Gaffney, Cline & Associates

Wood Review: Necessary, but Sufficient?

Charles Goedhals – 25th November, 2014

Disclaimer Statement

The material and opinions expressed in this presentation are those of the authors. While they reflect what is believed to be informed opinion, they are not represented as being the opinions of the SPE/WPC/AAPG/SPEE/SEG or any other party. Readers are urged to obtain independent advice on any matter relating to the interpretation of the information and guidance contained herein.

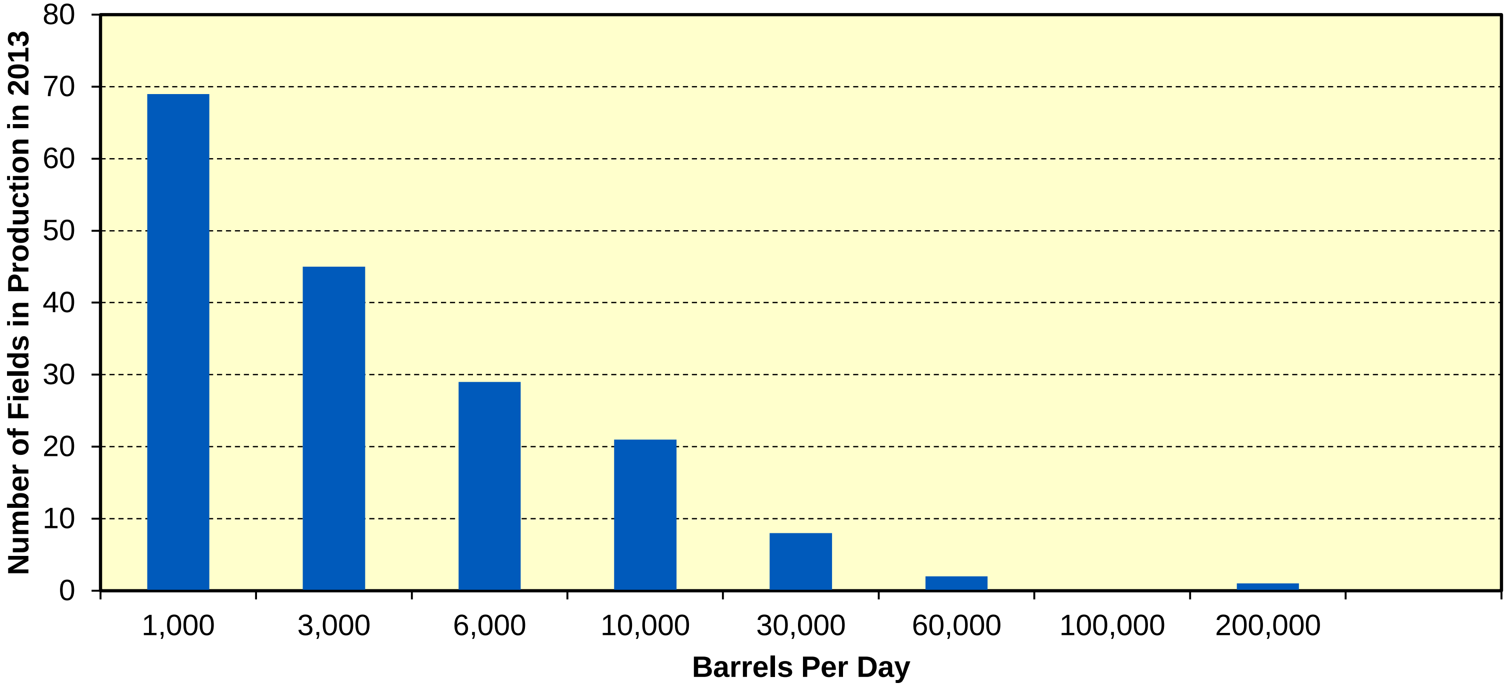
Agenda

- Current Status of Production
- Future Possibilities
- Challenges Faced
- The Wood Review and Government Response
- Synthesis

Gaffney, Cline & Associates

Current Status of Production

Current Field Status – CNS & NNS Oil only

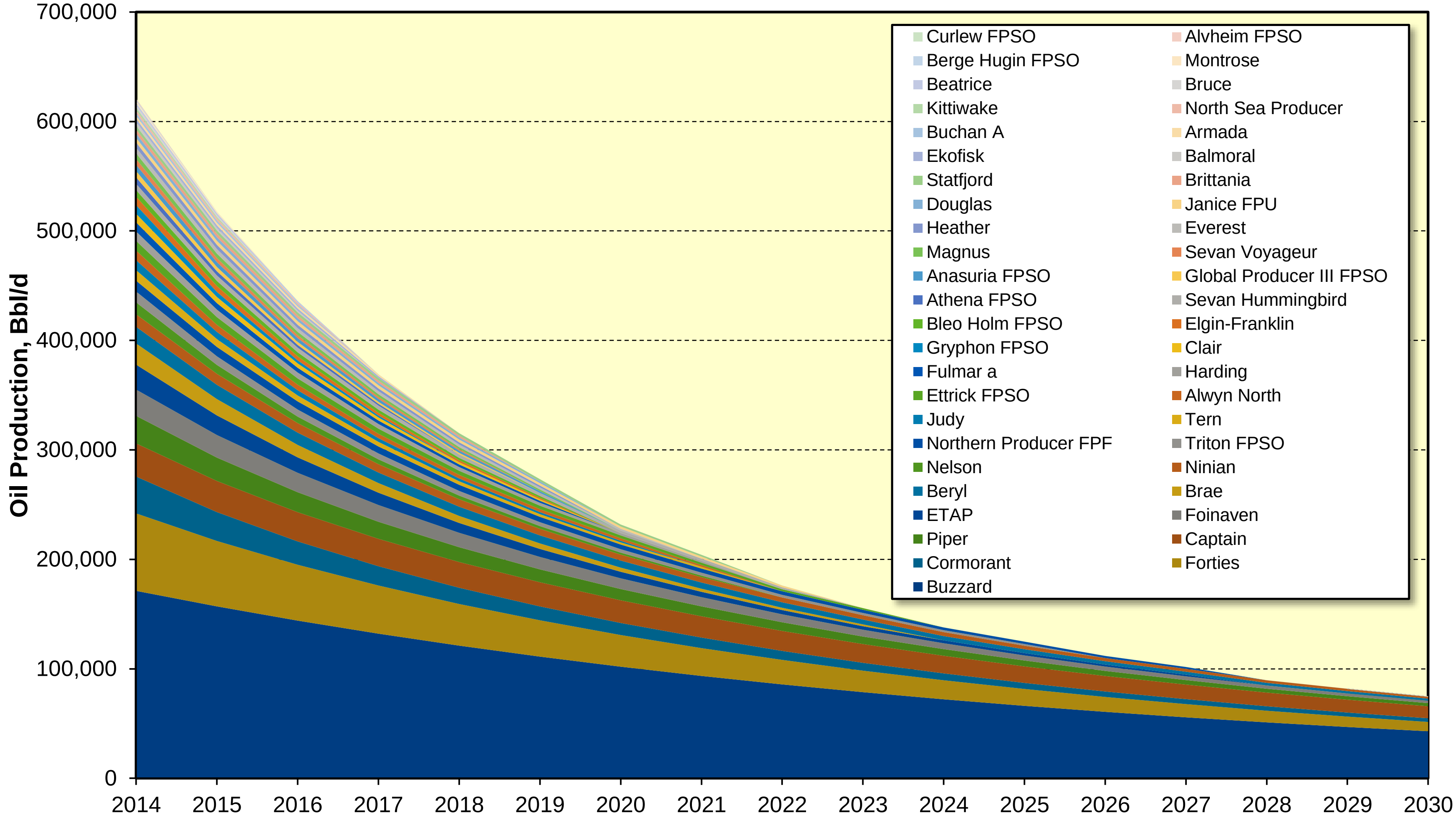


	2009	2010	2011	2012	2013
> 1,000 bpd	141	141	123	104	106
> 0 bpd	186	188	187	175	175

- 73 fields out of 248 have ceased production, 4 abandoned.
- 11 fields (net) out of 248 ceased production since 2009.
- 69 fields producing less than 1,000 bpd in 2013, up from 45 total 5 years before.
- Based on DECC data.

Gaffney, Cline & Associates

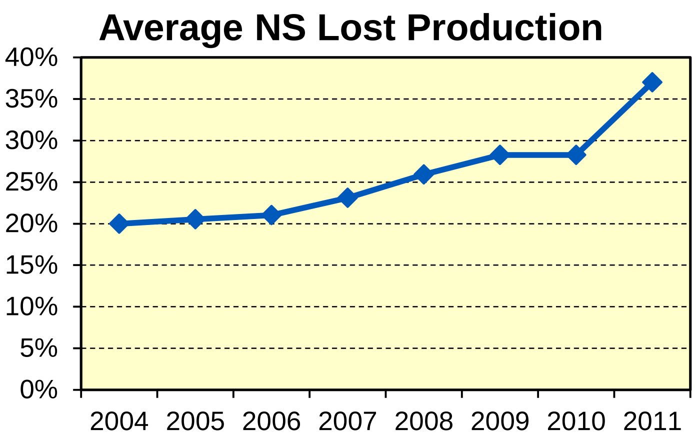
Production by Hub – C & N North Sea Oil Only

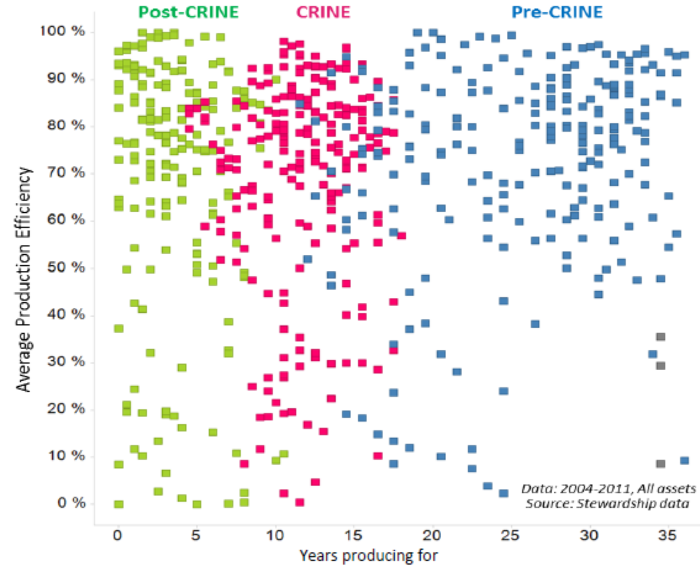


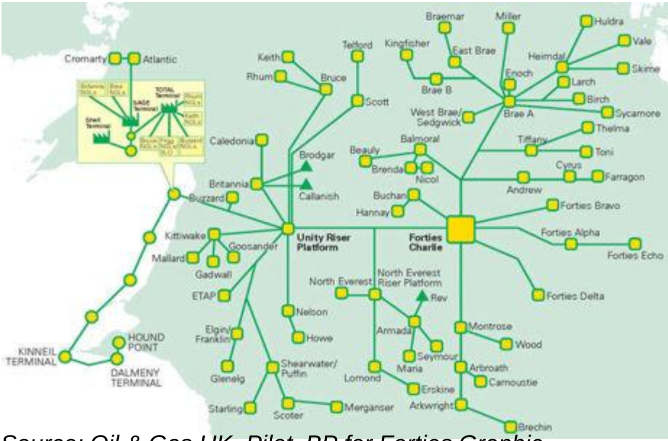
- Decline of Existing Production only – no allowance for investments in discoveries.
- Clear that not all hubs will survive.

Gaffney, Cline & Associates

Production Efficiency







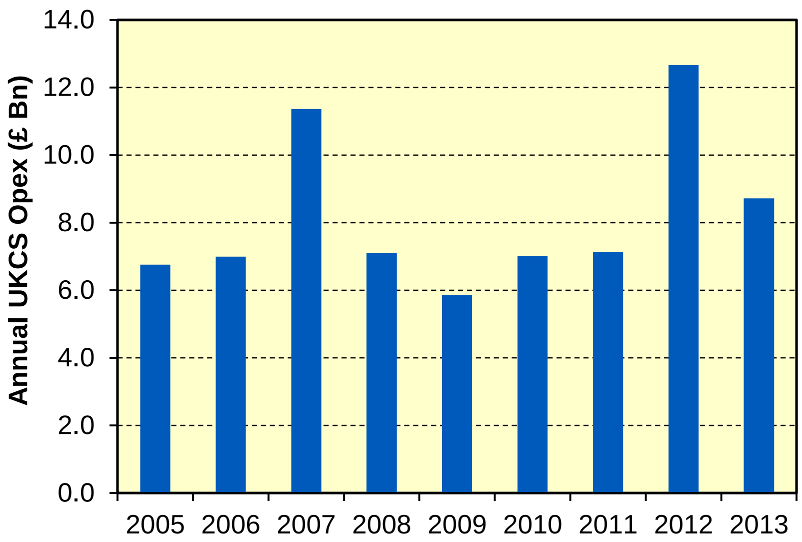
Source: Oil & Gas UK, Pilot, BP for Forties Graphic

Causes of PE Loss 2010-2013

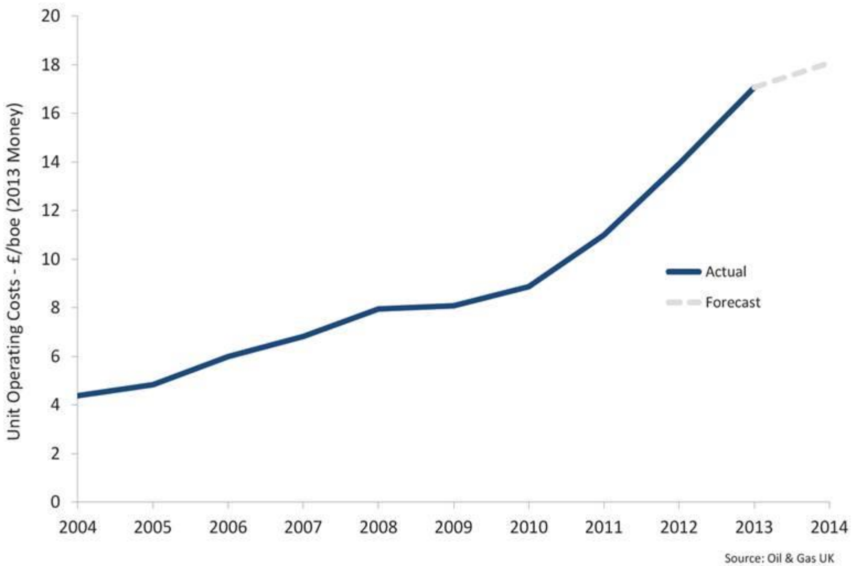
Equipment Failures	44%
Annual Shutdowns	21%
Planned Maintenance	7%
Well work	10%
Reservoir Losses	10%
Export Systems	8%

- PILOT programme to improve efficiency to 80% established in 2009.
- Reported £1Bn extra spent on integrity in 2012 and 2013.
- “Average 60% Production Efficiency expected in 2012” (Reuters).
- PE is not age related in a maintained system – implication is maintenance expenditure needs to rise to improve PE.

OPEX (Existing Fields), 2013 Prices



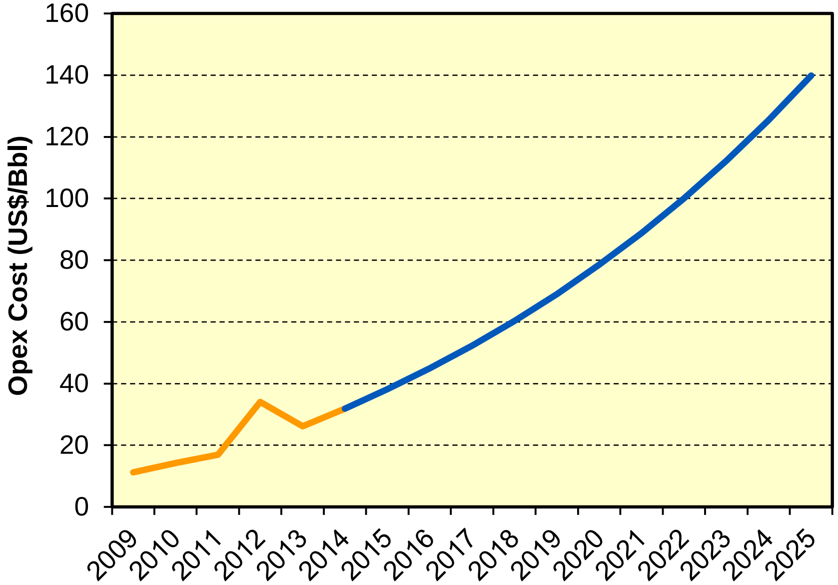
Source: UK Oil & Gas

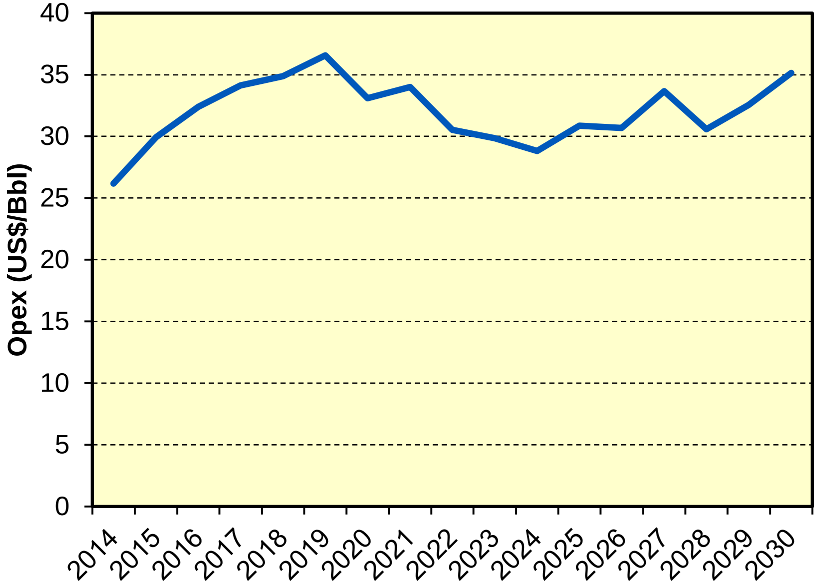


- Expectation of future decline in overall Opex due to field abandonment offset by increasing expenditure on repairs and maintenance.
- Figures for total UKCS – Central and Northern North Sea Oil share would be around US$8 Bn p.a.
- Note that £18/Bbl is around US$29/Bbl.

Gaffney, Cline & Associates

Opex per Barrel: Do Nothing vs Retirement

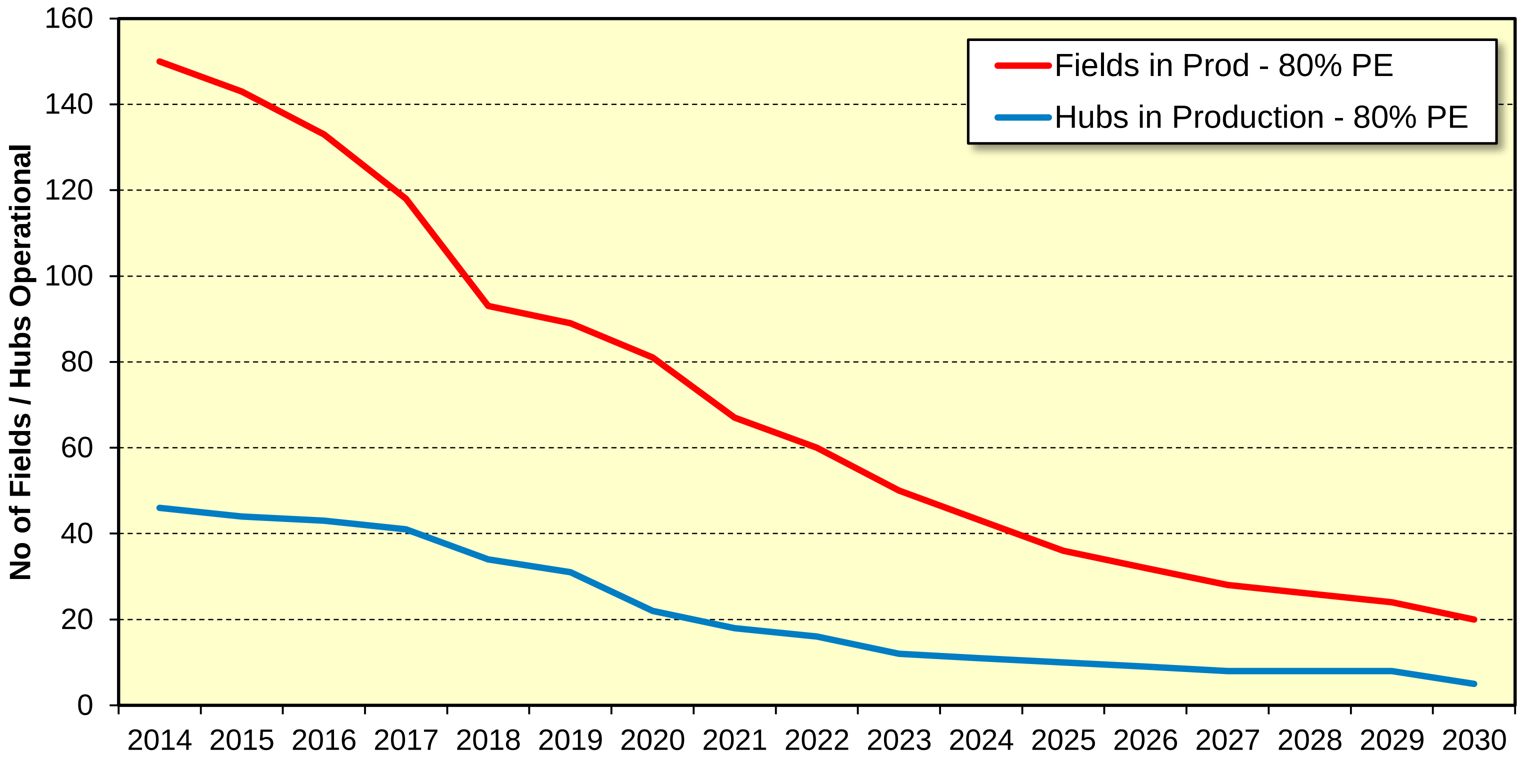




- Assumes 65% of total UK opex in NS, 80% to Oil.
- Conclusion: Rationalisation, cost reduction, improved PE, EOR.
- New Developments are essential to the near future.

Gaffney, Cline & Associates

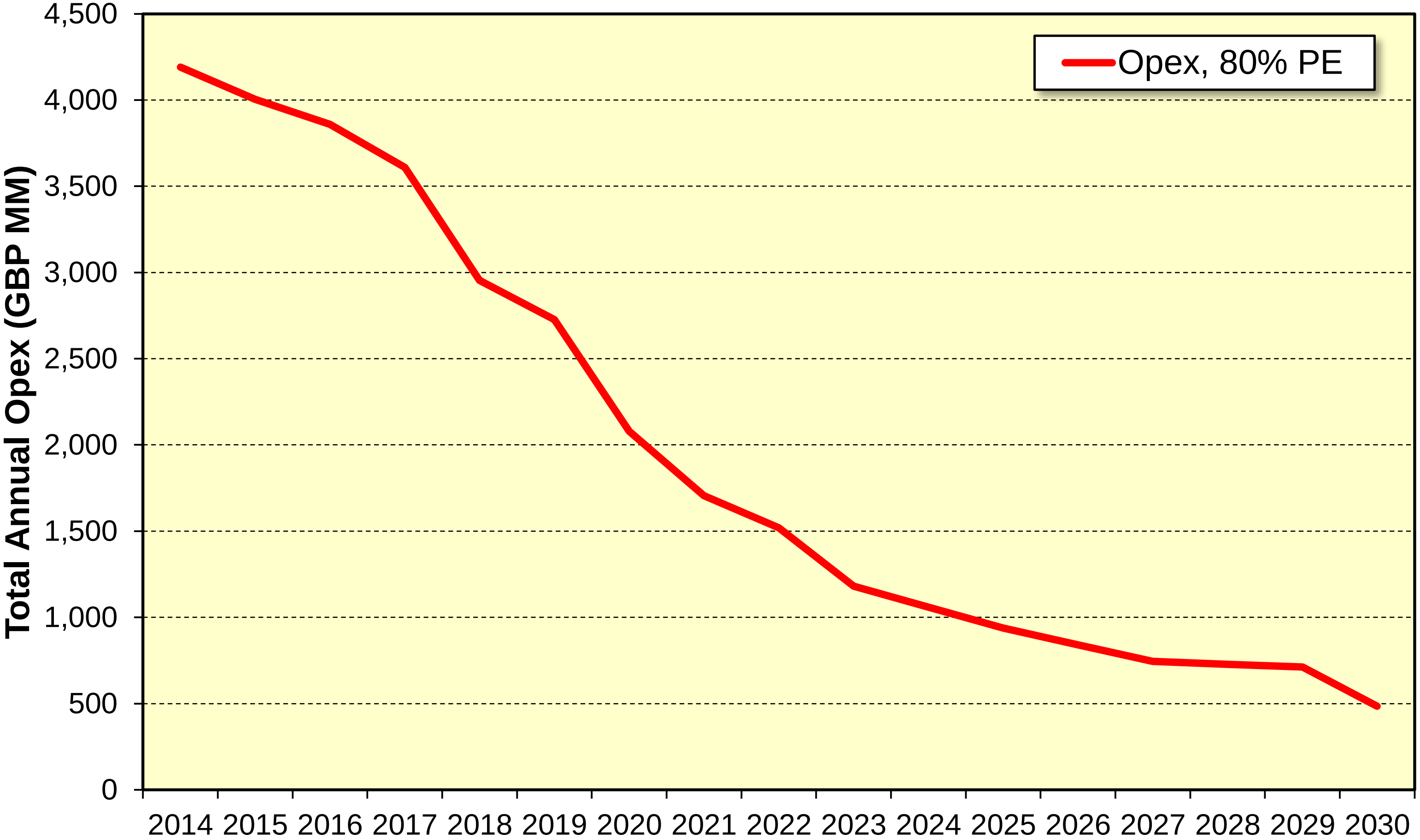
Retirement Rates



- Assumes price of US$100/Bbl received at field level.
- Assumes price of US$100/Bbl for all production at Hub level.
- Neglects the “Domino Effect” of cost sharing.

Gaffney, Cline & Associates

Estimate of Oil OPEX – UKNS Mature Oilfields



- GCA estimate based on previous retirement rates, i.e. managed Opex at around US$35/Bbl.

Gaffney, Cline & Associates

The Grim Reaper

Source: AllSeas Website

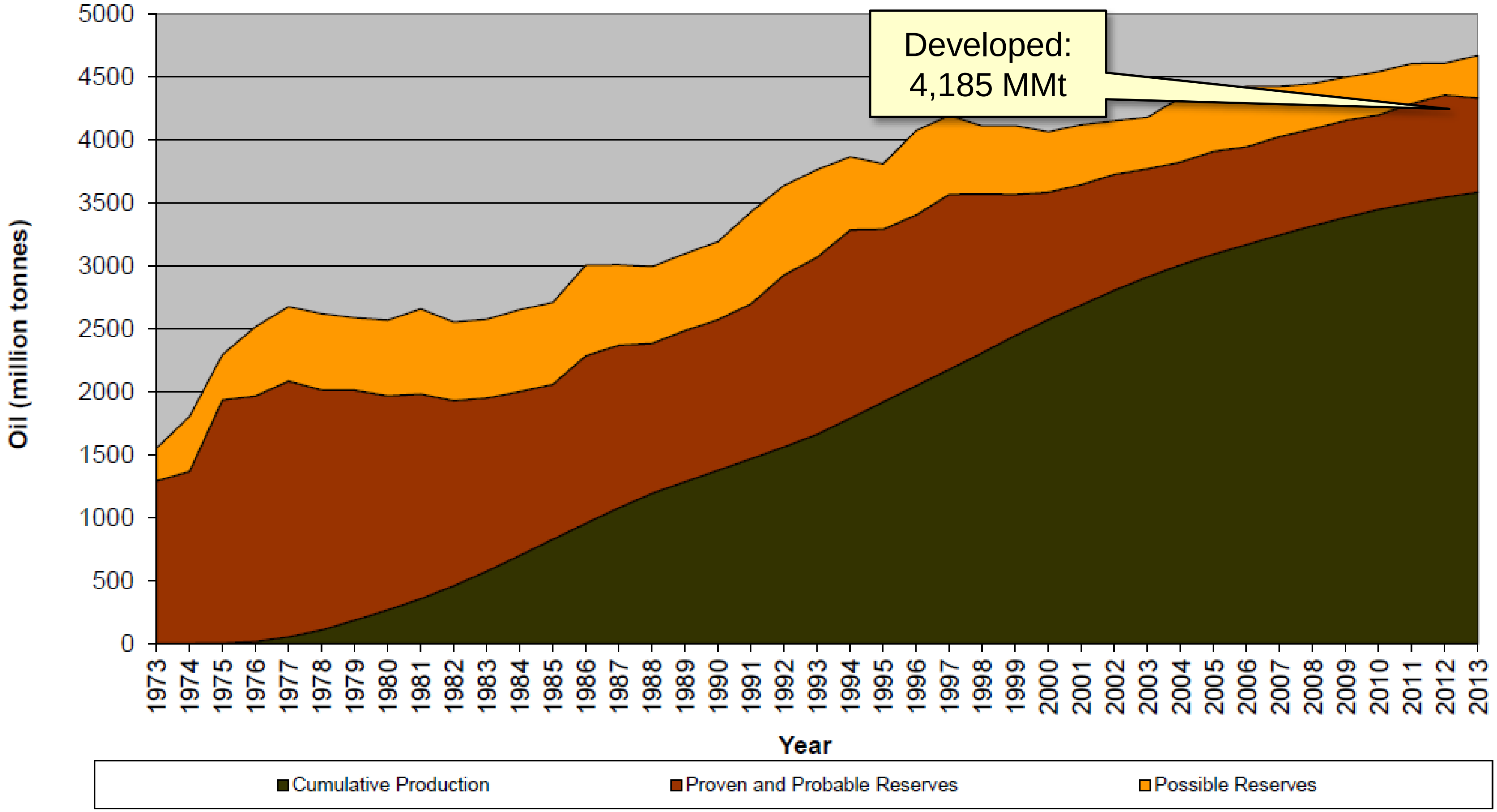
- “Delivery of the completed topsides lift and pipe-lay vessel is expected in the second half of 2014, ready for offshore operations early 2015. The jacket lift system will follow later…. In November 2013 AllSeas announced plans to build a second single-lift vessel larger than *Pieter Schelte*, to be delivered in 2020. It is intended for installation and removal of the very largest existing platforms.”
  Source: AllSeas Website
- AllSeas has not spent €1.3 Bn and are not commissioning this vessel today, without having done market analysis.
- NB: This will de-risk, rather than reduce costs of, abandonment.

Gaffney, Cline & Associates

Future Possibilities

Gaffney, Cline & Associates

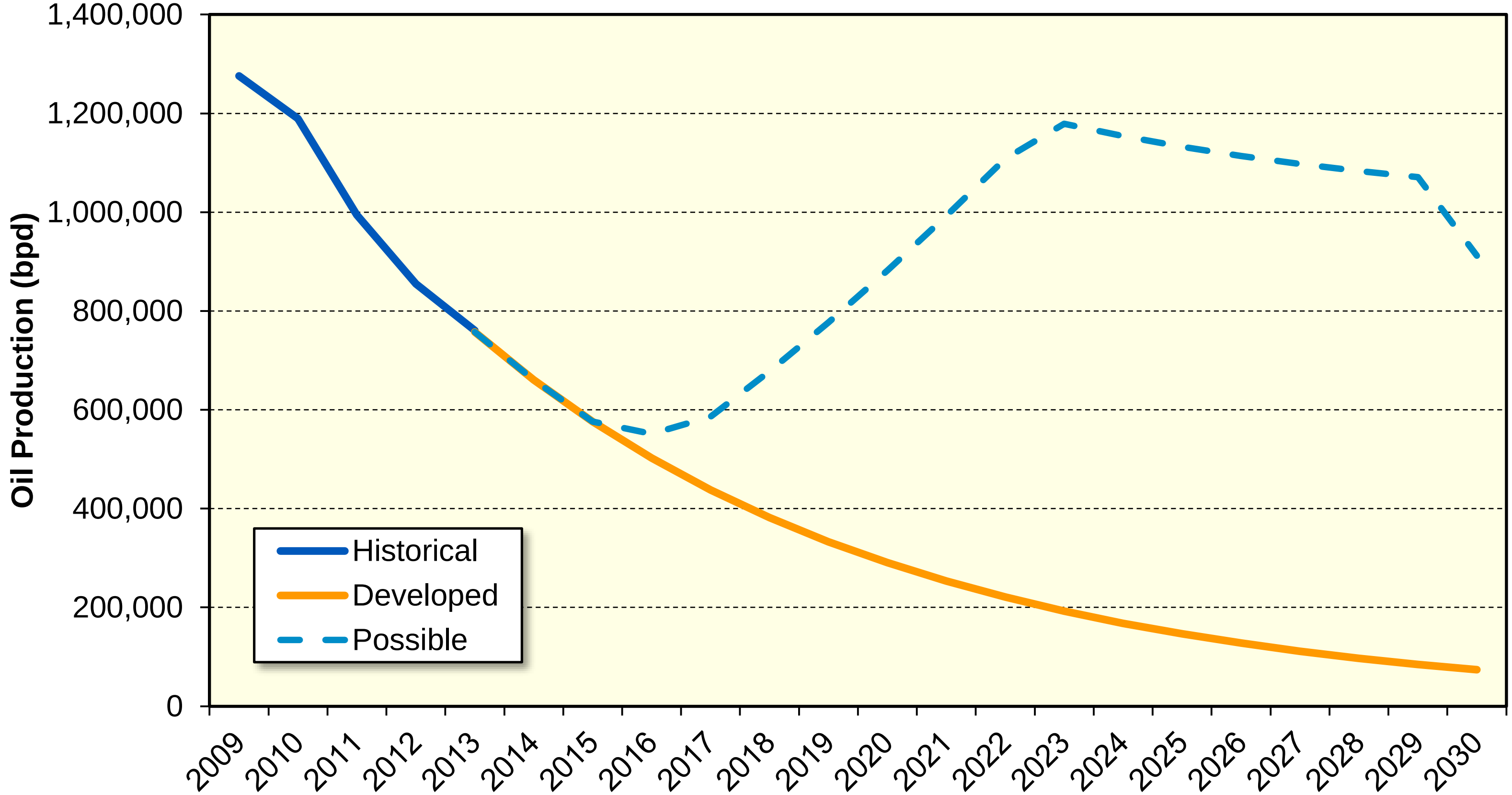
Oil Reserves vs Time



- Source: UK Oil & Gas "UK Oil Reserves and Estimated Ultimate Recovery 2014".
- GCA estimate of developed resource production to 2050.

Gaffney, Cline & Associates

Potential – One Scenario



- DECC 2012 Study: 6 BnBbl of EOR/IOR potential.
- 900 MMBbl of approved and yet to be approved heavy oil.

Gaffney, Cline & Associates

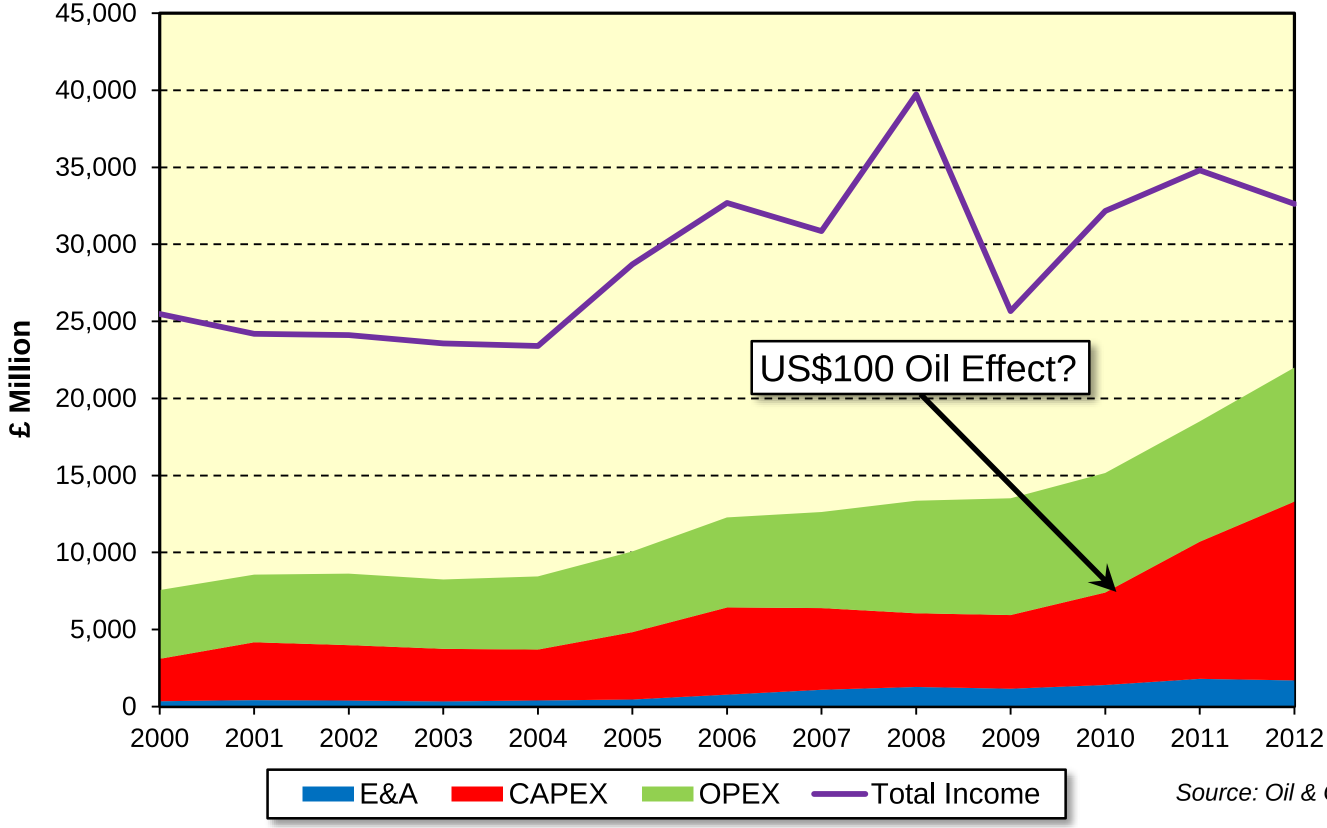
Challenges

Gaffney, Cline & Associates

Cost

- Current Projects:
  - Capex of US$20 to US$40/Bbl
  - Opex at US$30 to US$40/Bbl
- Current project screening at US$70/Bbl oil price.
- Competing internationally for investment, shale oil is the current favourite.

Scale

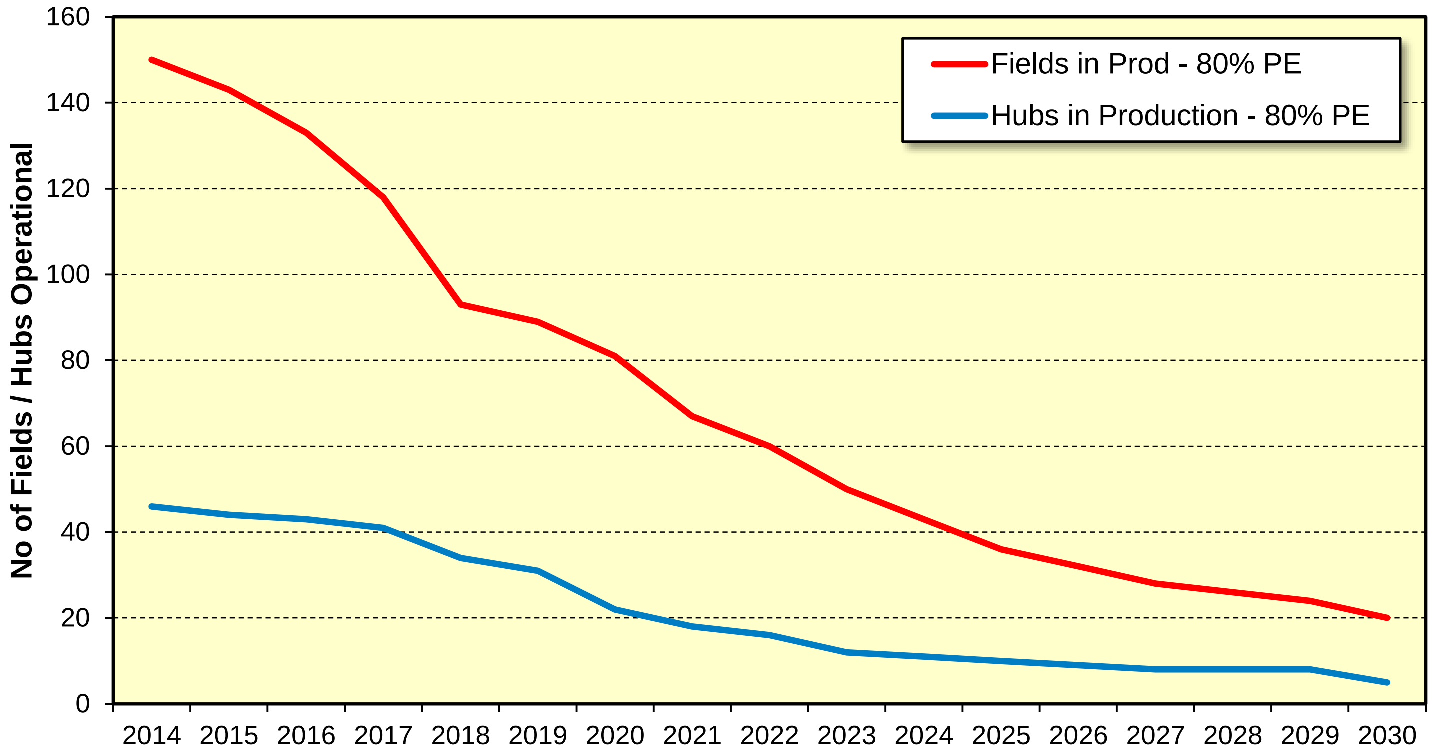


Source: Oil & Gas UK

- To deliver the potential, Capex of the order of US$25Bn/year needed.
- Illustration: Gas flood to achieve 5.7 Bnbl incremental recovery means perhaps 20+TCF of HC gas, CO_2 or nitrogen, much of which will not be recovered.

Gaffney, Cline & Associates

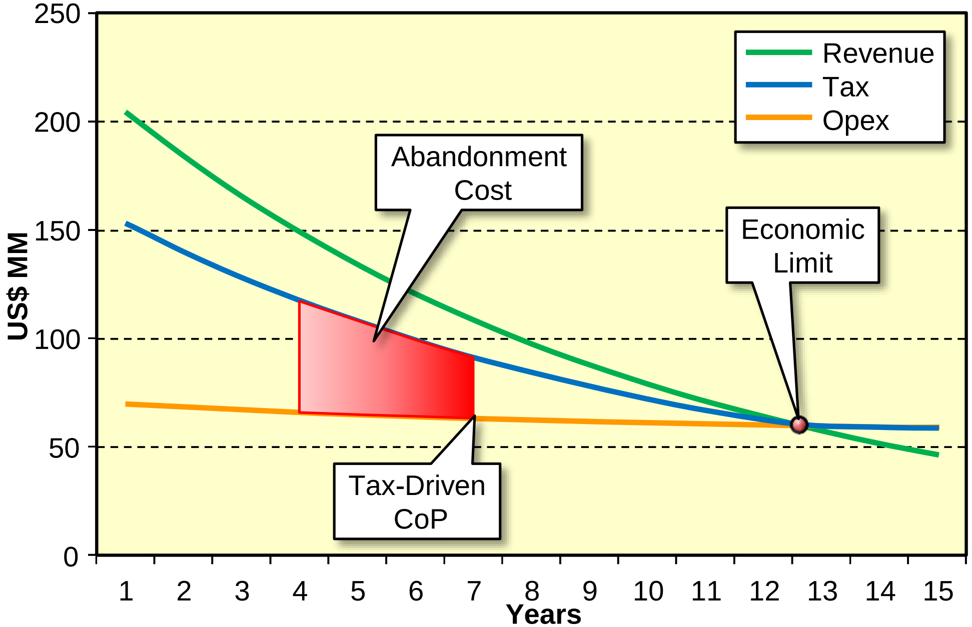
Retirement Rates

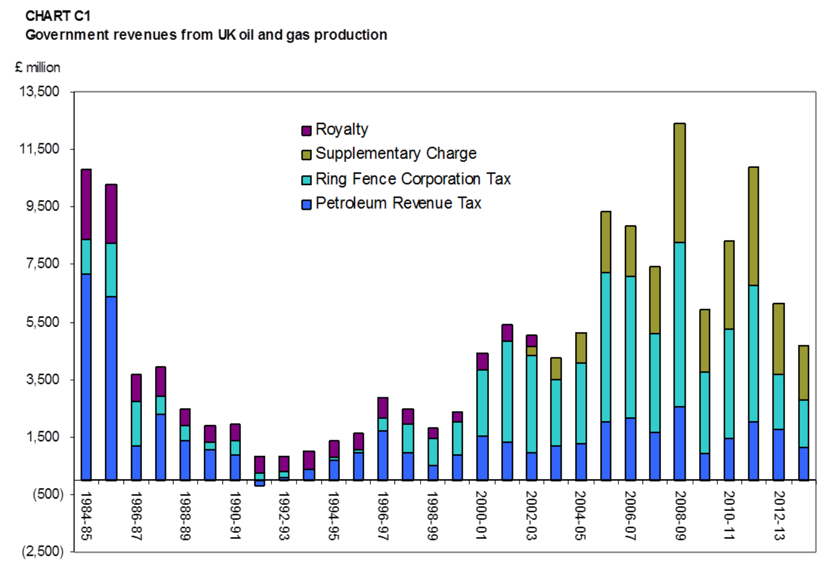


- Opportunities are disappearing fast: implies that new investments may be standalone.
- That means higher Capex and Economic Limit/CoP cutoff production rates.

Gaffney, Cline & Associates

Abandonment and Taxes





Source: UK Treasury

- Illustrative example – 3 year tax claw-back for abandonment could shorten field life – example of unintended consequences of complex tax rules.
- Tax claw-back and Decommissioning Relief Deeds not available to service/utility companies.
- Complex allowances intended to stimulate, but in reality are only deferring the inevitable, adding to the fiscal uncertainty.
- Oil & Gas tax only about 1% of total UK tax take, reducing and volatile.

The Wood Review and Government Response

Gaffney, Cline & Associates

Wood Review Observations

- The review identifies several market trends that contribute to the current state and concern about the UKCS:
  - New developments will be **completed by 2018 and capital investment is forecasted to drop drastically** after that point;
  - Remaining **smaller developments require collaboration** between operators in order to achieve infrastructure and marketing efficiencies;
  - **Production efficiency has dropped** to approximately **60%** from a peak of 80%+;
  - Exploration is at its lowest point since the early stages of the basin, **only 150 MMboe has been discovered over the past 2 years**;
  - **Infrastructure is aging** and requires both investment and optimization between operators in order to maximize their economic life;
  - Technology of **late life and complex discoveries needs to be incentivized** and implemented;
  - **Cost escalation** over the last decade has increased development costs dramatically;
  - Competition in the global marketplace has resulted in operators and the necessary **services/technology moving elsewhere** with their resources.

Gaffney, Cline & Associates

Key Issues Identified

- Operators to Focus on Maximising Economic Recovery
  - FPSOs vs existing infrastructure
- Fiscal Stability consistent with the challenges of Maturity
  - Allowances well received by industry
- Greater Resourced and more proactive Regulator
  - DECC under-resourced for the challenges
- Need for significantly improved asset stewardship
  - Production efficiency and poor take-up of EOR/IOR
- Far greater constructive collaboration between operators
  - "Overzealous legal and commercial behaviour"
- Better implementation of Industry Strategies
  - UKCS now requires integrated planning and collaboration
- 29 Action items outlined for the new Regulator, some of which are building on PILOT initiatives
- Two critical issues that are addressed in passing within the Review:
  - The UK is competing for investment internationally – and will find it difficult at 62%, let alone 80% marginal tax rates; and
  - The need for infrastructure to be operated as a (regulated) utility, as are the gas, telecoms and power grids and offshore pipelines in Norway, GoM and Netherlands.

Swift Government Response

- Recommendations Accepted.
- New Oil and Gas Authority (OGA) created.
- Will be based in Aberdeen.
- Will have jurisdiction over onshore, offshore including shale.
- Seed funding of £5 MM over 5 years provided.
- DECC providing bridge support.
- New CEO Appointed – takes position 1st January, 2015.
- Staffing due for 2015.

Gaffney, Cline & Associates

Synthesis

Observations of a Martian

- "MER UK" is undefined. To operators it means maximising post-tax NPV, to HMRC it means maximum tax income. To the UK economy, it should mean maximum barrels recovered (each barrel recovered is potential US$100/80 reduction in balance of payments). Who represents this latter interest?

- Much is expected of the new Regulator: cutting the Gordian knot of current commercial and fiscal arrangements carries great risk. Energy Bill 2011 provides the framework for intervention on TPA and costs, but is untested.

- The task is URGENT. Staffing the Regulator in 2015 means that reviews will not happen till 2016, and material action is unlikely till 2018. Compare with the retirement trend.

- Lower oil price makes this all the more urgent.

Gaffney, Cline & Associates

Suggestions

- Additional tax burden is no longer appropriate. Review PRT and the Supplementary Charge – this is an industry about to die on it's feet and the contribution to the overall UK budget is negligible.
- All the brown-field, small field, heavy oil and other allowances then fall away. Unnecessarily complex, and just breeds uncertainty in the fiscal regime.
- Introduce an Abandonment Fund, tax deductible, as % of net cash flow at ring-fence level. Based on annual assessments of abandonment liabilities, current fund value. Will allow non-oil companies to invest in infrastructure.
- Grandfather the Decommissioning Deeds. Allow them to become part of the Abandonment Fund.
- This will allow operation of hubs and export routes as regulated utilities, with service level agreements. Separates O&M (tariff) cash flow from oil revenues.
- This trades short term loss of tax against longer term CT, Income Tax and VAT receipts.