



Oil & Gas
Authority

UK Continental Shelf Unsanctioned Discoveries Information Pack

October 2016

Information pack - Introduction

This pack has been prepared to increase industry awareness of the potential of UK Continental Shelf (UKCS) unsanctioned discoveries: resources, distribution, ownership, and proximity to infrastructure

For the purposes of this information pack, there are the following definitions:

Pools - All unsanctioned discoveries, for which there is no known on-going work by the licence operators

Small Pools - Unsanctioned discoveries containing less than 50 Million barrels of oil equivalent (mmbobe) (P50 technically recoverable)

Both exclude onshore discoveries.

This information pack includes:

- Number of pools and total P50 recoverable by geographic area
- Proximity of pools to surface and subsea architecture
- Summary of key opportunities and challenges

On separate maps, we also publish:

- Location of small pools and key infrastructure
- P50 volumes for unlicensed discoveries only

This publication will be followed by additional detail on specific UKCS areas and clusters of pools of greatest economic potential.

Method of Analysis and Data Constraints

The data used in this study is from the Oil & Gas Authority's (OGA) Potential Additional Resources (PARS) 2015 database, which contains discoveries for which there are no current plans for development.

The PARS database information is regularly updated to improve its accuracy and is considered to represent the best unsanctioned discovery information currently available to the OGA. The OGA is in the process of further improving the data through independent analysis and dialogue with Licence operators.

Individual pool hydrocarbon volumes (e.g. GIIP: Gas initially in place, STOIP: Stock tank oil in place and technically recoverable resources) for licensed pools cannot be disclosed in order to protect licence holder confidentiality.

P50 technically recoverable volumes of the unlicensed pools have been provided on separate maps as value ranges.

These should be considered indicative as in many cases these derived based on information and available technology at the time discovery was reported.

Data on infrastructure (pipeline, surface and subsea) are from the UKCS Common Data Access (CDA) organisation. This information is displayed on the maps and the location was used for the pool to infrastructure distance graphs.

Licensing data is from PEARS (Petroleum E-business Assignments and Relinquishment System). Details of this database can be found on the [OGA website](#).

The total number of unsanctioned discoveries (2015 PARS) = 363

Known Constraints:

- Nine land wells have been omitted from the study
- Six discoveries within the database are not included in this study due to data management issues
- Therefore 348 unsanctioned discoveries were used in this study unless otherwise stated

Summary of findings

Total number of unsanctioned discoveries in this study = 363, with technically recoverable P50 total of 3.4 bnboe.

Large number of pools (155) are unlicensed, across all the UKCS regions.

Pools ownership and operatorship are fragmented, with many operators operating only one or two pools each across the UKCS.

The majority of pools are located within potential tieback and/or extended reach drilling distance to existing infrastructure (fixed and floating installations, and subsea).

- For these developments, being able to reduce costs of tie-back and modifications to existing infrastructure is critical.

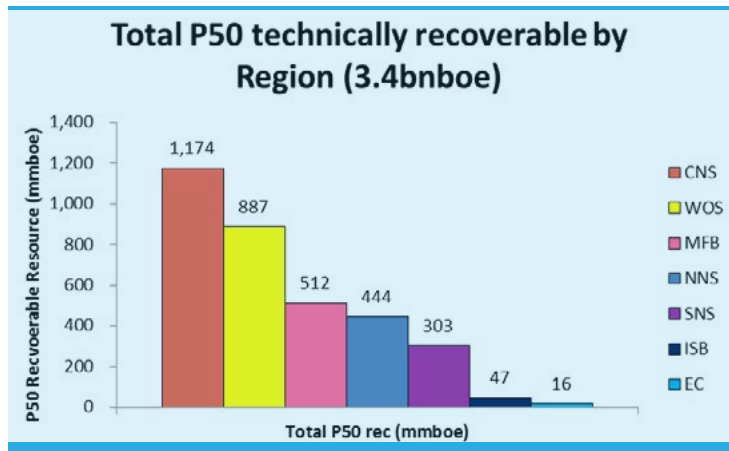
However, a large number of pools are outwith tie-back distance and therefore may be better suited to stand-alone type solutions.

- Efficient concepts of floating, fixed and/or subsea production facilities will be needed to make these development economically attractive.

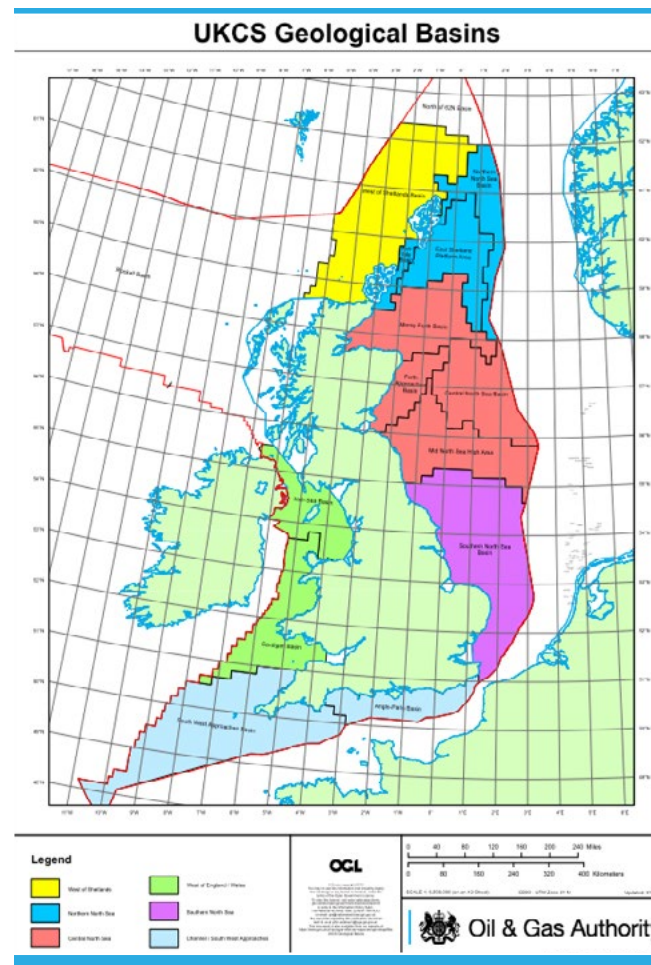
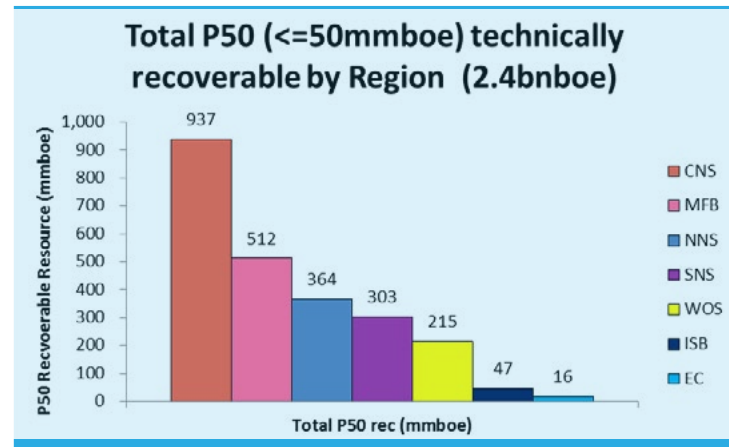
Several unsanctioned discoveries present one or more technical challenges, with the more common being: Heavy oil, HPHT (High Pressure High Temperature), high H₂S (Hydrogen Sulphide) and inert gas concentrations and/or low-permeability reservoir.

UKCS Pools by Region

All Pools



Small Pools



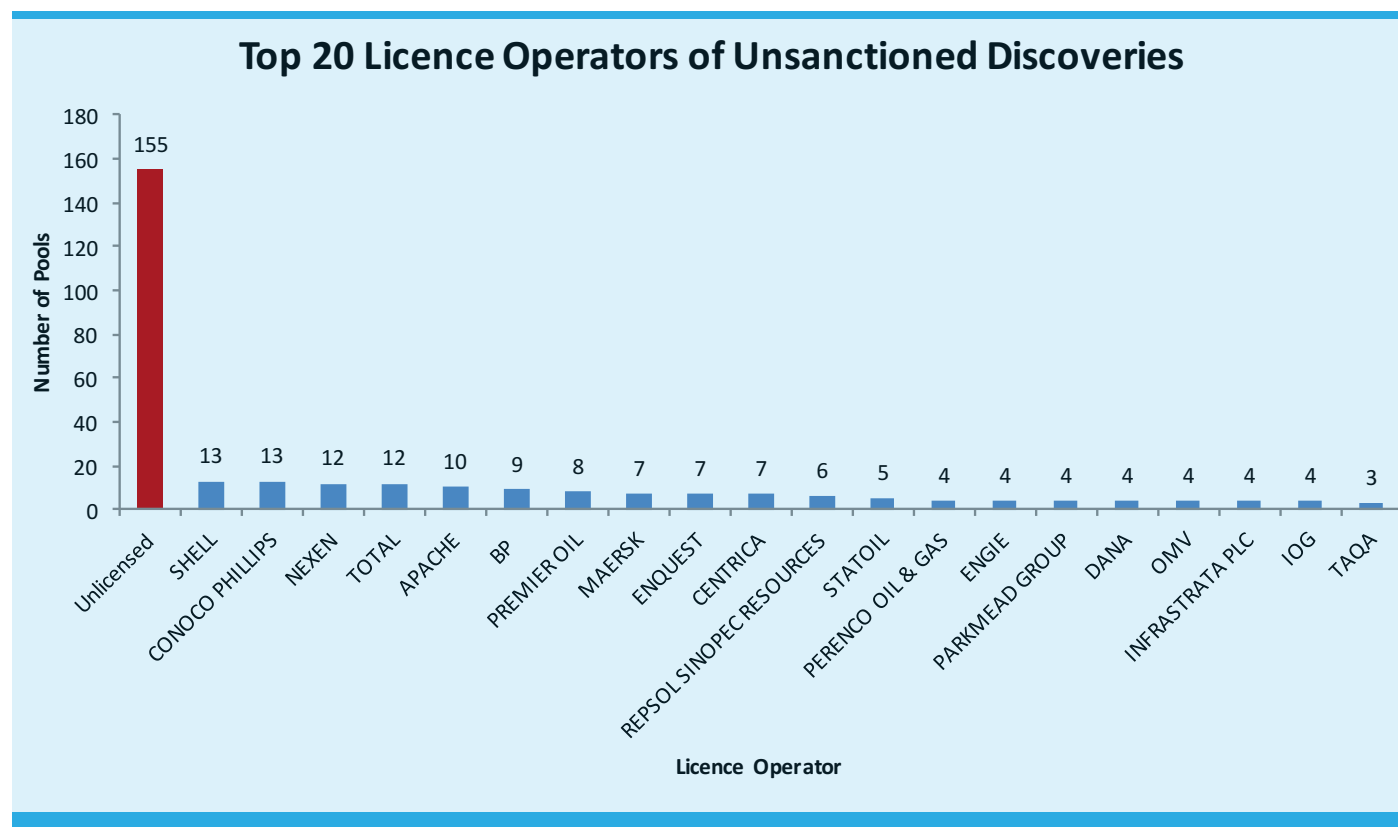
- CNS Central North Sea
- EC English Channel
- ISB Irish Sea Basin
- MFB Moray Firth Basin
- NNS Northern North Sea
- SNS Southern North Sea
- WOH West of Hebrides
- WOS West of Shetland

Source: OGA PARS 2015 database, PEARS

[View Map Online](#)

Ownership Distribution

Pools by the top 20 Licence Operators

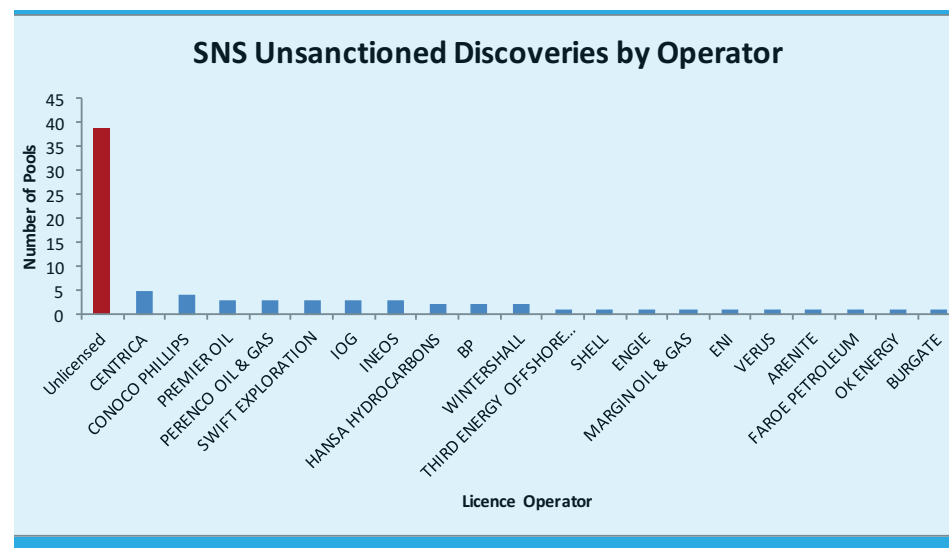
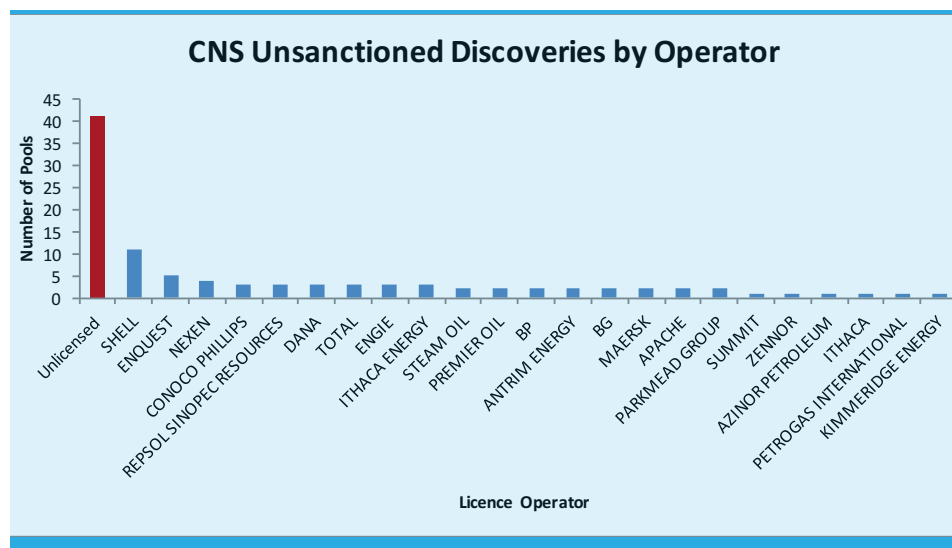


Source: OGA PARS 2015 database, PEARS

Ownership Distribution

Pool Ownership by Area

Total Number of Licence Operators of Unsanctioned Discoveries across UKCS = 51

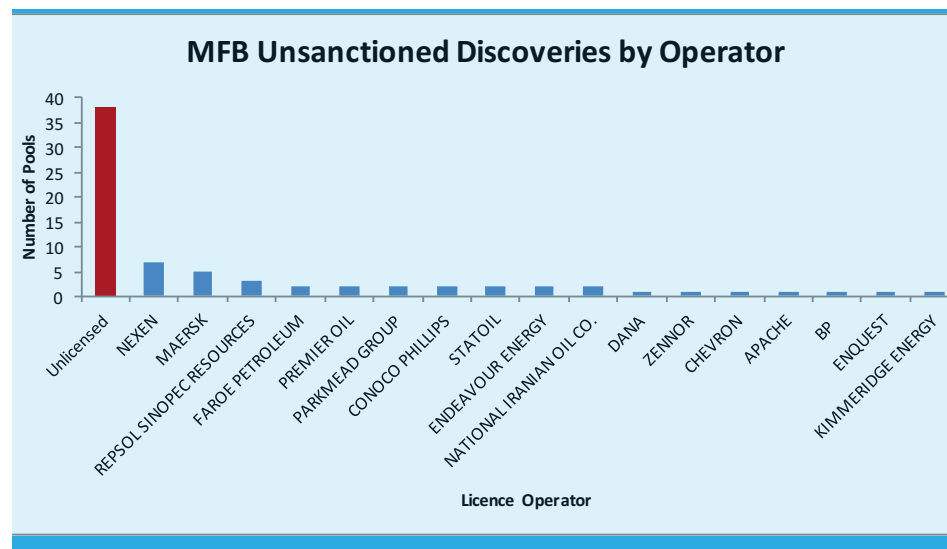
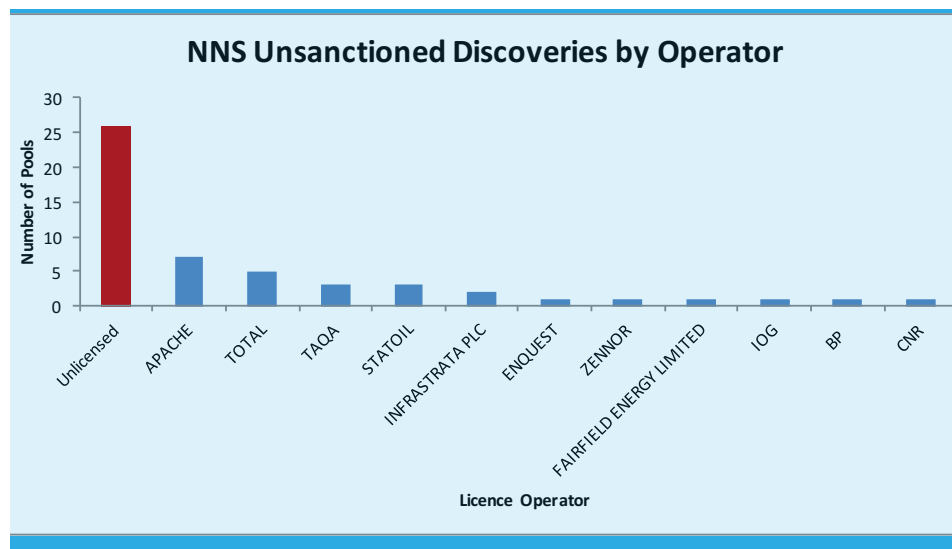


Excludes West of Shetland (WoS), as this region is in the scope of the OGA WoS Regional study and Irish Sea Basin - Source: OGA PARS 2015 database, PEARS

Ownership Distribution

Pool Ownership by Area

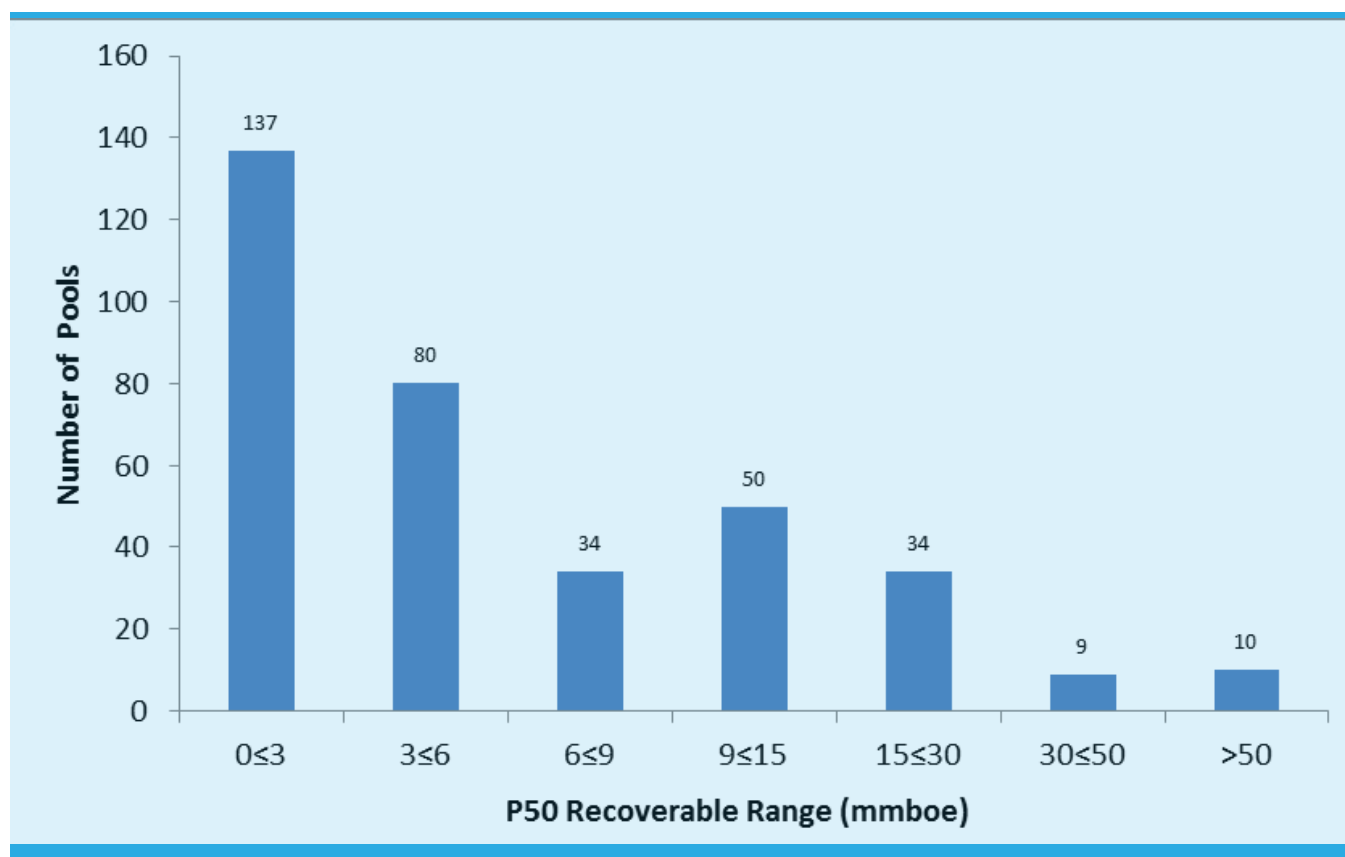
Total Number of Licence Operators of Unsanctioned Discoveries across UKCS = 51



Excludes WoS, as this region is in the scope of the OGA WoS Regional Study and Irish Sea Basin - Source: OGA PARS 2015 database, PEARS

Ownership Distribution

Pool Size Distribution



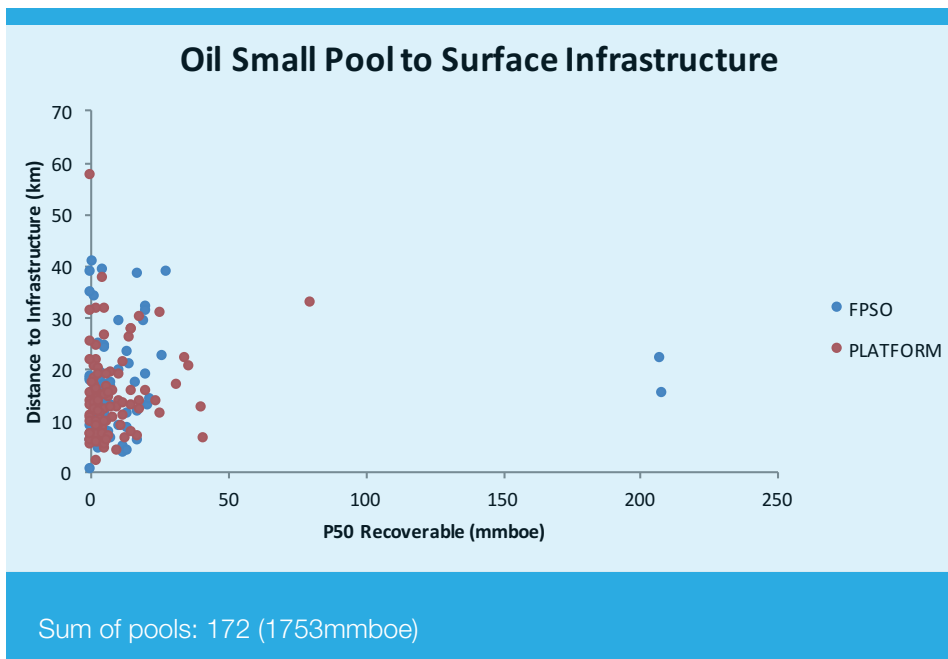
- Large number of pools are <3mmboe*
- Greatest number of pools between 3<15mmboe
- Significant number of pools exceed 15mmboe

* Some pools in the PARS database are listed as having zero P50 recoverable, these have been included in the 0≤3 mmboe range, this however could be due to the use of low recovery factors according to concepts and technologies available at the time of the pool discovery. The OGA is reviewing the PARS database on an on-going basis to update and improve the data.

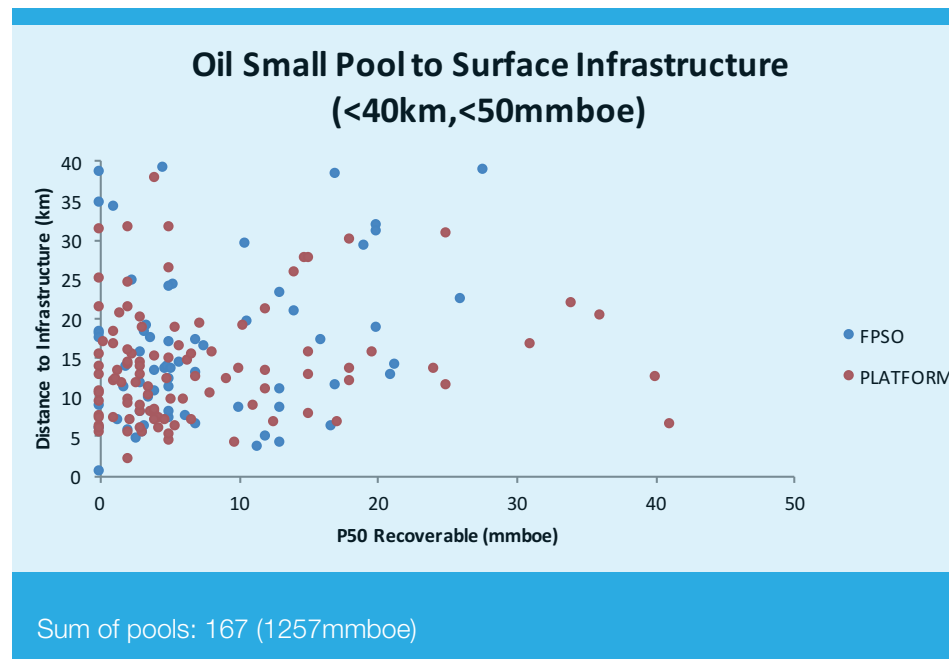
Source: OGA PARS 2015 database, PEARS

Proximity of Pools to Surface & Subsea Architecture

UKCS Oil “Pool” to Surface Infrastructure Proximity



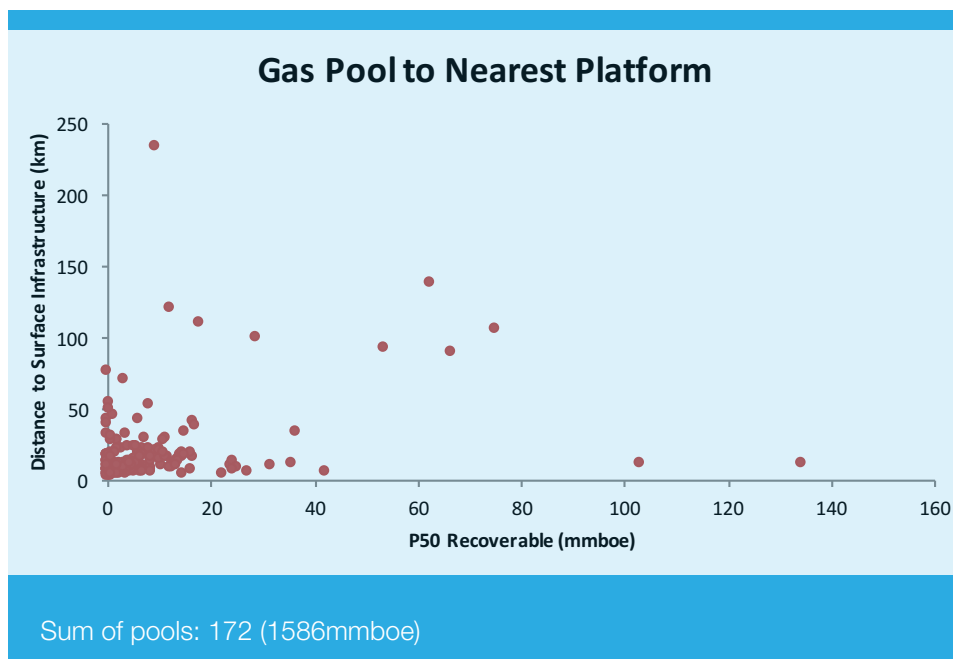
UKCS Oil “Small Pool” to Surface Infrastructure Proximity



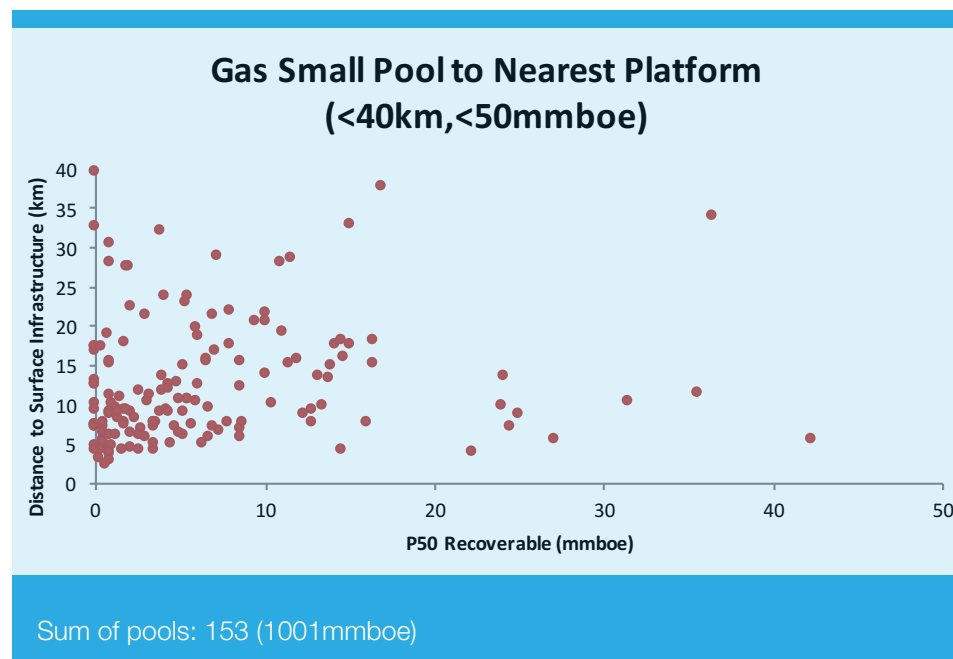
- Both Include: O, O&G, O/GC, O/Cond
- Does Not Include: Beacon discovery English Channel (EC)

Proximity of Pools to Surface & Subsea Architecture

UKCS Gas “Pool” to Surface Infrastructure Proximity



UKCS Gas “Small Pool” to Surface Infrastructure Proximity



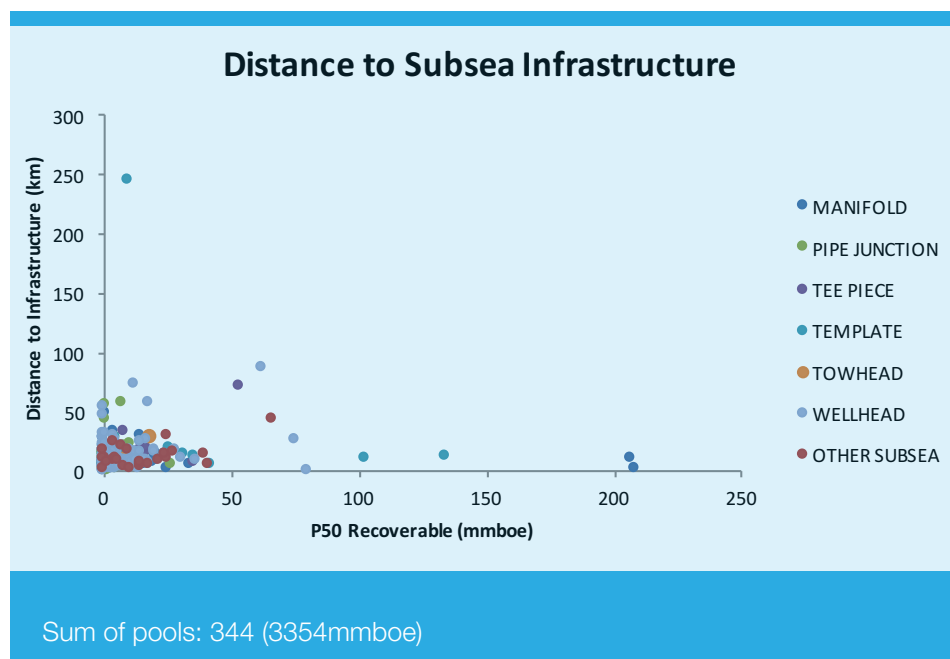
- Both Include: G, GC, GC&O, GO, C, CG.
- Does Not Include: English Channel, West of Hebrides (WOH)

Source: OGA PARS 2015 database, CDA

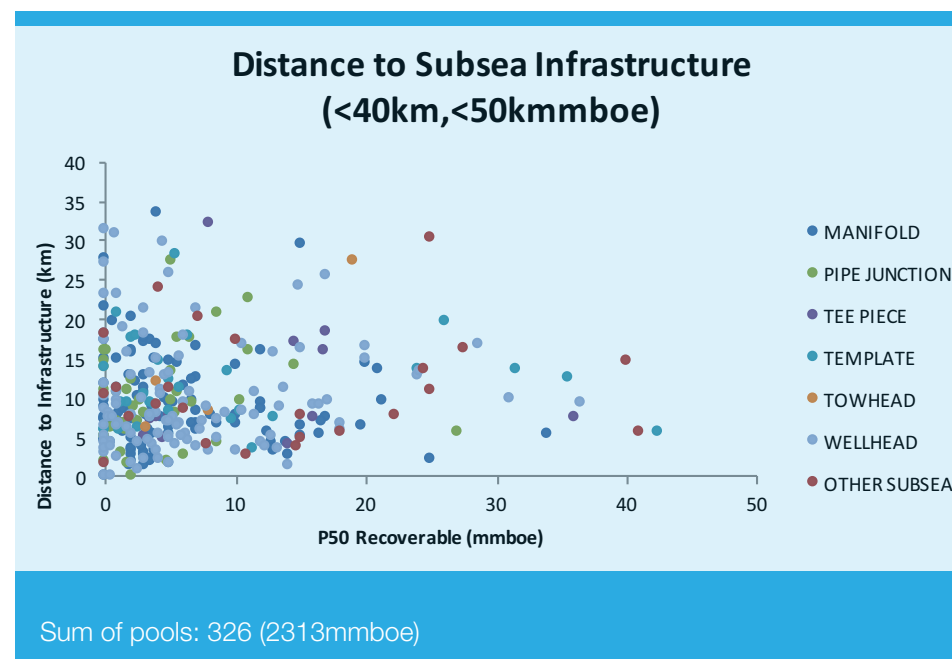
Key: G = Gas | GC = Gas Condensate | GC&O = Gas Condensate & Oil | GO = Gas Oil | C = Condensate | CG = Condensate Gas |

Proximity of Pools to Surface & Subsea Architecture

UKCS Oil & Gas “Pool” to Surface Infrastructure Proximity



UKCS Oil & Gas “Small Pool” to Surface Infrastructure Proximity



•Does Not Include: EC and WoH

Source: OGA PARS 2015 database, CDA

Key Opportunities and Challenges

Southern North Sea:

- Unlicensed discoveries, low-permeability reservoirs (tight gas), low volumes, ageing infrastructure, off-spec gas, salting, and imaging of deep targets.

Central North Sea:

- **Central Graben Area:** Fragmented ownership, technically challenged (heavy oil, HPHT), multiple competing export options, and imaging of deep targets.
- **Quad 30:** Broad range of infrastructure ages, high prospectivity (NPNT/HPHT) but low exploration activity, and low-permeability reservoirs (chalk).

Moray Firth Basin:

- **General:** Heavy oil, HPHT, high H₂S and CO₂, low-permeability reservoirs, and unlicensed discoveries.
- **Quad 15:** Drive efficiencies through integrated “area programme” of exploration and development activities.
- **Outer Moray Firth:** Hubs strategy to attract Third Party business, leading to optimal plans for critical infrastructure.

Northern North Sea (East):

- Late life assets, gas blowdown, heavy oil, and constrained persons on board.

West Of Shetland:

- Harsh environment, gas export and deep water, and imaging of deep targets.

Next Steps

1. Release an information pack with further detail on priority clusters of pools and small pools in SNS.
2. Complete screening and priority selection of pools and small pools in other UKCS regions.
3. Issue more detailed information packs on MFB and CNS (subsequently NNS).
4. Conduct cluster and/or area level studies where applicable.
5. Engage licence operators in priority areas / clusters to discuss field development opportunities comprising unsanctioned discoveries.
6. Continue working with the Technology Leadership Board (TLB), the Oil and Gas Technology Centre (OGTC), and the industry on technologies able to unlock the development of unsanctioned discoveries
 - Introduce “quick win” efficiencies in development wells, subsea and surface facilities from the work of the Oil & Gas UK Wells Forum and the Efficiency Task Force.
 - Align R&D¹ effort with demand for technologies needed to develop unsanctioned pools.
 - Work with the OGTC, and individual technology developers to mature and ultimately deploy efficient development solutions.

¹ Research and Development

Area Maps

Links to the Small Pools Region Maps, located on the OGA Open Data Site:

- [Central North Sea Unsanctioned Discoveries including Small Pools](#)
- [Moray Firth Basin Unsanctioned Discoveries including Small Pools](#)
- [Northern North Sea Unsanctioned Discoveries including Small Pools](#)
- [Southern North Sea Unsanctioned Discoveries including Small Pools](#)