- The Industry’s Shift
- The future of the Industry

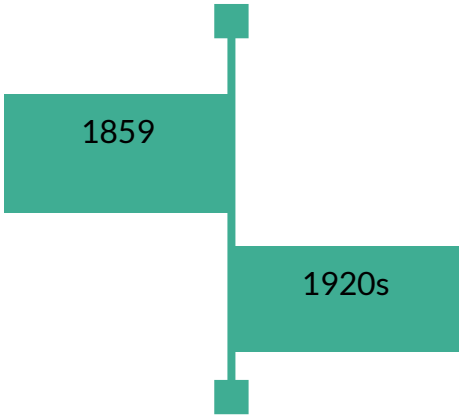
The Industry's Journey so far

First oil well in the United States, built in 1859 by Edwin L. Drake, Titusville, Pennsylvania.

Source: Britannica.com

The Industry’s Journey so far

Production from the first oil well in Pennsylvania (1859) marked the start of the new oil economy - exploration then spread beyond the US



Natural gas became recognised as a valuable product

- Petrochemical industries account for approximately 11% and 8% of the global primary demand for oil and natural gas respectively.

The Industry's Journey so far

Oil Price Crashes

1985-86	1990-91	2008-09	2014-15
Inc. oil prices, increased efficiency leading to lower demand, increased production from non OPEC nations	Gulf War	Financial Crisis	Oil Glut (US shale production)

The Industry's Journey so far

Renewables started growing in popularity from the 1970s .

- International Oil Companies (IOCs) and National Oil Companies (NOCS) started looking into investing into renewable energy sources, restrategising and rebranding

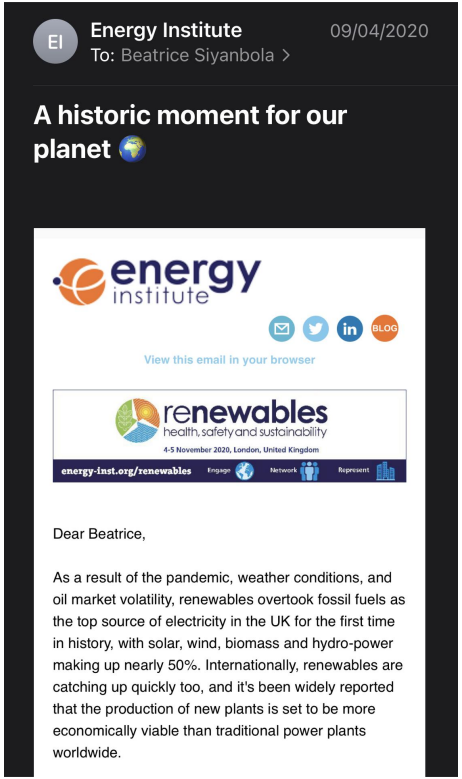
- In 2017, DONG (Danish Oil Natural Gas)/ Ørsted divested 100% of it's fossil fuel assets.

Current Picture & the COVID-19 effect

Current Picture & the COVID-19 effect

- 43% fossil fuelled power (almost all from natural gas),
- 48.5% zero-carbon power (including 16.8% nuclear power and 26.5% from wind, solar and hydroelectricity), and
- 8% imports

Source: National Grid



Current Picture & the COVID-19 effect

- Brent Crude was as high as $68.9 in January 2020
- Lower costs of wind, solar, and batteries
- Decarbonization of the industry has become imperative - some companies have set ambitious targets in Q2-Q3 this year.

- Since February/ March 2020:
  - Oil prices crashed to record low $19.33
  - Risen to between $40 - $45 in the last four months
  - Increased demand for petrochemical feedstocks in some value chains

Current Picture & the COVID-19 effect

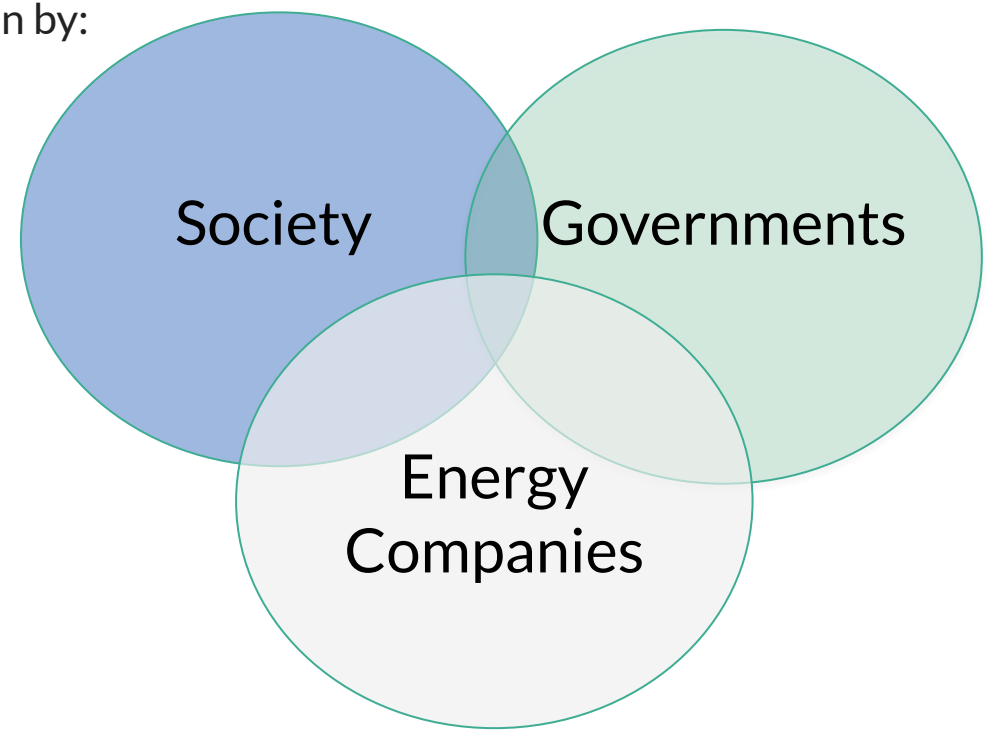
- Some companies have taken the opportunity of the crisis to review their strategy

- Most have:
  - Seen low utilisation resulting in low margins
  - Introduced emergency cash preservation strategies
  - Since the 2008 crash, returns have become more sensitive to the oil price

The Industry's Shift

The Industry's Shift

Changes are being driven by:



Changes affecting the Industry

Society

Changing public perception of the Oil and Gas Industry

Investors are more attentive to environmental issues

Gradual transition into regenerative economy

Changes affecting the Industry

Governments

Increasing governmental pressure and roll out of pro-eco legislation

Evolving trade dynamics and varying regulations in different jurisdictions

Energy Companies' Changes

Portfolio

Some IOCs are now redirecting capital into low-carbon energy markets.

Companies are developing more efficient natural gas technologies

Recognising place in decarbonised future of the industry and beginning to develop their renewable energy expertise and portfolios.

Energy Companies' Changes

Decarbonising

Companies are beginning to incorporate carbon and broader environmental targets into their agendas.

Making operational improvements - to increase operations efficiency and reduce carbon emissions

Facilities electrification

Energy Companies' Changes

Digitalisation

- Industry is becoming more data-driven and taking advantage of increased connectivity
- Completing facility upgrades to enable
- Improve data literacy of individuals at every level and function of their businesses
- Construction and use of digital twins across platforms and plants

The future of the Industry

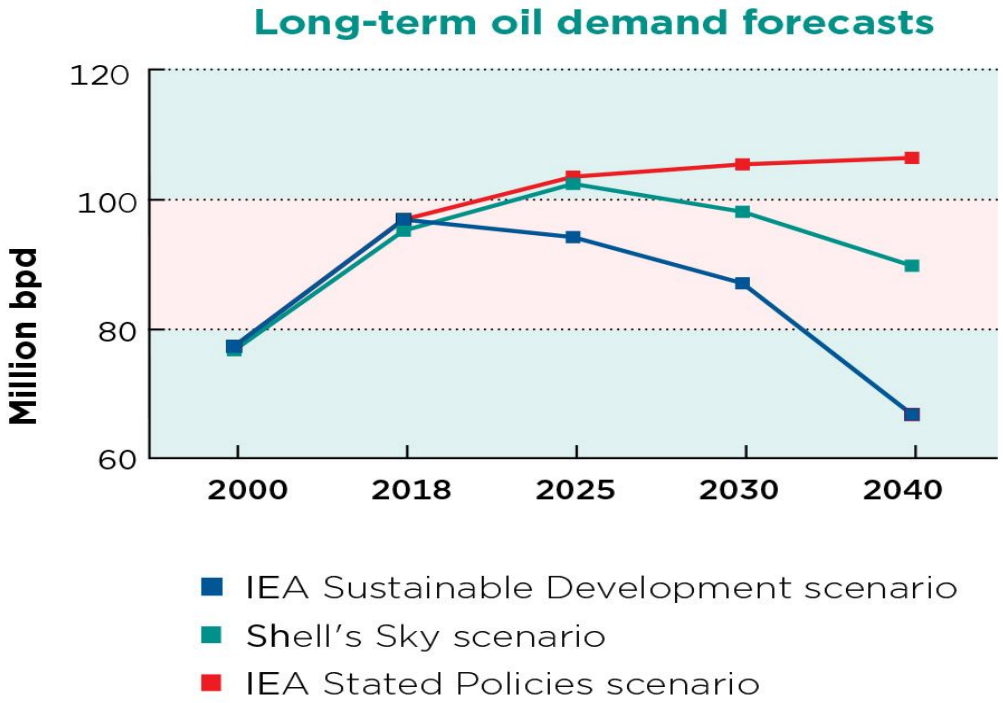
The future of the Industry

- Currently no agreement on trajectory of demand across the industry
- In most cases, oil and gas will remain a multi-trillion-dollar market for decades.

- The Department of Energy and Climate Change (DECC) forecasts that the UK will use about the same amount of energy in 2030 as it does today

- Demand for petrochemical products will depend on extent of our adoption of new technologies and on societal behavioural changes

The future of the Industry



SOURCE: International Energy Agency and Shell

The Future of the Industry

- IOCs and dependent producers seeking to streamline their businesses
- Business models diversified to focus on customer-facing downstream opportunities

- Oil and Gas E&P expertise adapted to support decarbonisation technologies - e.g. CCUS and production of blue hydrogen
- Several nuclear power stations are due online late 2020s

- Oil will remain critical for global transport for many years
- Gas continue to be pivotal to the global energy transition and for the future for decades to come

Q&A

Useful Resources

1. Article - The role of oil and gas companies in the energy transition by the Atlantic Council https://www.atlanticcouncil.org/in-depth-research-reports/report/the-role-of-oil-and-gas-companies-in-the-energy-transition/
2. Paper - Anatomy of the 4 oil price crashes http://pubdocs.worldbank.org/en/404414448537334 69/CMO-April-2015-Feature-Oil-Price-Crash.pdf
3. IEA -International Energy Agency -have articles, including on Chemicals from energy www.iea.org/
4. McKinsey Article https://www.mckinsey.com/industries/oil-and-gas/our-insights/oil-and-gas-after-covid-19-the-day-of-reckoning-or-a-new-age-of-opportunity

Career Conversation

Beatrice Siyanbola

Production Operations Engineer, Shell UK

Focus Areas

- My story
- Job Application Stages
- Knowledge, Skills, Values and Culture
- Recruitment Process Changes
- Next Steps

My Story

- How I gained job application experience
- Challenges I faced
- What worked for me

2 Questions

1. What are we most keen to hear about ?
2. Do we know about the STAR method?

Job Application Stages

- Applications - CVs, cover letters,
- Psychometric & Situational Tests
- Interviews - BEI, Competency, Strength-based, Case Study, Technical
- Presentation Exercises
- Group Interviews

Useful websites

Grad Cracker, Target Jobs, Student Circus (International Students)

Knowledge, Skills, Values and Culture

Recruitment Process Changes

- Use of game based exercises
- Fully virtual recruitment processes
- Most companies will use video interviews/ telephone interviews

Next Steps

- Establish what's most important to you - nature of the job, company culture, benefits, location, pay, visa sponsorship etc.
- Properly research the role and company
- Tailor your responses to the role at every stage of the application process

- Analyse your past experiences to better prepare for interviews
- Seek more experiences outside of academia - clubs, sports, insight events
- Ensure that your enthusiasm for the role shows through at each stage

Q&A

Beatrice Siyanbola

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thecareeraisle@gmail.com

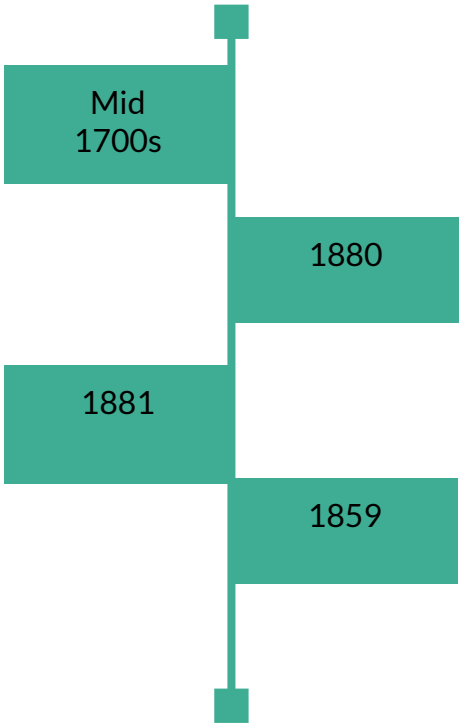
The Industry’s Journey so far

First oil well in the United States, built in 1859 by Edwin L. Drake, Titusville, Pennsylvania.

Source: Britannica.com

The Industry's Journey so far

Birth of the modern steam engine, during the Industrial revolution (coal-powered)

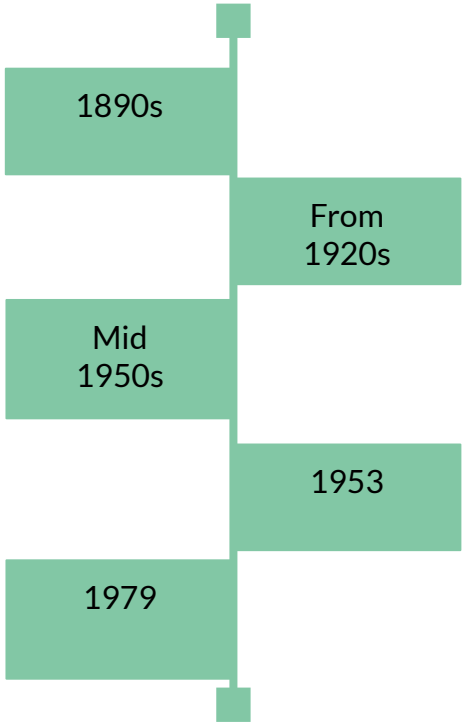


First electric generator attached to a coal powered steam engine was created by Thomas Edison in New York City

First hydroelectric plant went on-line in Appleton, Wisconsin.

Production from the first oil well in Pennsylvania (1859) marked the start of the new oil economy - exploration then spread beyond the US

The Industry's Journey so far



First use of wind turbines to generate electricity. Poul la Cour used it to provide electricity for lighting for the village of Askov.

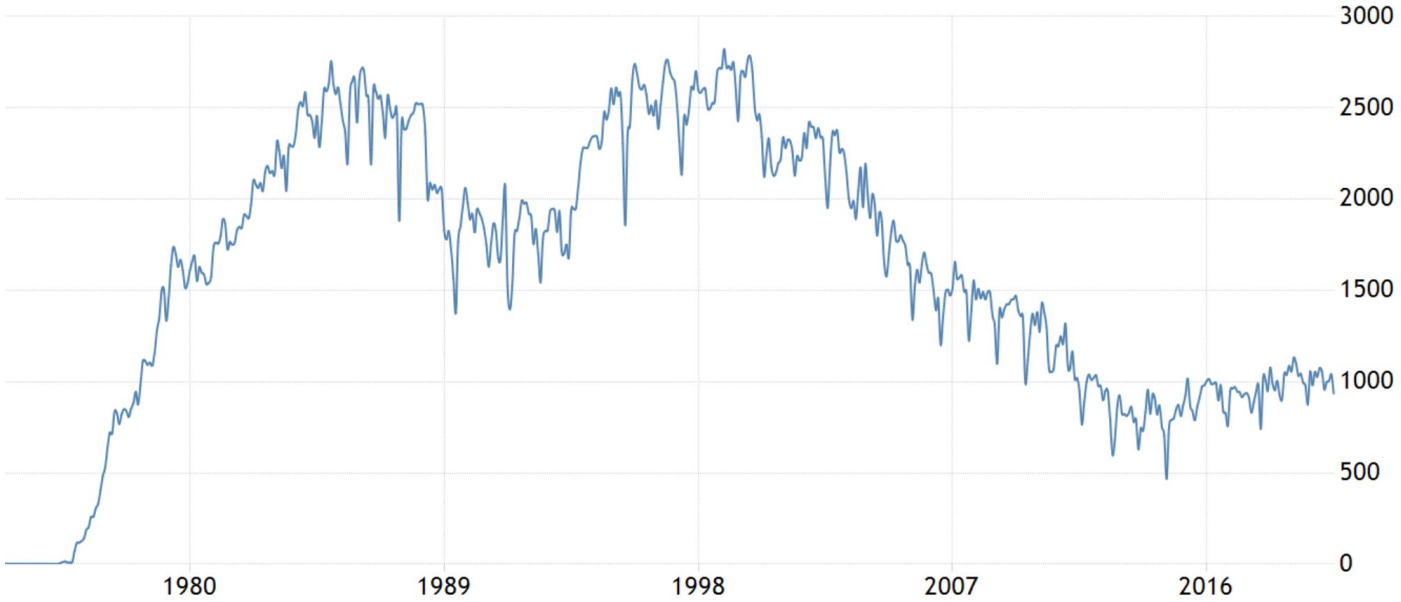
Natural gas became recognised as a valuable product

Projects to harness nuclear energy in electricity production kicked off

The first silicon solar cell capable of generating a measurable electric current was developed.

Three Mile Island Nuclear Power plant partial meltdown, led to several nuclear projects being stopped and others put on hold

Crude Oil Production in the UK



SOURCE: TRADINGECONOMICS.COM | U.S. ENERGY INFORMATION ADMINISTRATION

The Industry's Journey so far

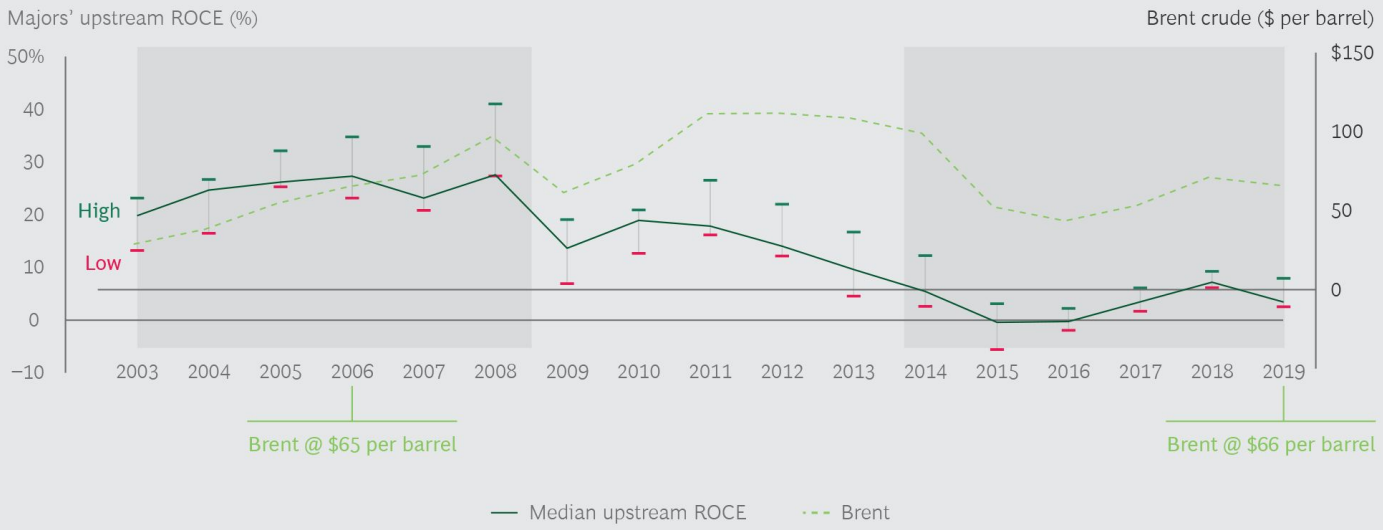
1960 OPEC was formed

In 1972,
IOCs and major independents accounted for 93% of the world's production, NOCs accounted for 7%

Today,
NOCs now control about 73% of a much larger value of world oil and gas production.

Current Picture & the COVID-19 effect

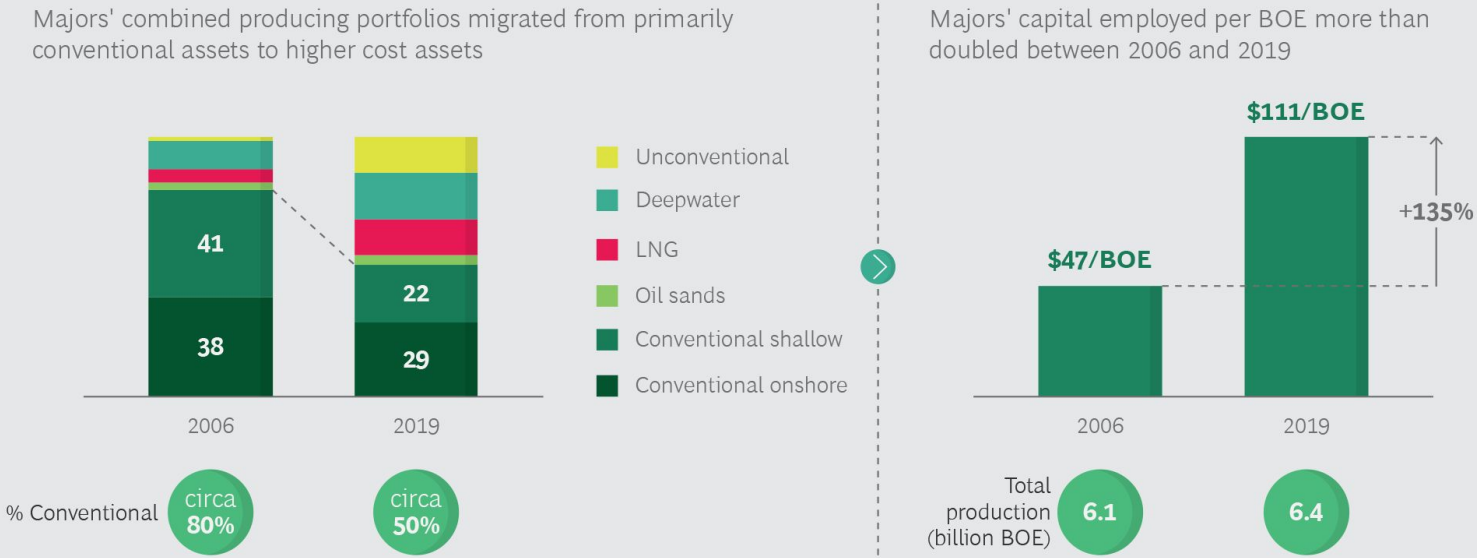
EXHIBIT 1 | IOC Returns Have Become More Price Sensitive, Not Less



Sources: S&P Capital IQ; company disclosures; BCG Center for Energy Impact analysis.
Note: Majors include BP, Chevron, ExxonMobil, Shell, TOTAL.

Current Picture & the COVID-19 effect

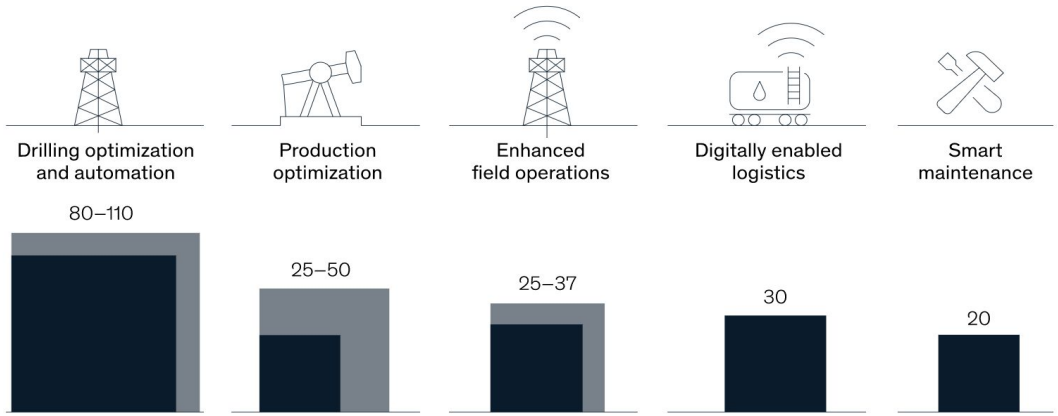
EXHIBIT 2 | Portfolios Shifted to Higher-Cost Assets as Greater Capital Intensity Eroded ROCE



Sources: Rystad UCube; BCG Center for Energy Impact analysis.
Notes: Charts show combined data for BP, Chevron, ExxonMobil, Shell, TOTAL. BOE = barrel of oil equivalent.

Five broad types of connectivity-fueled oil and gas use cases could contribute up to $250 billion in incremental value to global GDP by 2030.

Oil and gas connectivity use cases, estimated range of potential incremental value, $ billion



Advanced analytics could increase drilling operations productivity by improving drilling speed, while remote or semi-automatic drilling could reduce the number of people required on a rig.

With the help of timely data collection across the production system, this use case creates value by increasing throughput and reducing the energy consumed and emissions produced.

Connectivity advances, such as "connected worker" solutions and technologies offering virtual enhancements, could help reduce time spent on maintenance and repairs.

Enhanced connectivity can radically transform end-to-end logistics and the supply chain with improved demand management, transparent material tracking, and more efficient logistics operations.

A greater density of sensors deliver real-time, high-volume data on equipment status and anomalies to improve prediction of failure and offer remedial actions to operators.

McKinsey & Company

Energy Company's Changes

Strategy - Portfolio

The industry faces structural disruption from the transition to renewable energy resources

- Responses vary by company. Some IOCs are now redirecting capital into low-carbon energy markets. Others are still focusing on core operations in oil and gas.
- Companies are developing more efficient natural gas technologies
- Diversification of portfolio and change of energy mix - Recognising place in decarbonised future of the industry and beginning to develop their renewable energy expertise and portfolios - e.g. in Biofuel, Geothermal, Onshore/Offshore Wind, Solar.
- Despite the growth in renewables, "big oil" only spent 1% of its combined budget on green energy schemes in 2018.

Energy Company's Changes

Strategy - Decision Making/ Operations

- Recognise that their societal license to operate is at risk
- Exploring how expertise can be translated into the future lower carbon energy industry - e.g CCS (Acorn) , management of offshore working
- IOCs are faced with balancing short-term returns with long-term licence to operate
- Some are using this crisis to reposition their portfolios and transform their operating models.

The Future of the Industry

- IOCs and dependent producers will seek to streamline, strip down and consolidate their businesses, especially in the US and other high-cost mature basins - to benefit from economies of skill and scale [McKinsey, 2020].
- Diversifying business models to focus on and highlight customer-facing downstream opportunities.
- Oil and Gas E&P expertise adapted to support deep decarbonisation technologies - e.g. CCUS, methane efficiency improvement and blue hydrogen
- Gas will play a critical role in the transition and future
- We will still need a petroleum industry, though in a much smaller form, to make lubricants and chemicals we need for modern life.
- By 2030, it expects renewables to be by far the biggest source of energy used in electricity generation, making up about 40 per cent of the overall mix.
- In the UK, several nuclear power stations are due online late 2020s