



Oil & Gas
Authority

Projections of UK Oil and Gas Production and Expenditure



March 2019

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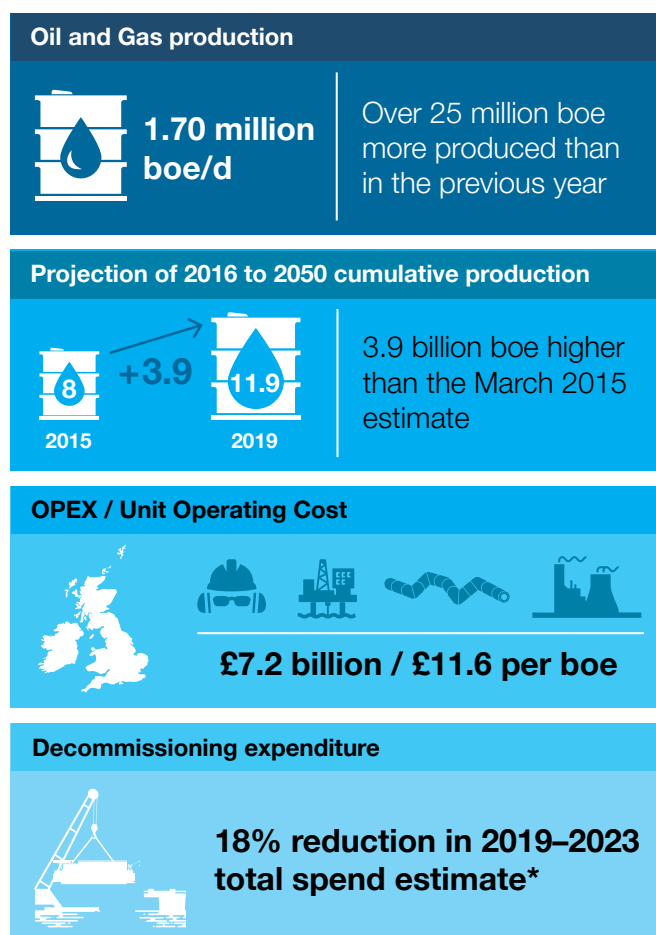
Executive summary

In 2018, the rate of UK oil and gas production averaged 1.7 million boe per day, an increase of more than 4% from the previous year.

The Oil and Gas Authority (OGA) now projects total cumulative UK hydrocarbon production from 2016 to 2050 to be 3.9 billion barrels of oil equivalent (boe) more than projected in March 2015.

- In 2018, oil production rose to 1.09 million barrels (bbls) per day, an increase of 8.9% from 2017 and the highest UK oil production rate since 2011. Gas production fell by 3.5% to 0.61 million boe per day.
- Total operating cost (OPEX) rose by 6.4% driven by higher activity, while unit operating cost (UOC) rose only marginally by 2.2%, from £11.4/boe in 2017 to £11.6/boe in 2018,* indicating stable cost efficiency.
- Capital expenditure (CAPEX) fell for the fourth straight year. This downwards trend of UK oil and gas upstream investment is however, expected to be halted in 2019, with a 4% increase projected.
- Annual decommissioning expenditure has risen year on year since 2015, with 2017 to 2018 seeing a 9% increase* to £1.45 billion, reflecting a higher level of decommissioning activity taking place.
- The five year outlook (2019–2023) projection for decommissioning expenditure is down 18% from the previous assessment last year.*

Figures for 2018

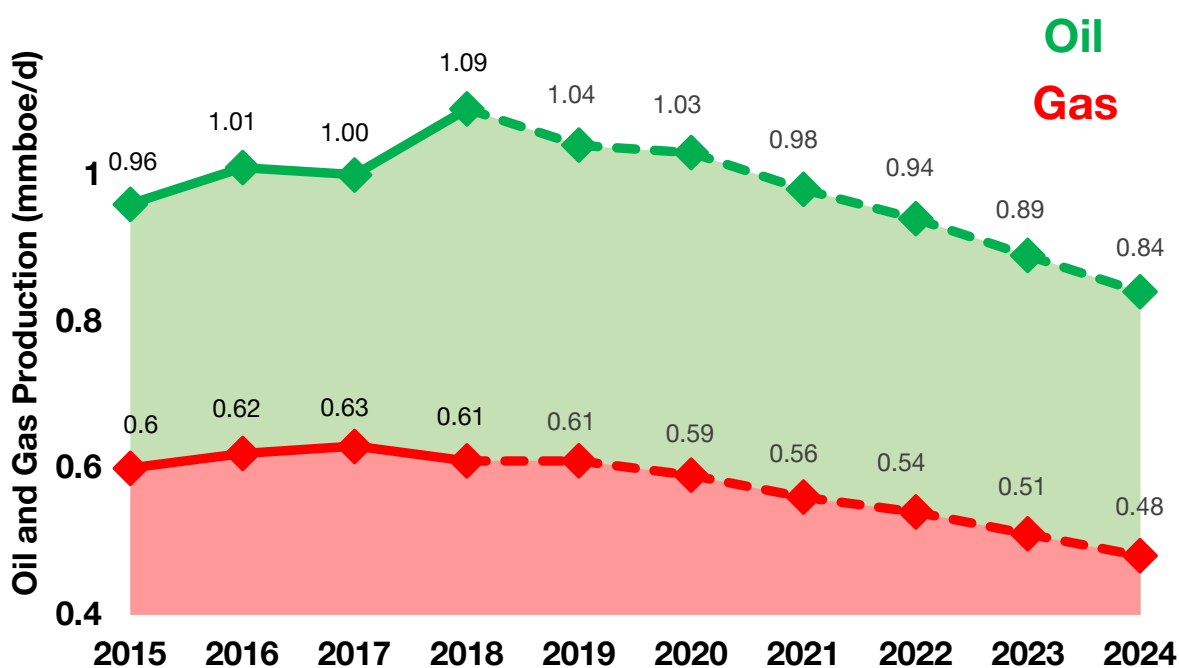


Notes
 The total decommissioning cost figure, which the 35% cost reduction target is set against, will be updated in the annual OGA summer decommissioning cost report/estimate.

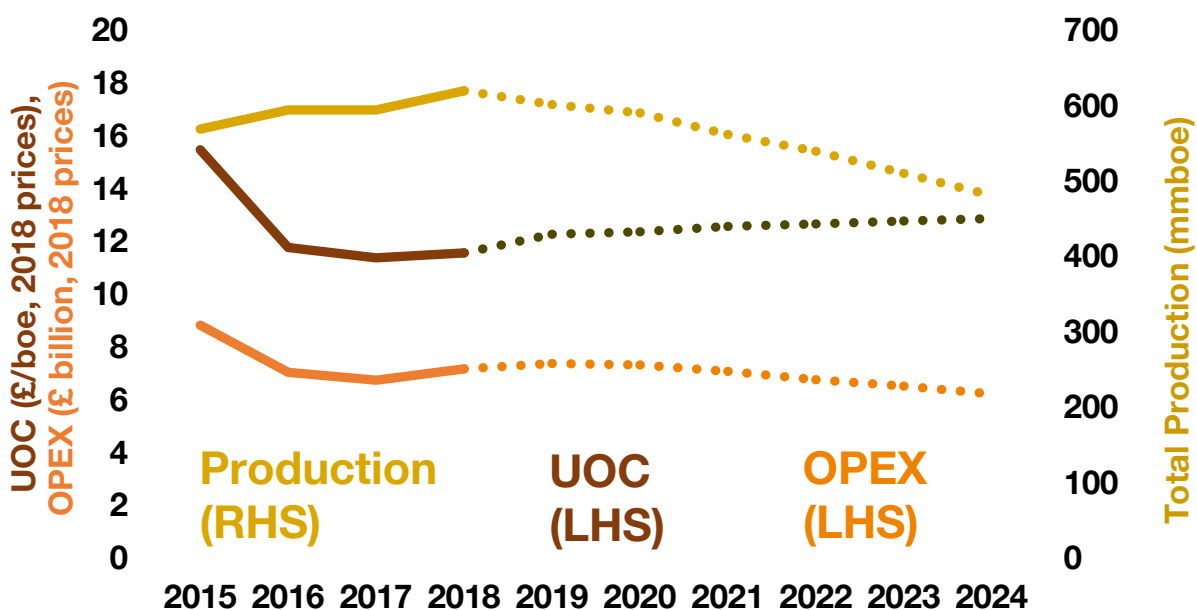
* Using 2018 Prices

Actual/Projected UK Production and Expenditure

Oil and gas production

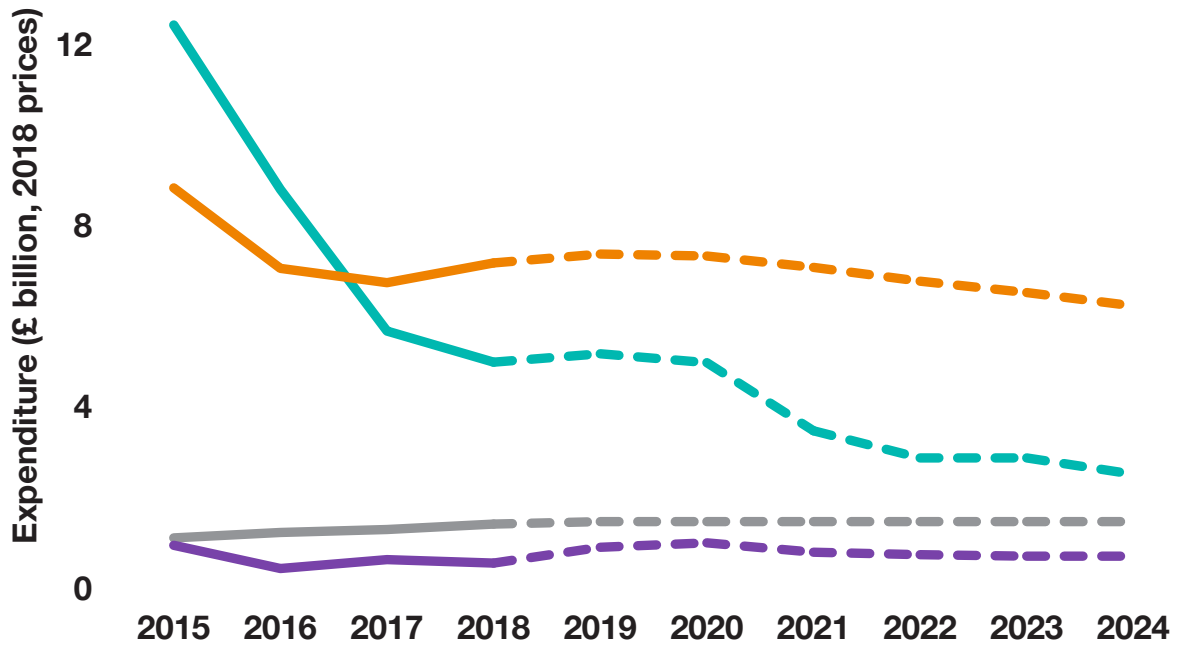


Unit operating costs

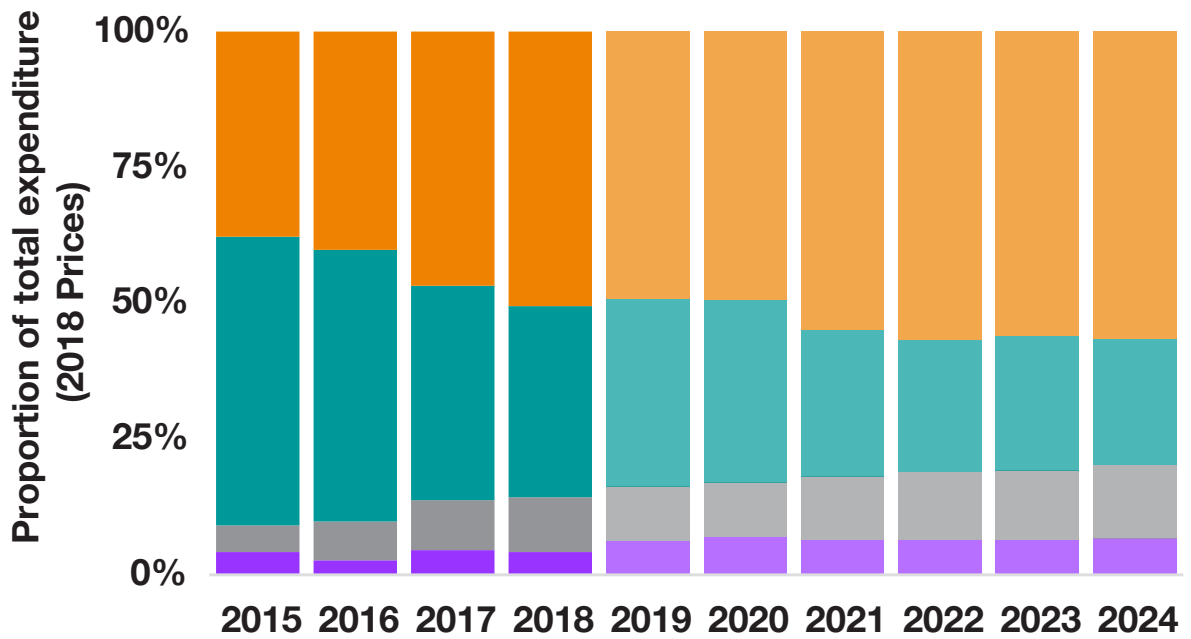


Figures post 2018 are projections

Expenditure (total by category)



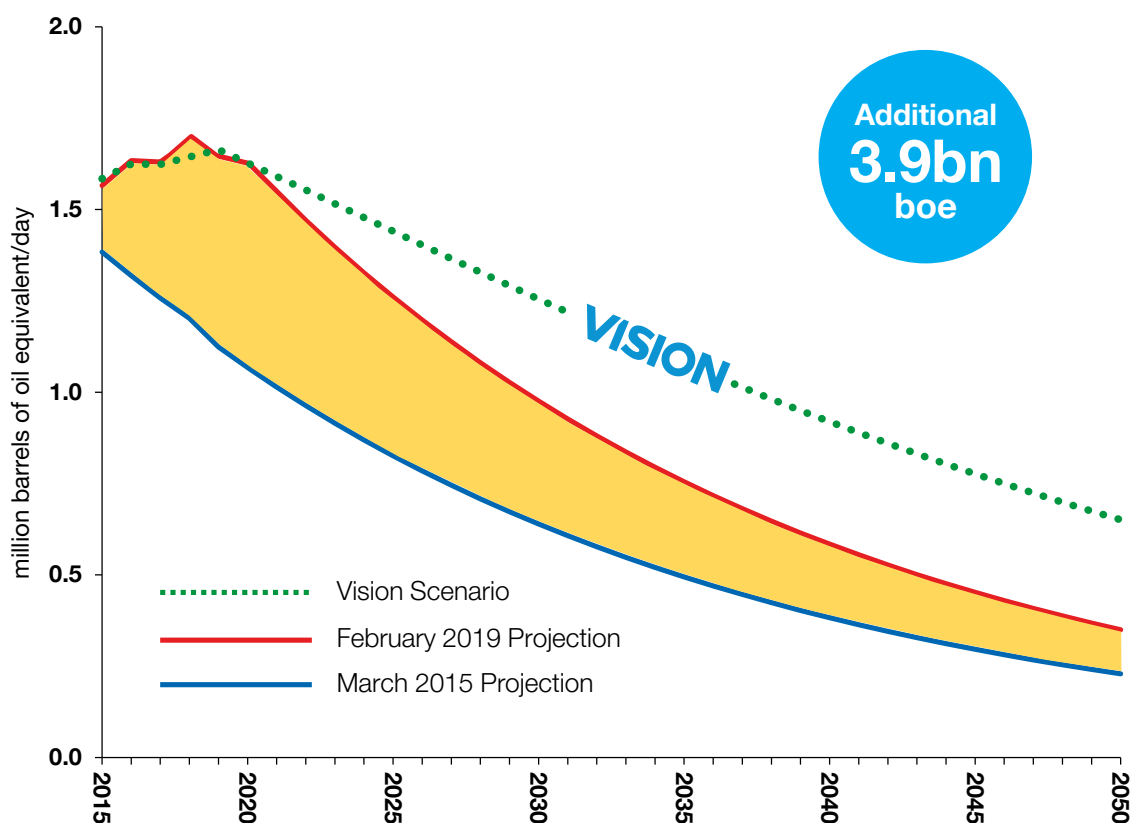
Expenditure (proportion by category)



Figures post 2018 are projections

Long Term Production Projection

Based on central production projections, cumulative production from 2016 to 2050 is now estimated to be 3.9 billion boe higher than projected in March 2015. This is an increase of 200 million boe from the previous production projection published in September 2018 and is the equivalent of gaining an additional four years of production (at the present rate) from the UK's largest currently producing oil field.



The "Vision Scenario" production profile is consistent with the Vision gross production revenue line in the "big opportunity" chart on page 5 of [Vision 2035](#).

The increase in production between the March 2015 projection and the current one has been supported by a number of OGA and industry led initiatives contributing to the additional 3.9 billion boe to 2050, including:

- A continuing increase in production efficiency.
- A reduction and relative stabilisation of unit operating costs.
- Improvements in asset integrity.
- The realisation of enhanced oil recovery (EOR) projects.
- Successful licensing rounds with associated exploration, appraisal and development commitments.
- Over 30 new fields coming onstream since 2015.

The future potential of the basin could be boosted further through investment, exploration successes and resource progression. The OGA is supporting this through emphasis on the revitalisation of exploration, increased access to data via the National Data Repository, the implementation of area plans and promoting the development and adoption of new technologies.

Notes

1. The production projections are informed by detailed field-by-field data provided to the OGA by the current operators of each field in early 2019.
2. This report includes updated estimates for earlier years.

Updated Medium Term Projections of UK Oil and Gas Production and Expenditure

The following table gives the OGA's latest projections of UK production of crude oil, natural gas liquids (NGLs) and natural gas for the period 2019 to 2024; the projections for gas relate to net production available for sale. Projections are also included for expenditure over the same period together with updated estimates for earlier years. The projections and the estimates of expenditure, which were provided to the Office for Budget Responsibility ahead of the Chancellor's Spring Statement on 13 March 2019, are based mainly on information from the OGA's UKCS Stewardship Survey.

The production projections are based on detailed field-by-field data provided to the OGA by the current operators of each field in early 2019. As usual, we have applied conservative contingencies. The extent of these contingencies reflects past experience of forecasting deviations. Historically, industry forecasts have tended to over-predict production significantly in the short and medium term, reflecting asymmetric upside and downside risks relating to field-level production.

March 2019 Update of OGA Projections of UK Oil and Gas Production and Expenditure

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Change 2017 to 2018
Production											
<i>Crude Oil (million tonnes)</i>	42.83	44.31	43.05	47.55	45.28	45.28	43.01	40.86	38.82	36.88	10.5%
<i>NGLs (million tonnes)</i>	2.46	3.14	3.45	3.32	3.16	3.16	3.00	2.85	2.71	2.57	-3.7%
<i>Oil (million tonnes)</i>	45.29	47.44	46.50	50.87	48.44	48.44	46.02	43.72	41.53	39.45	9.4%
<i>Oil (mtoe)</i>	49.54	51.95	50.94	55.74	53.07	53.07	50.42	47.90	45.50	43.23	9.4%
<i>Gross Gas (mtoe)</i>	38.82	39.84	39.98	38.61							-3.4%
<i>Net Gas (mtoe)</i>	34.43	35.54	35.73	34.39	34.39	33.53	31.86	30.26	28.75	27.31	-3.8%
<i>Net Gas (billion therms)</i>	13.66	14.10	14.18	13.65	13.65	13.31	12.64	12.01	11.41	10.84	-3.8%
<i>Oil & Net Gas (mtoe)</i>	83.97	87.49	86.68	90.13	87.46	86.60	82.27	78.16	74.25	70.54	4.0%
Production Rate											
<i>Crude Oil (million bbl/day)</i>	0.89	0.91	0.89	0.98	0.94	0.93	0.89	0.85	0.80	0.76	10.5%
<i>NGLs (million bbl/day)</i>	0.08	0.10	0.11	0.10	0.10	0.10	0.09	0.09	0.09	0.08	-3.7%
<i>Oil (million bbl/day)</i>	0.96	1.01	1.00	1.09	1.04	1.03	0.98	0.94	0.89	0.84	8.9%
<i>Gas (million boe/day)</i>	0.60	0.62	0.63	0.61	0.61	0.59	0.56	0.54	0.51	0.48	-3.5%
Total (million boe/day)	1.57	1.63	1.63	1.70	1.65	1.63	1.55	1.47	1.40	1.32	4.1%

	2018 prices									
Expenditure (£ billion)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Exploration & Appraisal (E&A)	0.98	0.47	0.66	0.59	0.94	1.03	0.83	0.77	0.74	0.74
Capital Expenditure	12.45	8.82	5.70	5.01	5.20	5.00	3.50	2.90	2.90	2.55
Operating Costs	8.85	7.08	6.77	7.20	7.40	7.35	7.10	6.80	6.55	6.25
Decommissioning	1.14	1.26	1.33	1.45	1.50	1.50	1.50	1.50	1.50	1.50
Total Expenditure	23.41	17.63	14.45	14.25	15.04	14.88	12.93	11.97	11.69	11.04

Average Unit	(£/boe)	15.5	11.8	11.4	11.6	12.3	12.4	12.6	12.7	12.8	12.9
Operating Cost	(\$/boe)	23.7	16.0	14.7	15.5						

Average Brent	(£/boe)	34.3	32.5	42.2	53.2
Oil Price	(\$/boe)	52.4	44.0	54.4	71.1

NGLs = natural gas liquids; mtoe = million tonnes of oil equivalent; 1 mtoe = 11.63 TWh;

1 TWh = 1/29.3071 billion therms; bbl = barrels; boe = barrels of oil equivalent;

net gas production = gross gas production less producers' own use;

average Brent oil price = annual average BFOE (Brent–Forties–Oseberg–Ekofisk) spot price

The contingencies also include a small notional allowance for production from recently discovered fields awaiting appraisal and as-yet-undiscovered fields that might be found and brought into production in this timeframe. The projections of expenditure were informed by operators' responses to the UKCS Stewardship Survey with appropriate weighting of as-yet unsanctioned expenditure.

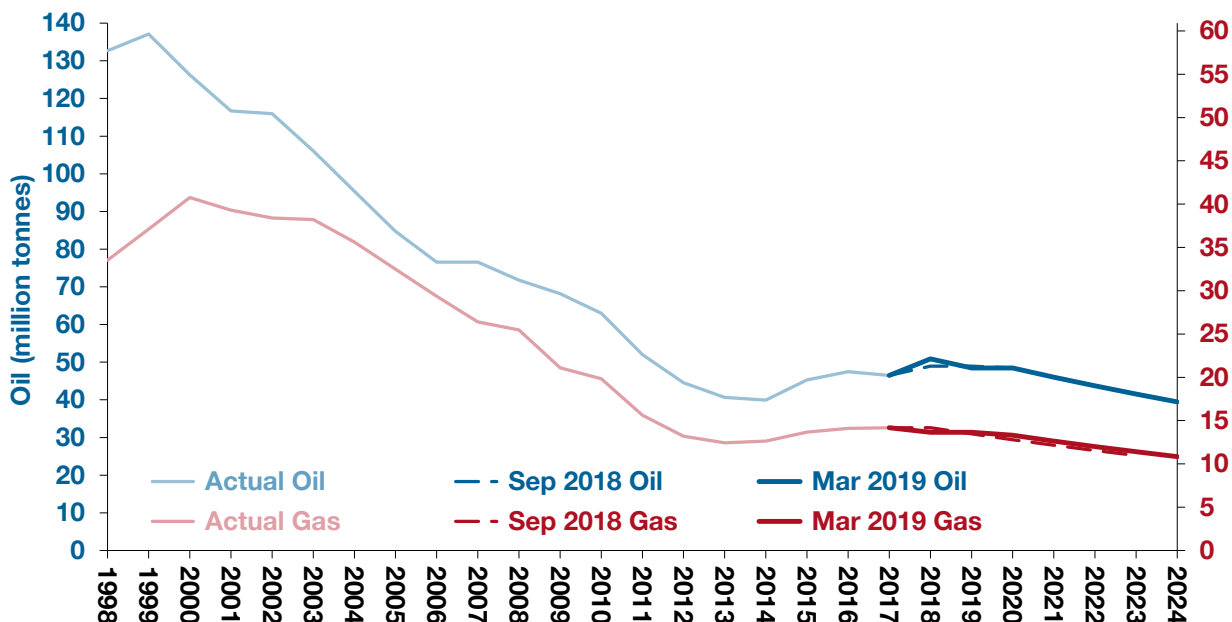
The following chart shows actual production from 1998 to 2024 and our current and previous (September 2018) projections out to 2023/2024; the colour-coded scales are different for oil (left-hand Y-axis) and gas (right-hand Y-axis).

Between the September 2018 projection now, medium term assessments of UK expenditure have changed. On a like for like basis (in 2018 prices), between 2019 and 2023, exploration and appraisal (E&A) and operating costs are now estimated to be 28% and 5% higher, respectively, than the previous estimate. Conversely, capital expenditure and decommissioning expenditure are projected to be 9% and 18% lower, respectively, than the levels previously projected. The reduction of medium term decommissioning expenditure can be attributed to a combination of both field life extensions and a decrease in the forecast of individual field's decommissioning costs.

Between September 2018 and now, the projection of near-term (2019–2023) oil production has been cut by 0.3% (6 million bbl) and the projection of gas production has been raised by 3.7%. (36 million boe). In overall terms that is a 1.1% increase representing 30 million boe.

After 2024, oil and gas production are both assumed to decline at 5% a year as illustrated in the table on page 11 below. The production projections out to 2035 are available in spreadsheet form in a variety of units.

Actual/Projected UKCS Oil and Gas Production



While central projections of oil and gas production are shown in the chart, a wide range of outcomes is possible. The future rate of production is dependent on a number of different factors including the level of investment and the success of further exploration. A significant share of future oil and gas production is expected to come from new fields and major projects in existing fields compounding the difficulty of making accurate forecasts given the risk of project slippage and uncertain start-up profiles. The central projections are therefore our best estimates rather than definitive predictions of future UK production of oil and gas.



Oil & Gas Authority

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