

Total UKCS operating expenditure (OPEX) rose 6% in 2018, due mainly to new field activity rather than cost increases in existing fields. This activity is evident in the increase in production seen in 2018. Average unit operating cost (UOC, i.e. operating cost per barrel of oil equivalent) rose marginally, by 2%, reflecting the stable cost environment which the UKCS is now experiencing. Over half of operators saw a decrease in their average UOC. The 2018 UOC remains within the OGA key performance indicator (KPI, which is for the average UOC to be within +/- 15% of 2017 levels, in 2017 real prices) and below previous projections.

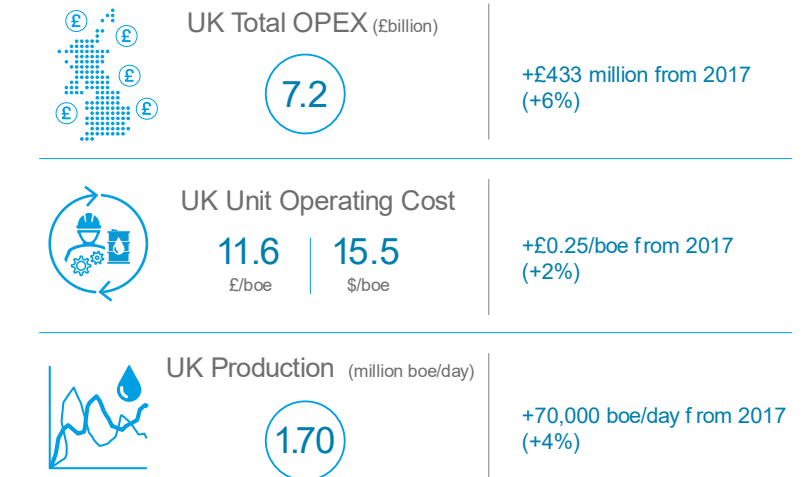
Operating costs for offshore fields grew by 5% in 2018 while OPEX net income for pipelines and terminals grew by 24% (2018 real terms). This overall increase in OPEX was predicted last year in the Oil and Gas Authority's 2018 set of cost projections.

Over half of operators (52%) saw a decrease in their average UOC, with this improvement in cost efficiency mostly being driven by production gains. 52% of operators experienced an increase in OPEX with the weighted average increase being 24%. The weighted average decrease in OPEX was 13%.

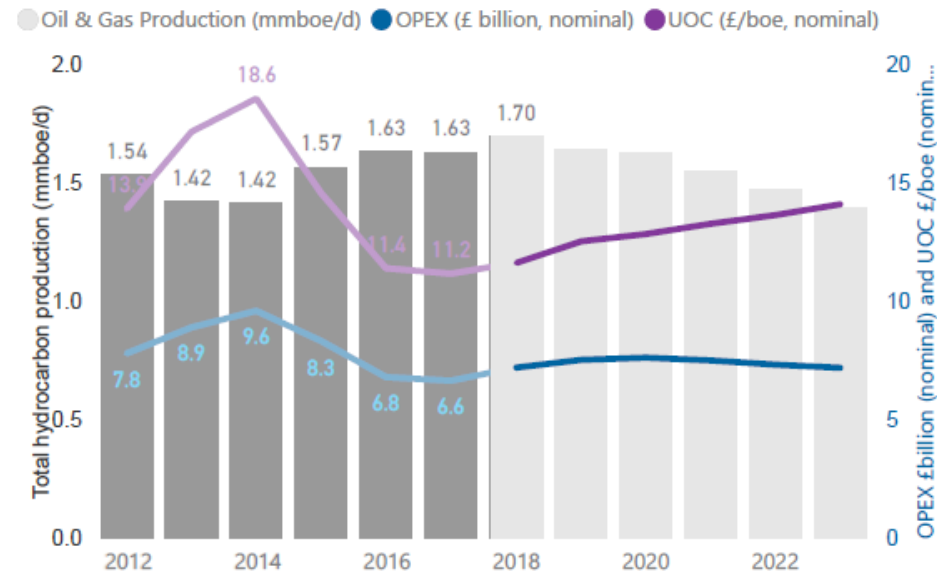
UOC is projected to rise by an average of 4% year on year to 2023. This is driven primarily by a fall in production rather than cost inflation. This increase is still within the OGA's KPI envelope of +/- 15% of the 2017 UOC (in 2017 prices, see chart on right).

UKCS operators have embraced the 'lower forever' mindset by keeping operating expenditure down in the near to medium term. The UKCS is now a competitive market for investors, where along with traditional oil and gas projects, a variety of other energy related investment opportunities are beginning to arise, such as carbon capture and storage (CCS) and gas to wire projects which will help to support the UK's energy transition to be net-zero in carbon emissions by 2050.

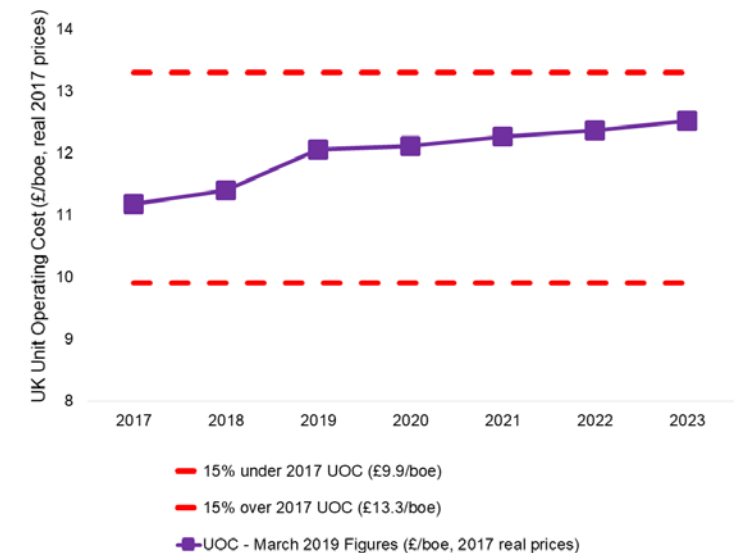
2018 Headline Figures



Actual and Projected UK Production, UOC and OPEX



OGA'S Unit Operating Cost KPI



Total OPEX for the UKCS was £7.2 billion in 2018 (up on £6.8 billion in 2017) OPEX for offshore fields made up 89% of the gross total, with the remainder comprised of terminals and pipelines OPEX.

Looking forward, OPEX is expected to rise 2% (6% in nominal terms) by 2020. This increase is largely caused by new fields coming online (post 2017 start ups). Following 2020, total OPEX is expected to fall at average rate of 3% per annum (2% in nominal terms), due to a combination of fields ceasing production and a decrease from what is predicted to be a year of high activity in 2020.

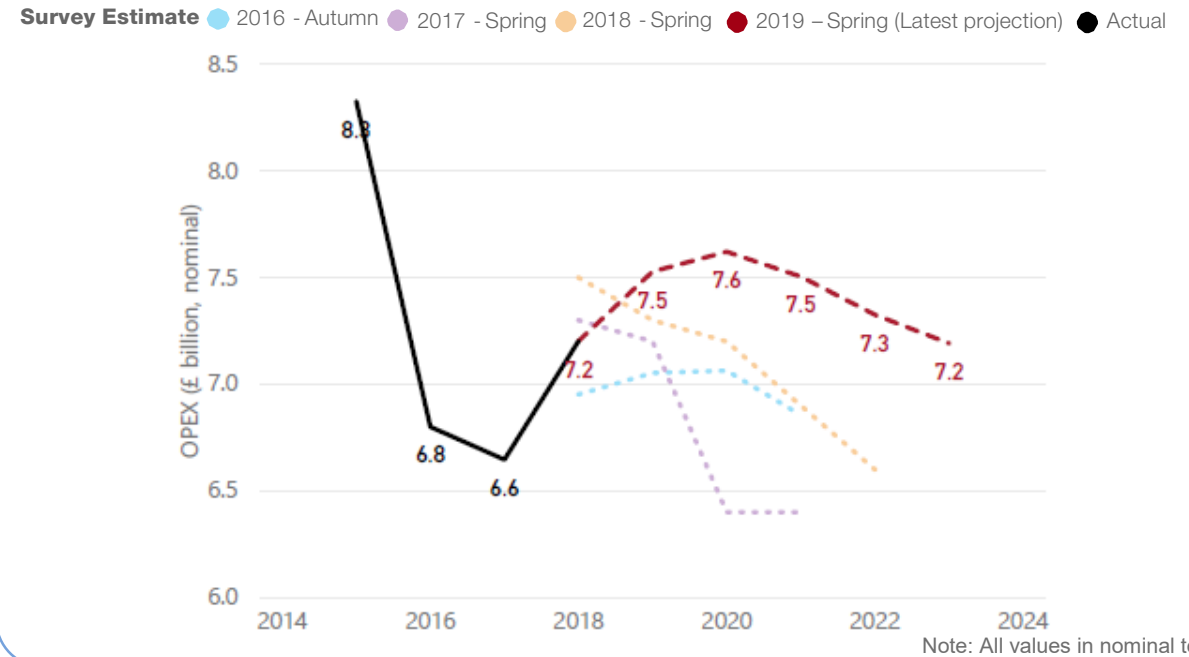
Across the UKCS 50% of operators are still recording marginal reductions in total OPEX. However, this is offset by (on average) large increases from the other 50% of operators leading to an overall net increase in OPEX in the short term. Operating costs on the UKCS are dominated by five main operators, which comprise approximately half of OPEX spend in 2017 and 2018 (out of 30 operators with operating costs in these years).

The Central North Sea constitutes half of the gross costs incurred operating fields, terminals and pipelines on the UKCS. The Northern North Sea and the West of Shetland combined make up 35% of these costs. The Southern North Sea and the East Irish Sea combined make up just 16% of the UKCS's gross operating costs.

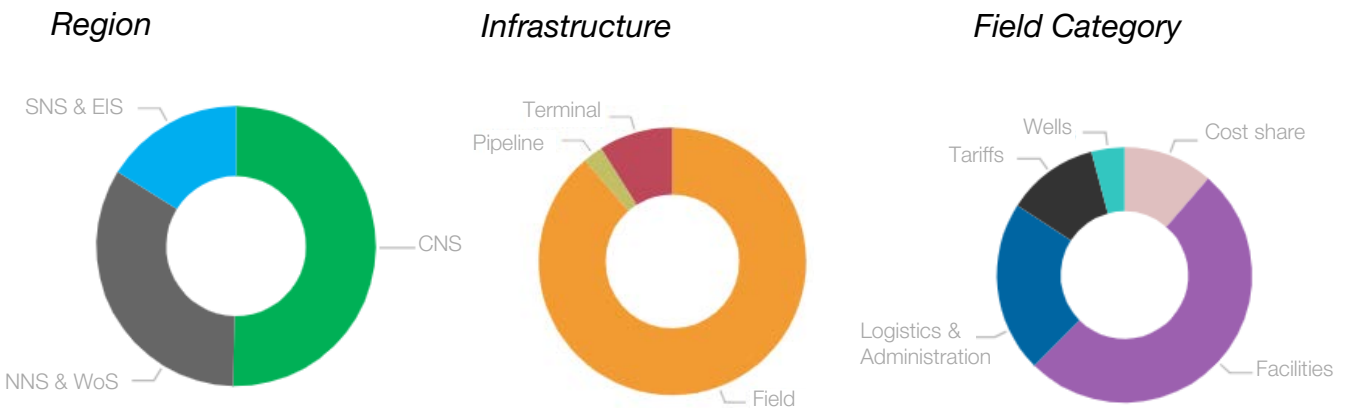
Operating offshore fields comprises 89% of the total gross OPEX spent on the UKCS. Pipelines and terminals make up the remaining 2% and 9% respectively. On a net cost basis (total OPEX minus income) pipeline and terminal costs are negative. Total pipeline OPEX fell by 5% from 2017 to 2018 with terminal OPEX remaining the same.

Concentrating solely on costs operating offshore fields (excluding pipelines and terminals), OPEX can be sub-categorised into facilities costs, wells costs, logistics and administration (L&A) costs, tariffs paid to third parties for transportation and/or processing of fluids and cost share payments to other fields or terminals. Direct OPEX (wells + facilities + L&A), i.e. costs excluding those to third parties for transportation or processing services, make up 77% of the total. Of this direct OPEX, facilities has the largest share at 51% of the total, then L&A (22% of the total), then wells (4% of the total).

Projections of UKCS OPEX



Composition of 2018 UKCS OPEX



The amount spent on direct field OPEX in 2018 was £5.8 billion, a 9% increase from 2017 (2018 real prices).

Logistics and administration (L&A) OPEX had the largest rise from 2017 of 35%. The main cause of this rise was from an increase of L&A OPEX for new fields.

Facilities OPEX remained relatively consistent with a small rise of 3% from 2017's figure.

Wells OPEX fell by 3%, this was the biggest change from the 2017 Stewardship Survey which suggested that wells OPEX was going to rise by 61% from 2017 to 2018.

Going forward, direct OPEX is forecast to increase by £200 million from 2018 to 2020, caused overwhelmingly by new field activity.

Post 2020, OPEX is projected to fall 18% by 2024. Nearly 60% of this fall is attributed to fields which will cease production between 2020 and 2024.

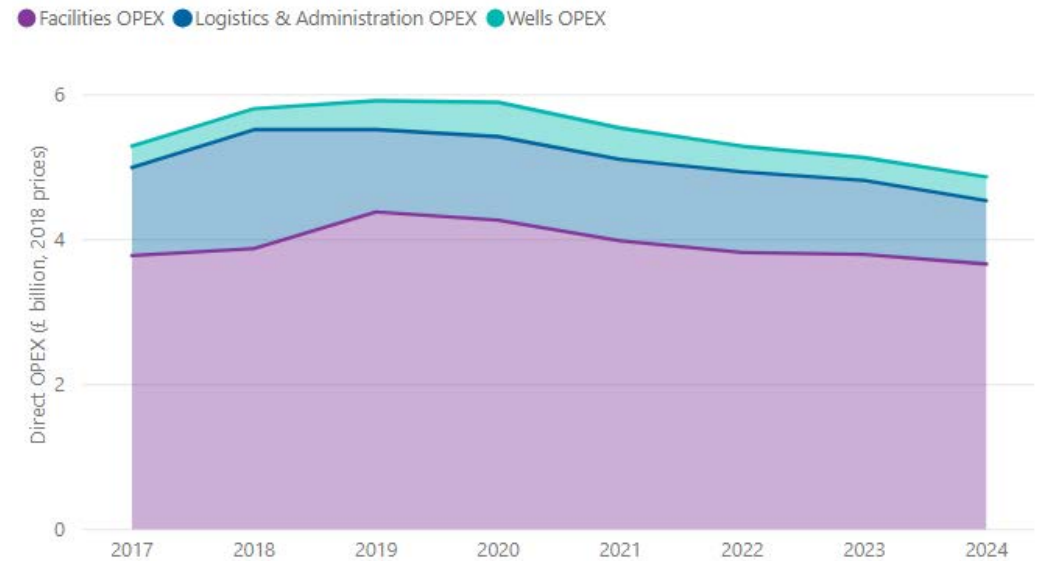
Regional Variations

The region with the largest variation in OPEX from 2017-2018 was the Northern North Sea & West of Shetland (NNS & WoS) which experienced a 23% increase. This was predominantly driven by the expected increase in direct field OPEX of recent (post 2016) start-up fields. Excluding these start-ups, the NNS & WoS saw a 16% increase in direct field OPEX.

The Southern North Sea & Irish Sea (SNS & IS) saw an increase of 8% in direct OPEX due to a 70% increase in logistics and admin OPEX.

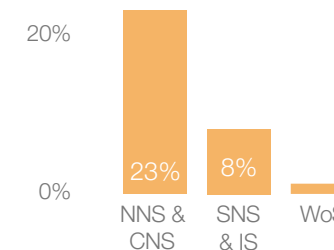
The Central North Sea (CNS) maintained a relatively consistent level of direct OPEX, with a marginal increase of 1%. Drivers of this were a slight decrease (1%) of facilities OPEX and a 15% decrease in L&A OPEX. Wells OPEX in the CNS remained flat.

Direct OPEX by Cost Category (2017 - 2024)



Regional Variance

2017-2018 % Change in OPEX by Region



Total Direct OPEX (£billion) (UKCS)



Average Direct OPEX (£million) (UKCS)



Facility Type Variations

In 2018, subsea tiebacks and unmanned platforms were the cheapest infrastructure types to operate, averaging direct OPEX of £3 million/ year and £4 million/ year respectively. Subsea Tiebacks maintained their average field OPEX from 2017 to 2018, all other infrastructure types saw an increase. In 2018 subsea tiebacks accounted for 51% of the infrastructure on the UKCS but only 11% of the total operating cost.

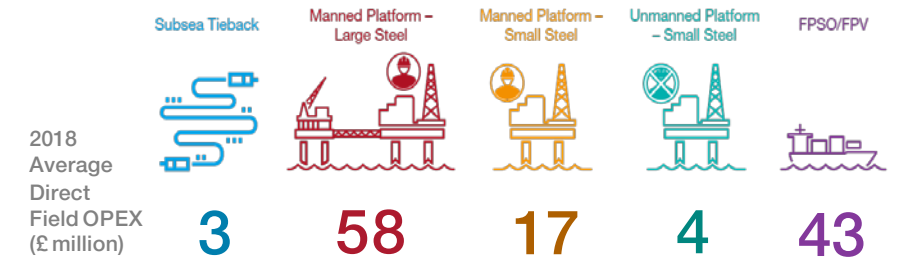
In total, FPSO's saw the largest increase (41%) in direct OPEX. This was forecasted in 2017 and is predominantly due to recently started up fields.

Large steel platforms have the highest direct OPEX of any infrastructure type, accounting for 37% of the total UKCS's direct OPEX in 2018. The average cost of these fields is also £8 million (15%) higher in the NNS & WoS than the CNS. One of the main reasons for this is the relative age with 92% of these fields are over 30 years old as opposed to 55% of the large steel platform fields in the CNS.

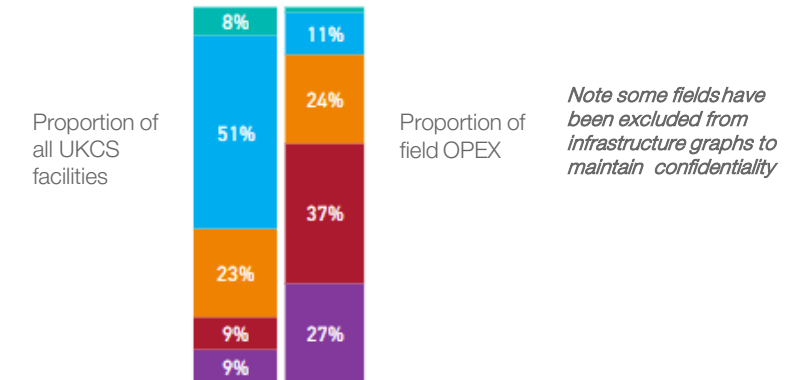
The SNS & IS has the lowest average direct OPEX at £6 million per field. This is mainly due to the infrastructure composition of the SNS which favours less costly infrastructure of small steel platforms which make up 48% of the facilities and 81% of the costs.

Looking forward the total field OPEX costs for FPSO's is expected to overtake unmanned platforms in 2019 before decreasing again in 2021. All infrastructure types are expected to decrease their OPEX by 2024.

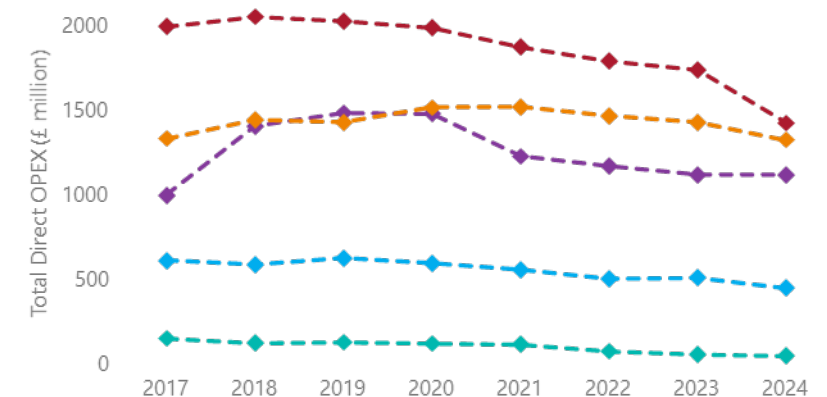
Infrastructure Type:



Facility type makeup and 2018 field OPEX by area



Estimated direct OPEX of UKCS facilities from 2017-2024



Topsides Weight Variations

A positive correlation can be observed between 2018 direct OPEX and topsides weight of platforms. This relationship is strongest in small manned platforms, then unmanned platforms, then large manned platform. The correlation is most clear in the SNS & IS due to region's composition of small manned and unmanned platforms.

The OPEX per tonnage quartile analysis reveals changes since 2017. The 25th, 50th and 75th percentiles in the NNS & WoS and the CNS have decreased, with the 25th and 75th percentiles in the SNS & IS increasing. The ranges between 25th and 75th percentiles in the CNS, NNS & WoS and the SNS & IS are £2.7 million/kte, £2 million/kte and £6.1 million/kte respectively.

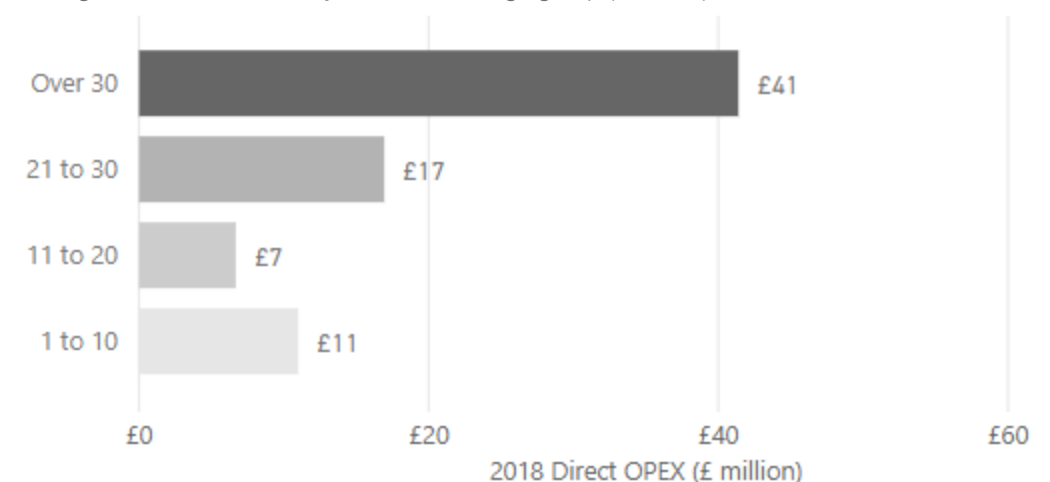
Field Age Variations

As could be expected, the oldest fields (>30 years) have an average direct OPEX almost four times as high as the youngest fields (<10 years old). The NNS & WoS had the biggest difference where the average OPEX of the youngest fields is one fifth of that of the oldest.

Fields aged 11 to 20 years old have the lowest field OPEX, with fields of this age in the CNS seeing a 12% decrease in OPEX from 2017.

Field Age

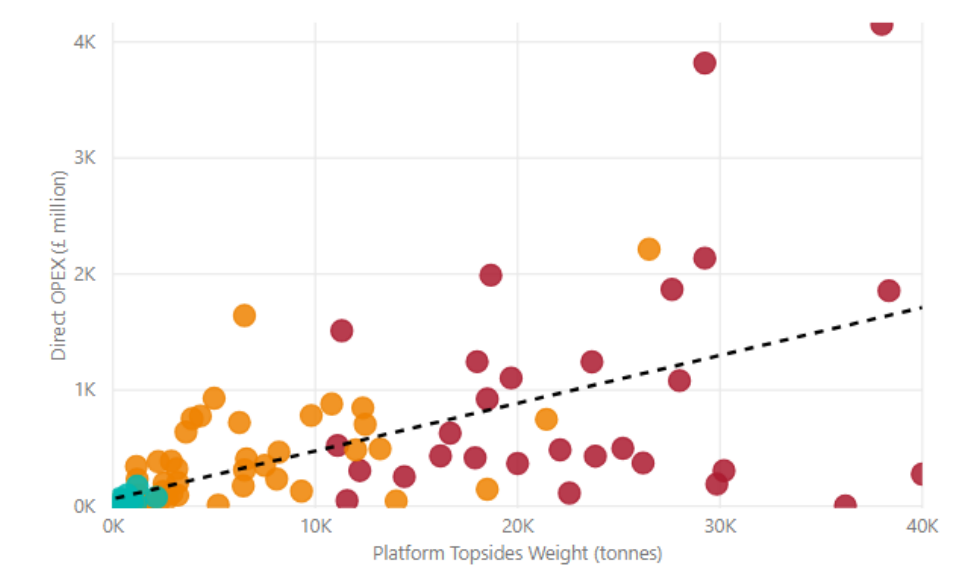
Average 2018 direct OPEX by Infrastructure age group (£ million)



Fixed Platforms Topside Weight

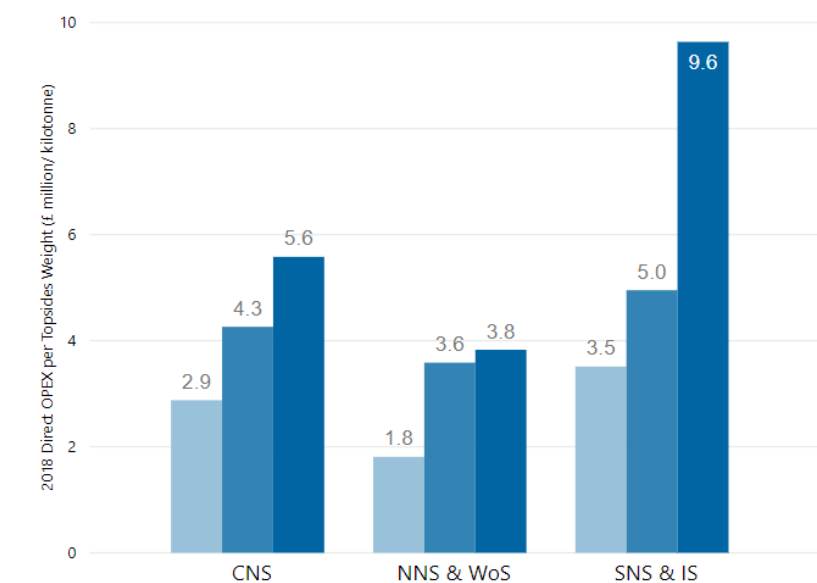
Manned platform 2018 direct OPEX vs topsides weight

Infrastructure Type ● Platform - Large Steel ● Platform - Small Steel ● Unmanned Platform



OPEX per tonnage percentiles

Percentile ● 25th ● 50th ● 75th

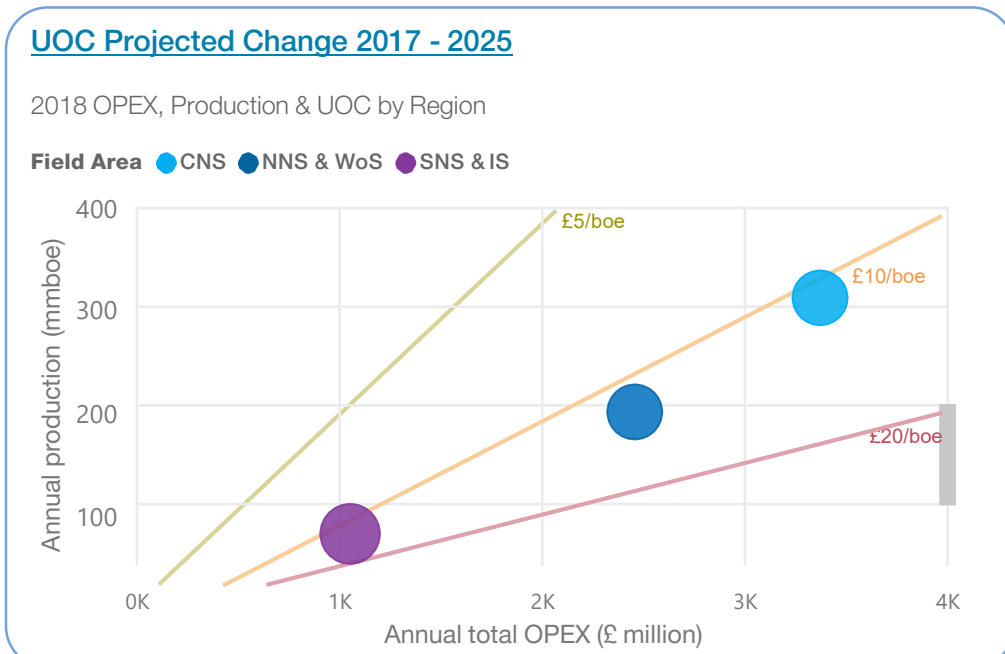
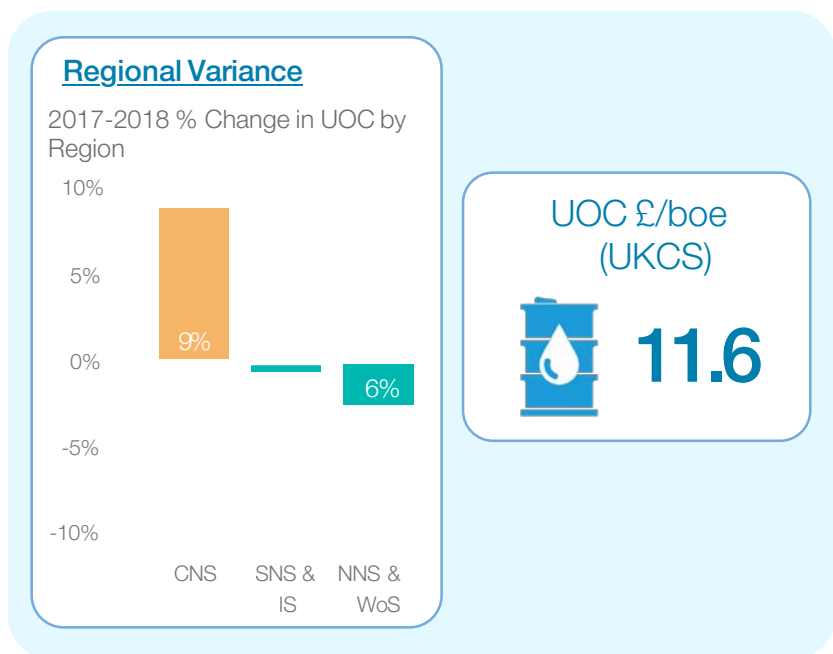
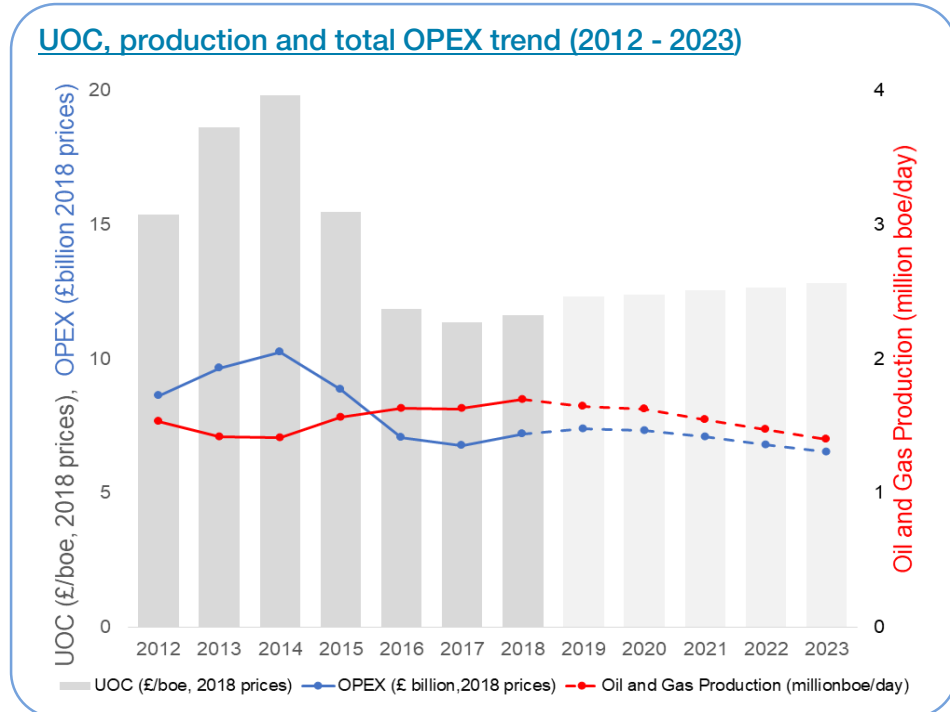


Unit Operating Cost (UOC) has remained relatively constant since 2017, rising slightly by £0.2/boe, to £11.6, a 2% increase (2018, real prices). UKCS average UOC remains at approximately two thirds of the 2014 level (2018, real prices).

Production across the UKCS increased by 4% in 2018, however OPEX also increased by 6% resulting in an overall higher UOC for 2018.

The OGA's medium term projections suggest UOC will steadily rise, increasing 10% over the next five years to £12.8/boe (2018, real prices). This is influenced by production decline rather than cost inflation. This projection is still within the OGA's KPI envelope for Unit Operating Cost and is over 20% lower than the 2014 level in both real and nominal terms. This emphasises the ability of industry to maintain a stable cost environment.

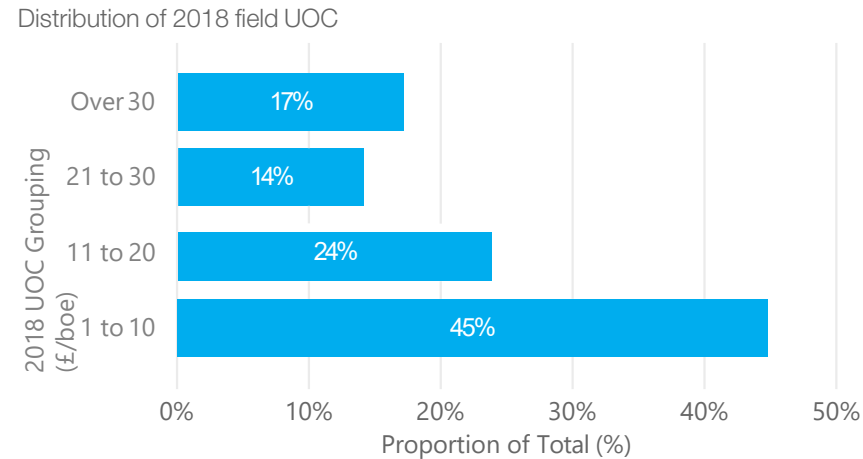
The NNS & WoS saw a decrease in its UOC from 2017 (-6%). This was driven by a 26% rise in production across the region, caused mainly, by 2017 start up fields ramping up their production, notably the Schiehallion, Western Isles and Kraken developments. The CNS saw the largest increase in its UOC (9% rise) which was driven by a 7% decline in production compared with the previous year. Total OPEX remained relatively consistent rising by 1.2%. The SNS & IS maintained a relatively consistent UOC from 2017, decreasing by 1%.



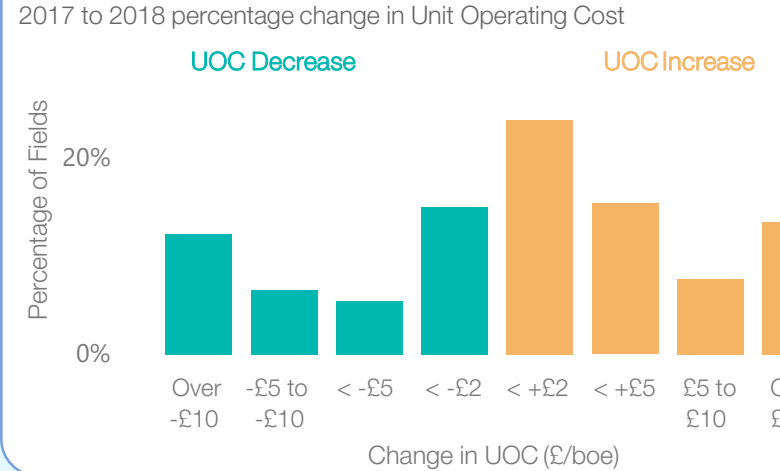
UOC by Field

On a field basis, 45% of fields had a UOC of £10/boe or lower, an improvement of 6 percentage points from last year. 31% of fields are operating at over £20/boe, this figure has remained the same since 2017, and is roughly comprised of the same fields. 60% of fields had an increase in their UOC for 2018, however, the increase for 39% of these fields was less than £2/boe which demonstrates the ability of the industry to maintain relatively stable operating costs.

Distribution of 2018 field UOC



Distribution of UOC 2017-2018 change by field



Infrastructure types

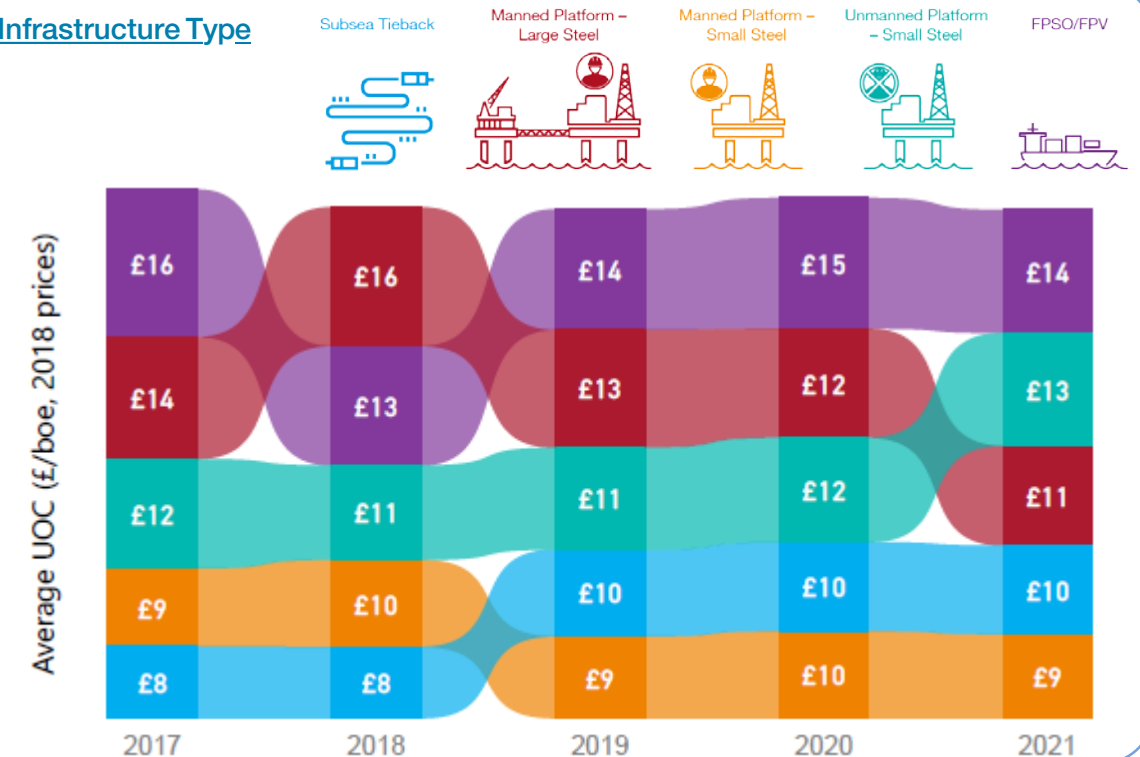
2018 saw an £8 range in the UOC between the average of the costliest type of infrastructure facility (large manned platforms) and the cheapest (subsea tiebacks).

FPSO/FSV's saw a 19% decrease in UOC, driven by a decrease in the UOC of these types of fields in the NNS & WoS. This was a result of a large increase (+170% from 2017) in production from floating facilities within the area. Mainly due to recently started up fields. All other infrastructure types maintained a relatively consistent UOC between 2017 and 2018 (+/- £1/boe).

Looking forward, large manned platforms are projected to decrease their UOC by over a quarter by 2021. This is driven by the NNS & WoS where production from these types of fields is expected to increase by 80% by 2021 and total OPEX decrease by 12%.

The CNS has maintained a relatively constant UOC, at infrastructure level, with costs expected to remain near constant for the next few years, rising slightly by 2020.

Infrastructure Type



Field Age

Across the UKCS, the oldest fields have the highest UOC in 2018 with an £18/boe difference in the average UOC between the oldest and the newest fields. Compared to 2017, fields aged 11-20 years old now have the lowest UOC at £7.5/boe. This is a result of fields age 11-20 years old having a lower total OPEX than the fields of 10 years old and under. In terms of average field production in 2018, the youngest fields < 20 years olds have the largest annual production. With the oldest fields >30 years having the lowest production.

Recent start up fields (post 2017) are collectively more cost efficient than their older counterparts with UOC decreasing both to a 2021 and a 2026 low, after that the rise in UOC for recent start-ups is expected to be marginal compared to pre-existing fields.

Field Water Depth

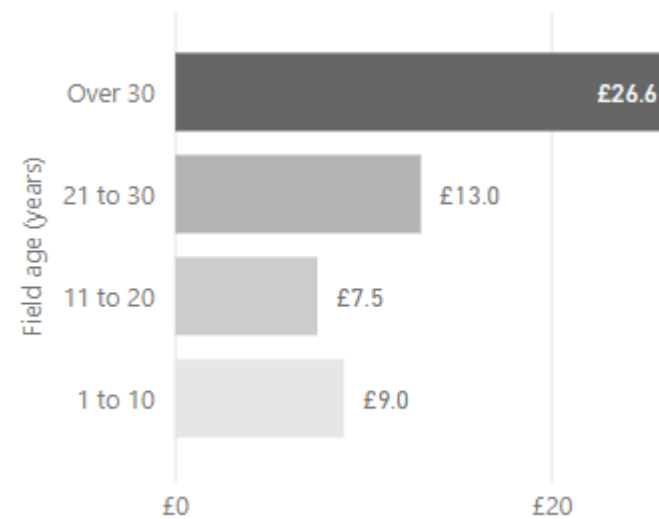
Looking at facility water depth, the unit operating cost increases with depth down to 200m. This is mainly due to infrastructure type. With shallower waters <200m permitting the use of small facility types (small steel platforms & unmanned platforms) which have lower UOC for 2018 than larger facility types. Over 200m depth on the UKCS, non-fixed platform facilities prevail. These are associated with large fields, which are relatively young and produce large volumes of hydrocarbons (averaging over 23,000 boe/day for fields 201-400m deep and over 13,000 boe/day for fields over 400m deep) resulting in an overall lower UOC.

UOC & Production Efficiency

Looking at the relationship between Production Efficiency (PE) and UOC there is a noticeable inverse relationship between high operating efficiency (PE) and low UOC. This correlation is strongest in the CNS and SNS & IS. The trend is not present in the NNS & WoS which has large range in UOC whilst generally having operating efficiency (PE) above the UKCS average.

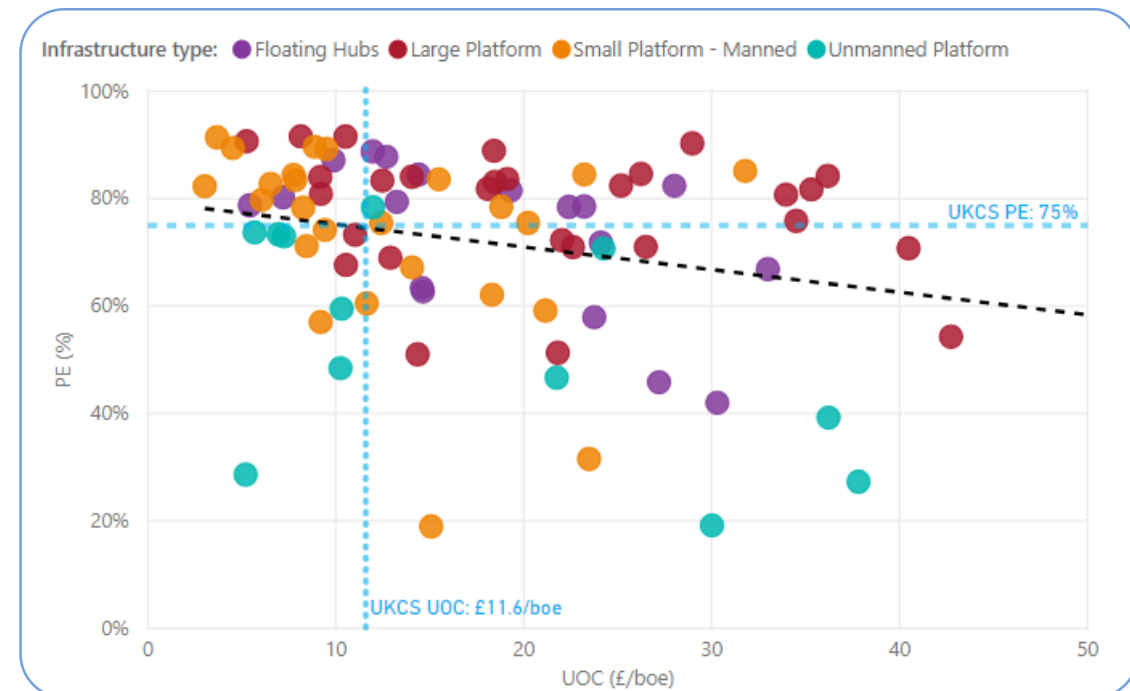
Field Age

2018 UOC (£/boe) by infrastructure age group



Field Water Depth

2018 UOC (£/boe) by infrastructure water depth (m)



The average UOC for the UKCS in 2018 was £11.6/boe. UOC by operator ranged from £24/boe to under £3/boe with both the minimum and maximum ends of this range improving on 2017 (over £30/boe to less than £6/boe).

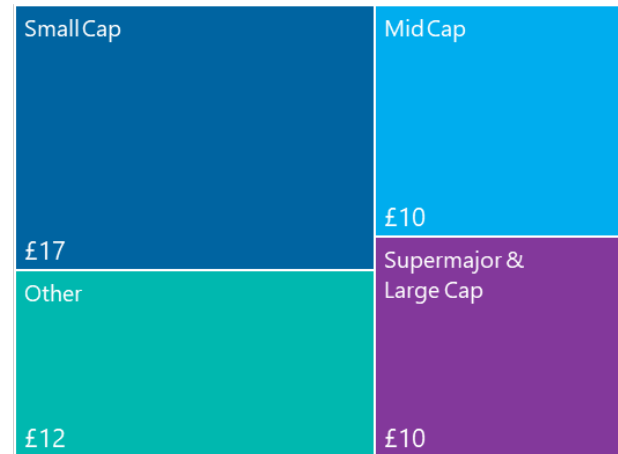
Looking at UOC by organisation type, small cap operators had the largest average UOC in 2018 at £17/boe – but also had the largest range from £2 to £24/boe. Supermajors & large cap independents have the lowest unit operating costs at £10/boe. Over half of operators (52%) decreased their UOC between 2017 and 2018, a 12 percentage point gain from 2016 to 2017. Of those 52%, 43% decreased their OPEX and 71% increased their production.

One operator managed to decrease both their OPEX by 5% and boost their production by 24%, leading to a decrease in UOC of £5.59/boe.

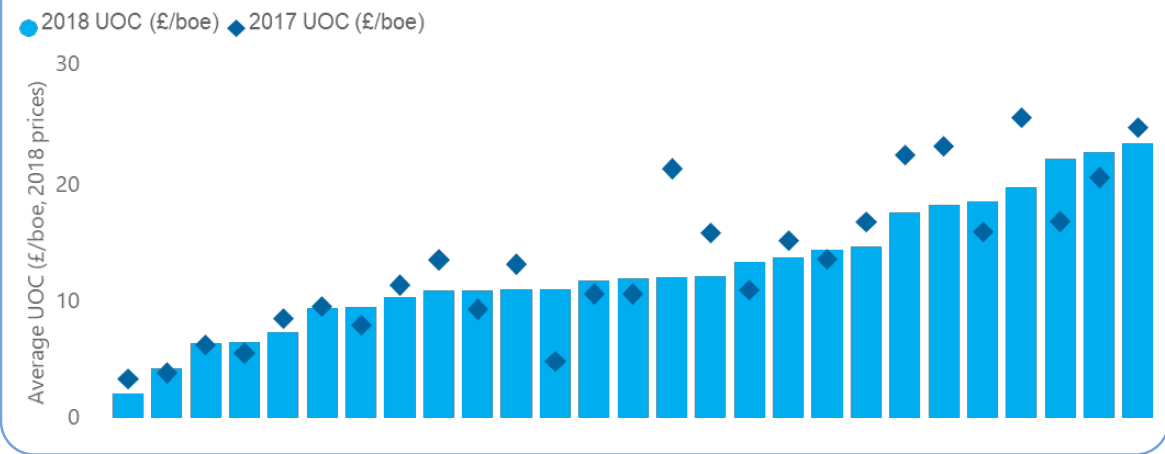
Of the 48% who increased their UOC the main driver was production decline with 92% seeing a decrease in production. 46% of operators also saw an increase in OPEX.

Production Efficiency (PE) data is collected on a hub level whereas UOC data is collected on a field level, therefore a comparison between PE and UOC has been performed on a hub level. The hub operator does not necessarily operate all fields within their hub therefore operator level UOC based on hubs may be different to that based on fields. Looking at the PE/ UOC comparisons by company type, Mid Cap and Supermajors & Large Caps appear to be the best performers, reaching generally above the UKCS average PE and below the UKCS average UOC.

2018 UOC by Hub Operator organisation type



2017 to 2018 UOC Change by Operator



2018 UOC and PE by Hub Operator



2017 to 2018 Production, OPEX and UOC Change by Operator

