

Subsea Expo – Assessing “The Domino Effect” through UKCS Pipeline Network Modelling

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Assessing 'The Domino Effect' through UKCS Pipeline Network Modelling

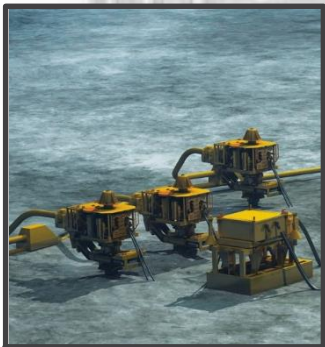
- What is the Domino Effect?
- Pipeline network modelling
- The Network
- Model Inputs & Outputs
- Interesting findings
- Future use

Understanding The Domino Effect

*Despite significant cost reductions, nearly **half of the UKCS Oil fields are likely to be operating at a loss in 2016** at prevailing prices. While this represents about a sixth of total oil production, these fields collectively provide a significant proportion of the infrastructure used to transport oil and gas ashore. Were a number of these fields to cease production, their **interconnectivity** would mean many more could become **sub-commercial**, known as the ‘domino effect’*

Oil & Gas UK Activity Survey 2016

Understanding The Domino Effect



Field A OPEX



Host OPEX



Pipeline OPEX



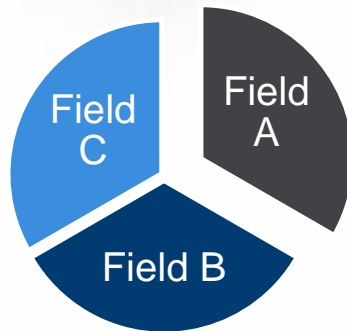
Terminal OPEX

Total Field OPEX

Variable OPEX

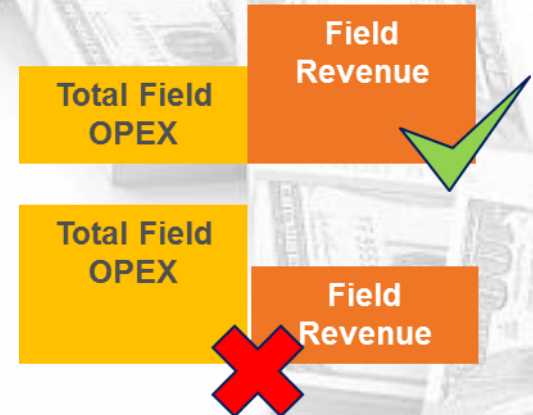
Fixed OPEX

Cost share Basis or Tariff Basis

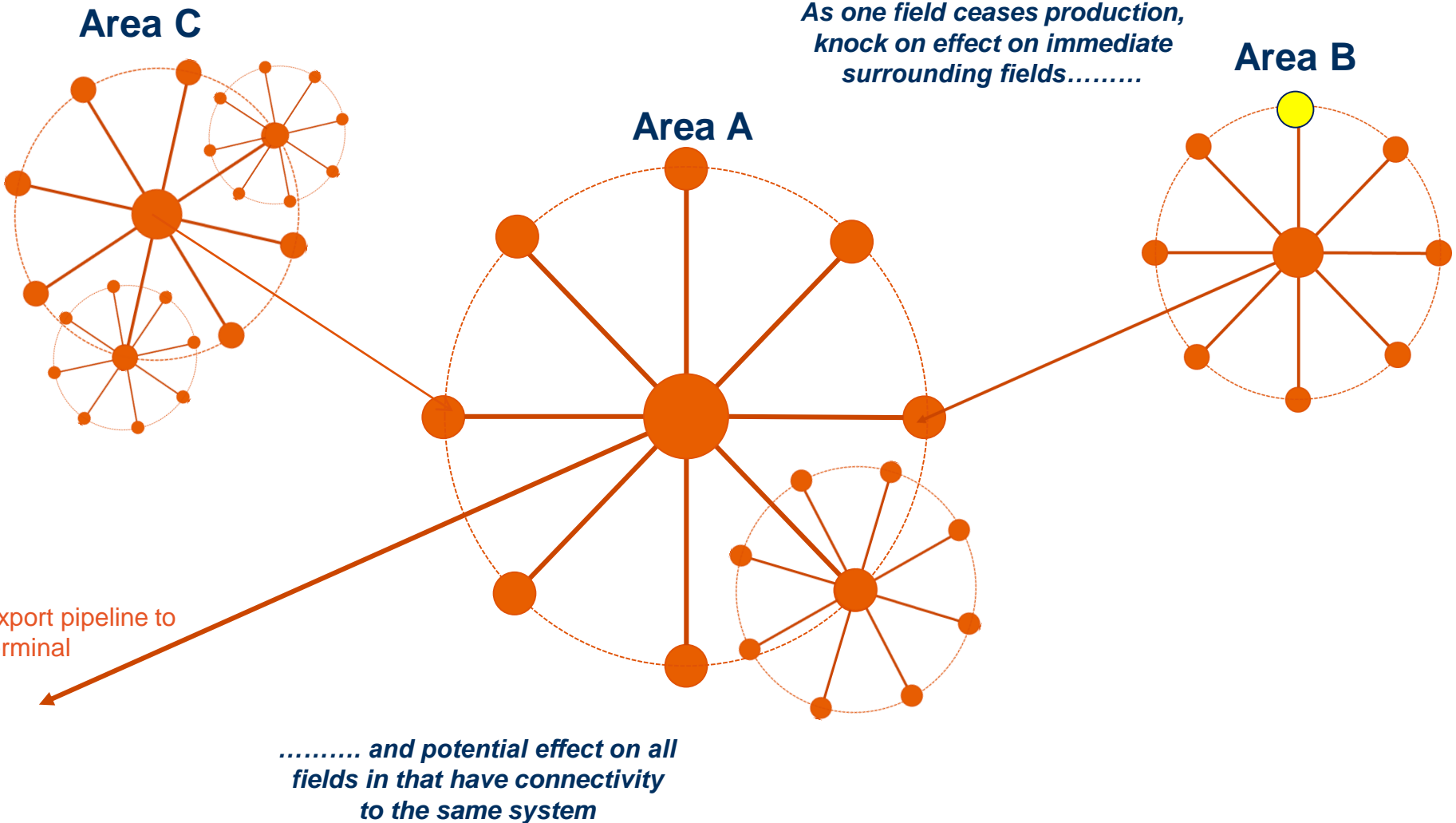


% of total cost based on throughput

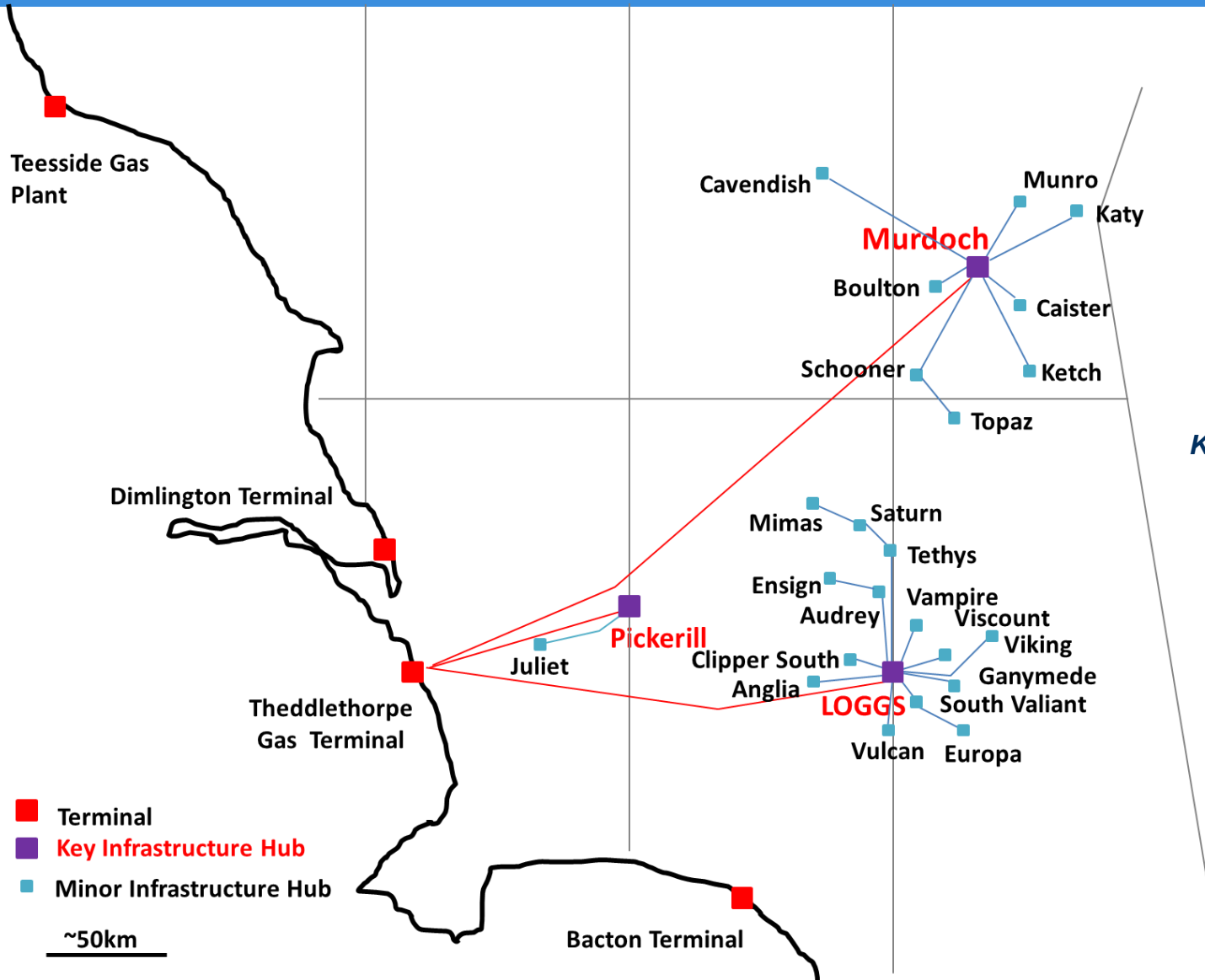
\$ / bbl or p/therm



Understanding The Domino Effect



The Domino Effect in Action



LOGGS system COP planned for end of 2018

Knock-on effect for Pickerill and Murdoch (CMS) systems – premature closure potential

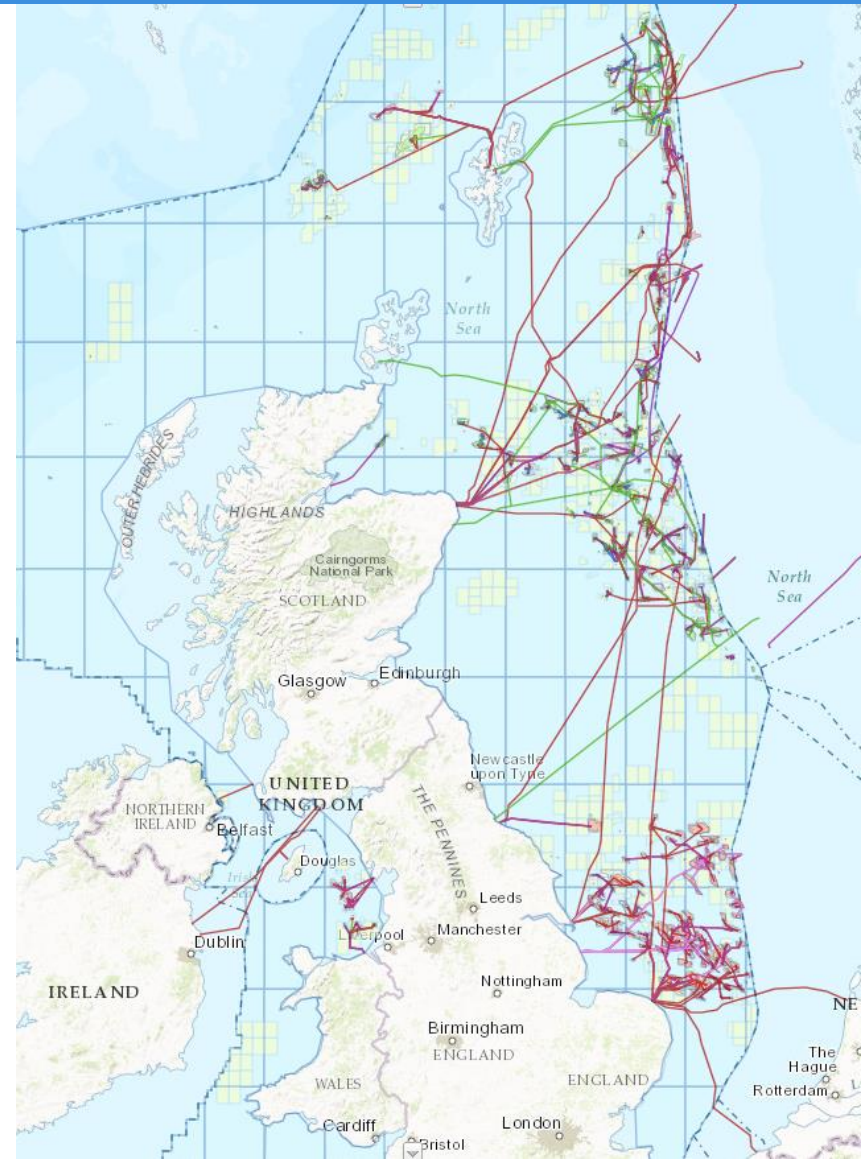
Pipeline Network Modelling

- Why?
 - Need to understand longevity of export routes
 - Investors who may be purchasing fields
 - Any potential new field coming online
 - Operators understanding of when change to cost share may occur
- What purpose?
 - Infrastructure Code of Practice
 - valid for the next five years
 - Great uncertainty beyond this point
 - LR Network Model serves this longer term view and highlights where potential risks may exist

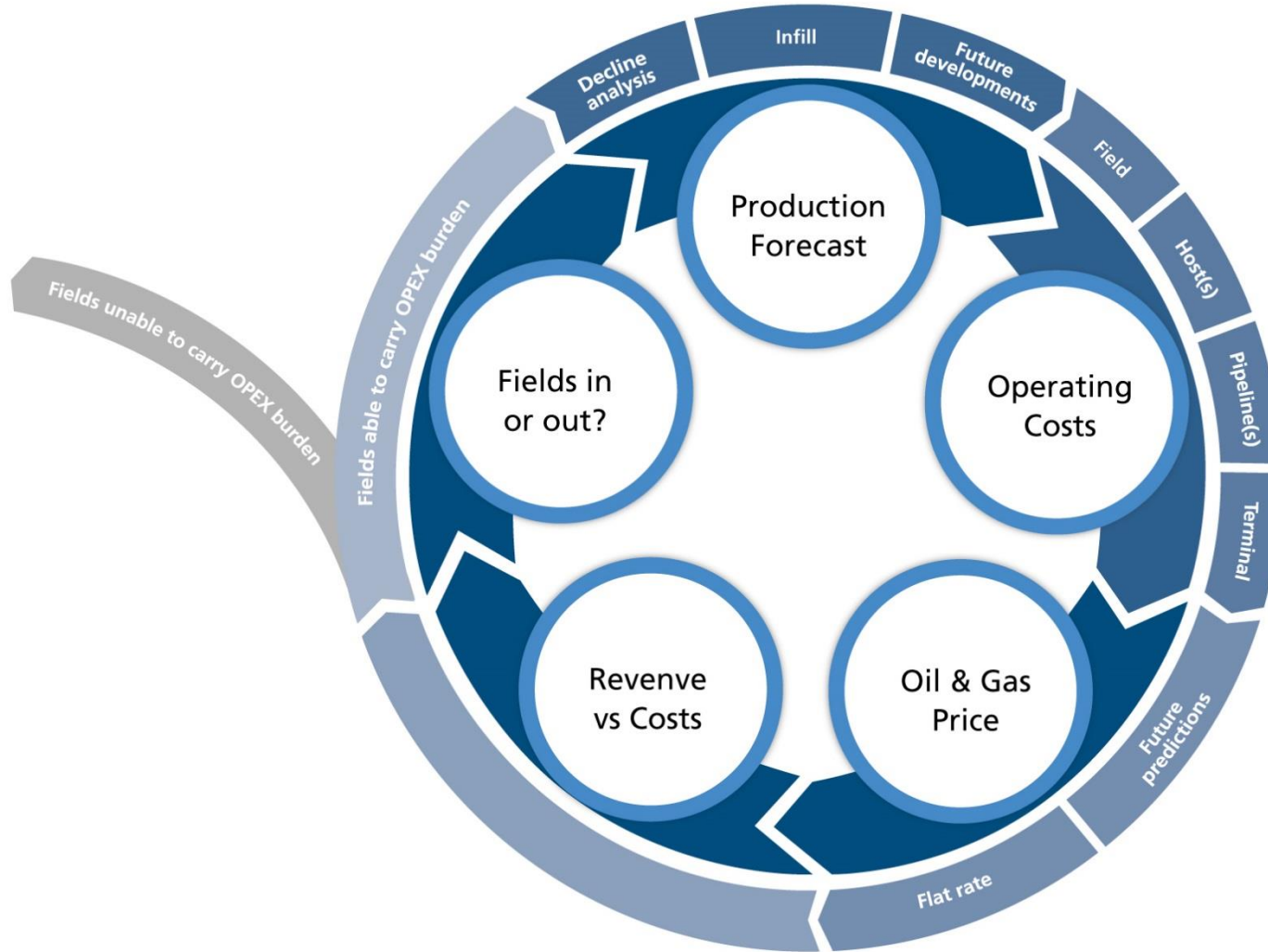


The Network

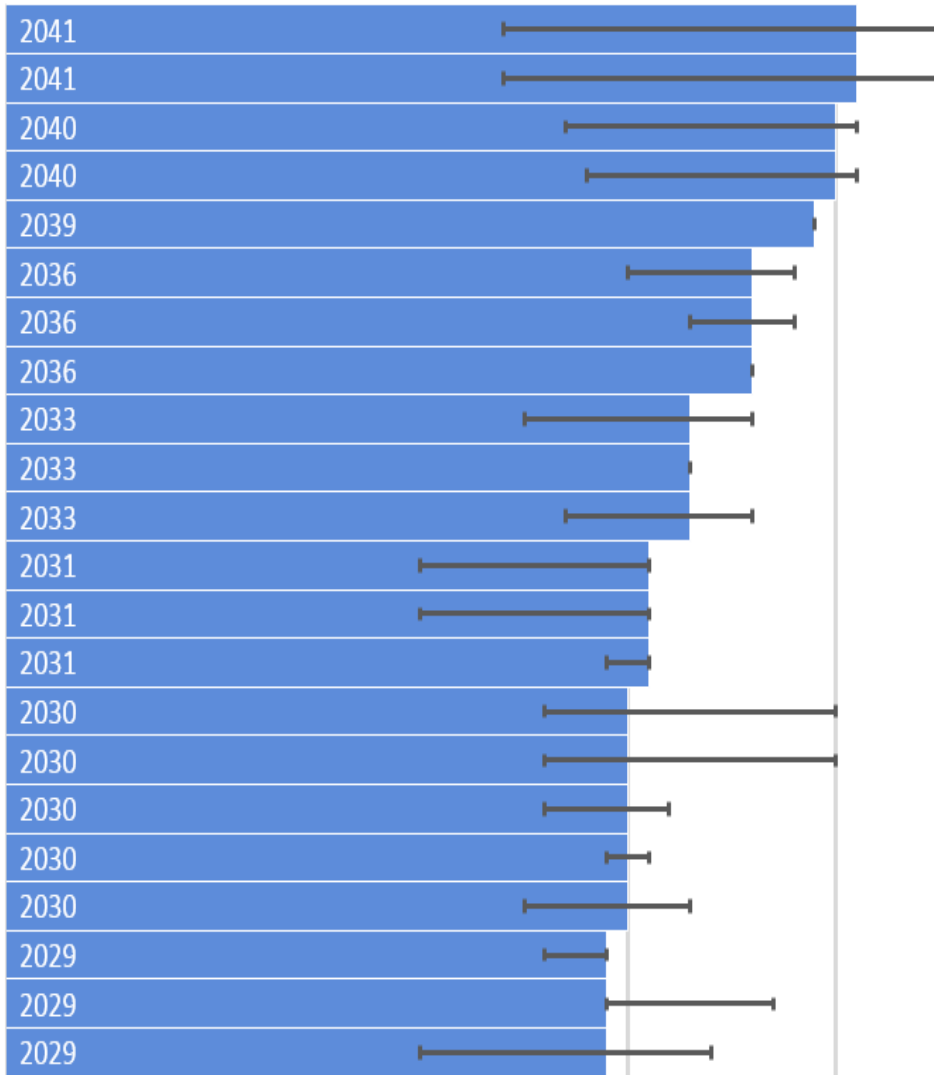
- 4 key networks
 - West of Shetland
 - Northern and Central NS
 - Southern North Sea
 - Irish Sea
- ~ 70 pipeline systems come onshore to UK
- ~ 320 fields currently in production
- Fields produce to oil and gas pipelines – both considered
- Various cross border connections also included



The Model Inputs



The Model Outputs



Key Sensitivities have been tested

- Oil Price
- Gas Price
- % reductions in OPEX
- With and without Developments
- Production rate variation

- Bar & Date reflect LR Base case
- Error band reflects sensitivity analysis

- Relatively narrow “cessation of production” band on outputs

Future Use

Field development planning

- Identifying capacity within pipelines
- Determining COP dates for major infrastructure
- Helping to choose which evacuation route is more robust in terms of future production
- Identifying clustering opportunities for small pool opportunities

Prolonging Critical Infrastructure

- Identifying critical infrastructure hubs
- Identifying which aspects of OPEX will help prolong production
- Rationalising infrastructure

Decommissioning

- Identifying decommissioning activity & spend



Questions?

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