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# Exploration Managers Forum

2015 Government Seismic Success Story

MER UK Group Shoot Proposal

29<sup>th</sup> Round Planning & Innovate

2016 Seismic Planning Update

21<sup>st</sup> Century Exploration Roadmap

E&A Activity

*Some sections subject to change*

Aberdeen, 5<sup>th</sup> May 2016



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# Agenda

- |                      |                                                                          |
|----------------------|--------------------------------------------------------------------------|
| <b>09:00 – 09:15</b> | Update on 2015 government seismic programme data release                 |
| <b>09:15 – 09:30</b> | MERUK Exploration Board Group Shoot proposal                             |
| <b>09:30 – 10:00</b> | Update on 29 <sup>th</sup> Round, status of Innovate Exploration Licence |
| <b>10:00 – 10:30</b> | Update on 2016 government seismic programme                              |
| <b>10:30 – 10:45</b> | Tea & Coffee Break                                                       |
| <b>10:45 – 11:15</b> | 21 <sup>st</sup> Century Roadmap - next steps                            |
| <b>11:15 – 11:45</b> | Discussion on near-term E&A activity                                     |
| <b>11:45 – 12:00</b> | AOB                                                                      |



# Exploration Board Summary

<b>Purpose</b>	To revitalise exploration in the UKCS in order to add reserves to replace production and secure longevity of the North Sea											
<b>Draft priorities</b>	<ul style="list-style-type: none"> <li>Promote exploration potential of UKCS</li> <li>Improve technical understanding of potential and undertake successful exploration campaigns</li> <li>Optimise licensing T&amp;C's to maximise frontier and mature potential</li> <li>Incentivise exploration through a combination of fiscal and non-fiscal initiatives</li> </ul>											
<b>Industry lead</b>	Phil Kirk (Chrysaor)	<b>Support lead</b>	Gunther Newcombe (OGA)									
<b>Members</b>	<table border="0"> <tr> <td>Ron Roberts (Apache)</td> <td>Ruud Zoon (GDF)</td> <td>Tom Dreyer (Statoil)</td> </tr> <tr> <td>Chuck Guderjahn (BP)</td> <td>Roberto Cerro (ENI)</td> <td>Kaj Hemmes (Shell)</td> </tr> <tr> <td>Jon Parry (DONG)</td> <td>Oonagh Werngren (OGUK)</td> <td></td> </tr> </table>			Ron Roberts (Apache)	Ruud Zoon (GDF)	Tom Dreyer (Statoil)	Chuck Guderjahn (BP)	Roberto Cerro (ENI)	Kaj Hemmes (Shell)	Jon Parry (DONG)	Oonagh Werngren (OGUK)	
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Jon Parry (DONG)	Oonagh Werngren (OGUK)											
<b>Key relationships</b>	<ul style="list-style-type: none"> <li>MERUK boards, especially RDI &amp; TB</li> <li>North &amp; Irish Sea Regulatory Bodies &amp; IAGC</li> </ul>											
<b>Funding and resources</b>	<ul style="list-style-type: none"> <li>OGA support funded from OGA Levy</li> <li>Members support manpower and incidental costs from own budgets</li> </ul>											
<b>Progress update</b>	<ul style="list-style-type: none"> <li>Next Board Meeting 3<sup>rd</sup> May, third meeting since start up in December 2016</li> <li>Licensing strategy task group developed Innovate Licence Approach 1Q 2016</li> <li>Seismic Industry Group data acquisition proposal 2Q 2016</li> </ul>											
<b>Risks / interdependencies</b>	<ul style="list-style-type: none"> <li>Strong linkage with other core work boards &amp; groups are required</li> <li>Exploration is undertaken by many different companies ranging from multi-nationals to promote companies and their approach to exploration will vary as will solutions to incentivise exploration</li> <li>Managing expectation of a short-term fix, revitalisation will be a gradual process</li> </ul>											



# Exploration Storyboard

## Revitalise exploration

43bn boe recovered from UKCS to date – up to 20bn boe remaining



> 300 discoveries with 4bn boe potential



Potential of up to 9bn boe yet to find in mature areas



Target of 50 E+A wells per year by 2021



UK Government funded seismic



40,000km new and legacy data in 2015 – Rockall Trough and Mid-North Sea High – Data freely available\* from Q1 2016



OGA competition to define potential of frontier areas



29<sup>th</sup> 'Frontier' Licensing Round in 2016\*\*

29<sup>th</sup>

Further £20million seismic funding from UK Government in 2016 and funding for post-doctorates and for 3D visualisation suite



\*From [www.UKOilandGasData.com](http://www.UKOilandGasData.com)

\*\*Subject to Strategic Environmental Assessment



# Exploration Storyboard

## Significant opportunities

- 29<sup>th</sup> Licensing Round Areas
- ▨ 2015 OGA 2D Seismic Lines
- ▨ 2016 OGA 2D Seismic Lines
- UKCS Designated Area



29<sup>th</sup> Licensing Round and 2016 seismic study areas are proposed and subject to further approvals including Strategic Environmental Assessment



# Exploration Storyboard

## Well reviews and analysis

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Rigorous analysis of failed wells  
and sharing of lessons learnt  
(98 wells over a 10 year period)

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Undertaking subsurface  
technical assurance reviews to  
improve technical standards

---

Introduce OGA risk and  
resource process

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21<sup>st</sup> Century Exploration  
Road Map

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## Improve data quality

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OGA will coordinate data quality  
and sharing

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In-depth evaluation of regional  
prospectivity – promote regional  
studies

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Provide high-quality digital  
geological maps

---

## Future licensing rounds

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New, flexible, licensing strategy  
– new Innovate Licence created

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29<sup>th</sup> Round 2016 – under-  
explored frontier blocks

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30<sup>th</sup> Round 2017 –  
mature parts of the basin

---

Time to evaluate existing  
work commitments and  
relinquishments

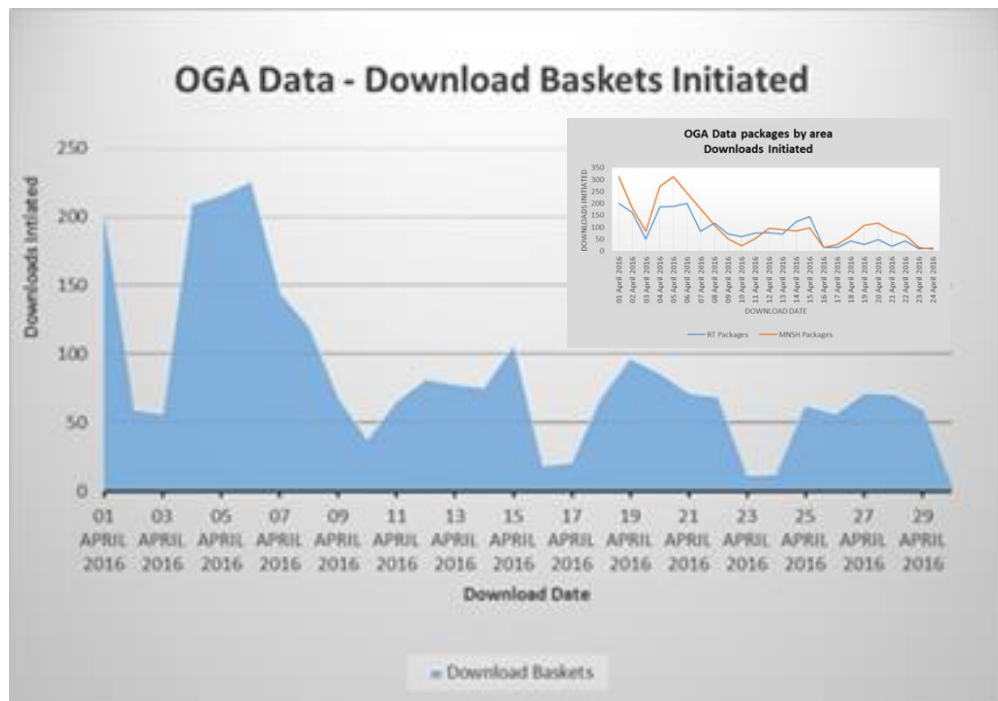
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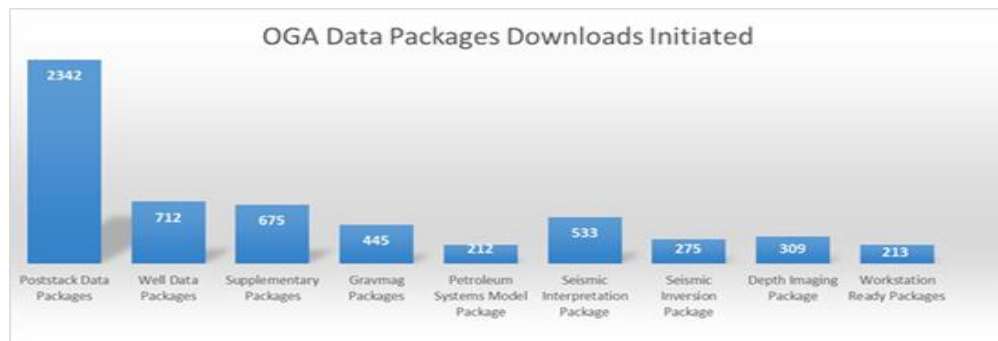


# 2015 Seismic Data Release

- Data Released On Schedule on 1<sup>st</sup> April 2016
- Approx. 70 TB Data Available
- Online Viewing via BluCube Petrel System



Area Name	Package	Description	Type	Size (Gibibytes)	Download	Available	Survey Name	Format	Remarks
UK North Sea	2015 OGA Survey Area Data (2015-01)	OGA Survey Area Data (2015-01)	OGA Survey Area Data	29.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-02)	OGA Survey Area Data (2015-02)	OGA Survey Area Data	22.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-03)	OGA Survey Area Data (2015-03)	OGA Survey Area Data	6.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-04)	OGA Survey Area Data (2015-04)	OGA Survey Area Data	5.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-05)	OGA Survey Area Data (2015-05)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-06)	OGA Survey Area Data (2015-06)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-07)	OGA Survey Area Data (2015-07)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-08)	OGA Survey Area Data (2015-08)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-09)	OGA Survey Area Data (2015-09)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-10)	OGA Survey Area Data (2015-10)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-11)	OGA Survey Area Data (2015-11)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	
UK North Sea	2015 OGA Survey Area Data (2015-12)	OGA Survey Area Data (2015-12)	OGA Survey Area Data	1.00	Yes	Yes	OGA Survey Area Data	OGA	



Schlumberger Data Event in Aberdeen on 12<sup>th</sup> May

<https://www.ukoilandgasdata.com/>

Media Orders	Number
Total Orders	47
Number Despatched	23



# Exploration Competition

Company/ Consortium Lead	Area	Title	
<i>WyeDean Exploration</i>	<i>Rockall</i>	Rockall (multidisciplinary study)	
<i>WyeDean Exploration</i>	<i>MNSH</i>	MNSH (multidisciplinary study)	
<i>Geoscience Wales</i>	<i>MNSH</i>	Petroleum systems of the Mid North Sea High	
<i>Frogtech</i>	<i>Rockall</i>	Seebase studies of the Rockall Trough	
<i>Frogtech</i>	<i>MNSH</i>	Seebase studies of the MNSH	
<i>Badleys</i>	<i>Rockall</i>	Crustal-thickness mapping, geodynamic analysis and heat-flow prediction in the UK Rockall Trough	
<i>Astute Geoscience</i>	<i>Rockall</i>	Exploration focused analysis of interpretations & data (ExAID): Rockall Trough	
<i>DeepGeo</i>	<i>Rockall</i>	EOI for Subsurface Studies: Rockall Trough	
<i>Earthworks</i>	<i>Rockall</i>	Extended Elastic Impedence (EEI) workflow on Rockall Trough test lines	
<i>Kinga Wroblewska</i>	<i>MNSH</i>	MNSH: integrating rock physics into the seismic image	
<i>SpectrumGeo</i>	<i>MNSH</i>	An Integration of Sea Surface Slick, Potential Fields and Geophysical Data to Reveal the Hydrocarbon Source Rocks of Underexplored Regions of The Central North Sea & Mid North Sea High.	
			<b>Phase 2 total spend: ~£250k</b>

- Unprecedented Interest: 61 Applications
- Evaluated in collaboration with Industry and Academia
- Initial Products to be delivered to OGA by Early July
- Significant OGA-Company Project Liaison Required





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# Postdoc Funding

## 3 Two-Year Postdoctoral Research Positions Funded:

**Aberdeen University**

Rockall Project

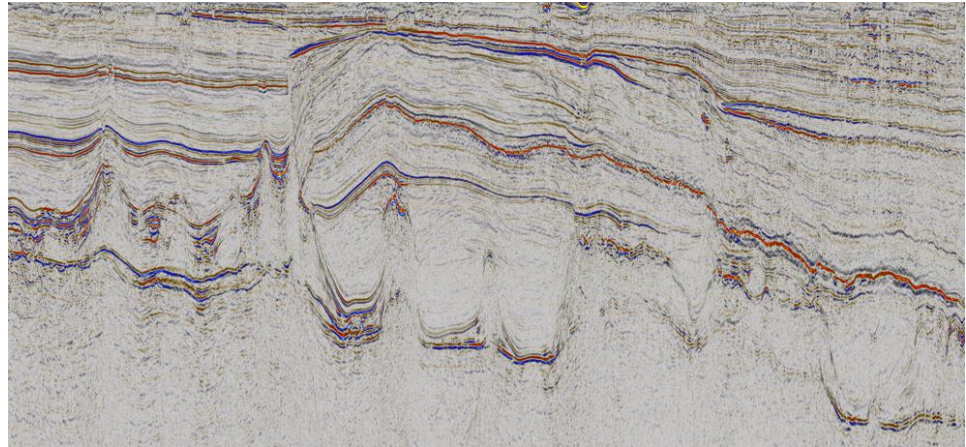
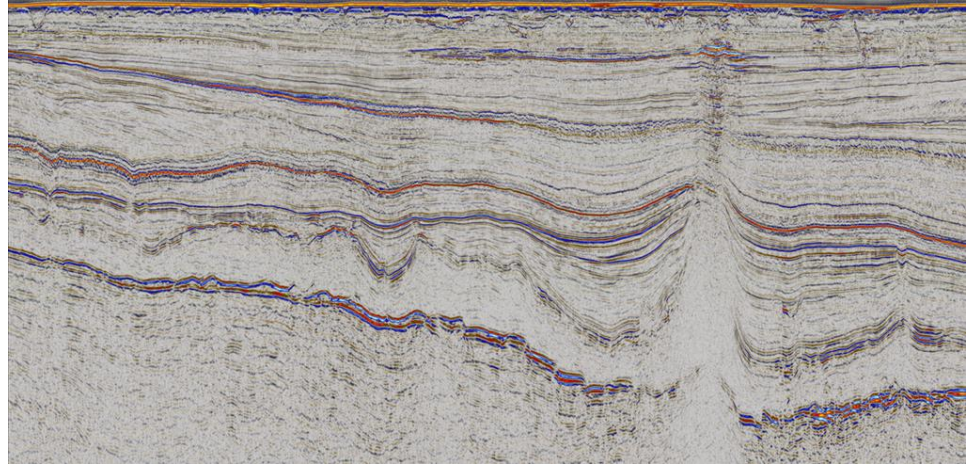
**Heriot-Watt University**

Mid North Sea High Project

**Durham University**

SW Britain Project

*£250k funds per project.*





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Statoil

# EXPLORATION BOARD WORKGROUP

## GROUP SHOOT SEISMIC PROGRAMMES

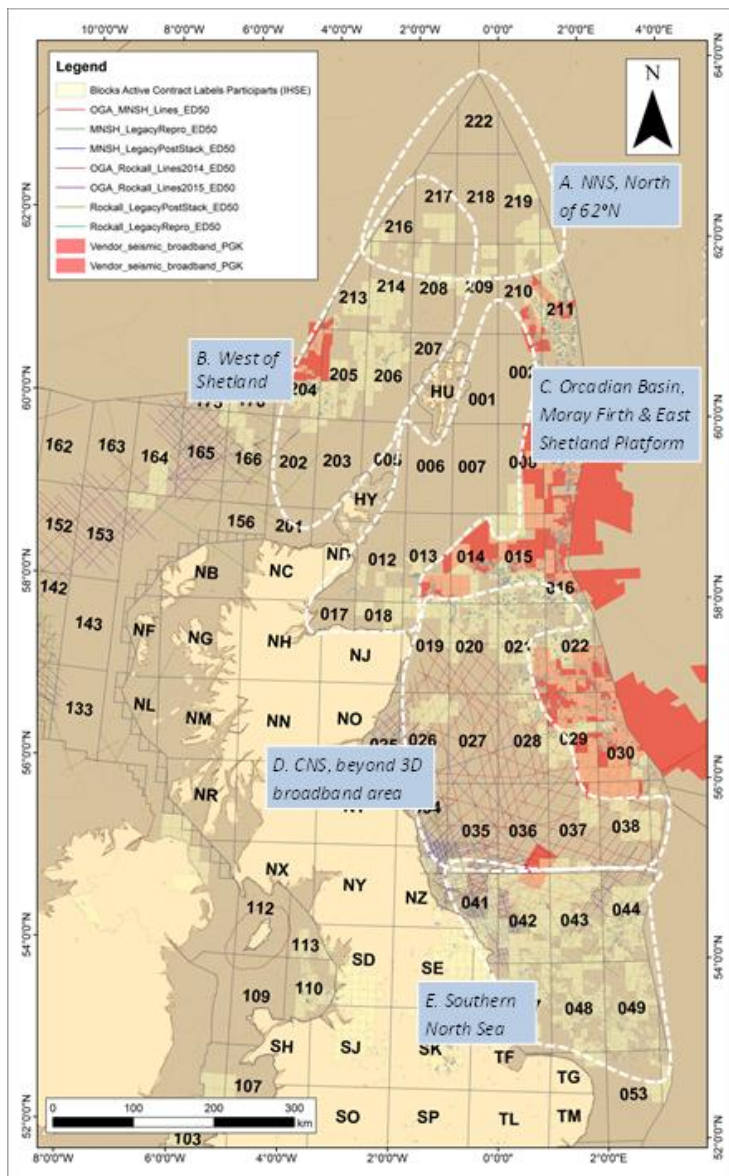
### WORKING TEAM (Phase I, handover during Phase II for Phase III)

Paul Kelly	<i>Exploration Team Leader (London)</i>	Shell
Cees van der Schans	<i>Head Geophysics Operations (Assen)</i>	Shell
Roald Lindgren	<i>Senior Specialist Exploration (Stavanger)</i>	Statoil
Frode Møller Liestøl	<i>North Sea Project Manager (London)</i>	Statoil
Nick Richardson	<i>Exploration &amp; New Ventures Manager (Aberdeen)</i>	OGA

### WITH STEER FROM

Tom Dreyer	<i>VP Exploration, EXP NOR-UK Regional &amp; Access</i>	Statoil
Kaj Hemmes	<i>Exploration Manager (London)</i>	Shell

# GROUP SHOTS QUESTIONNAIRE OVERVIEW



1. Do you believe that the group shoot concept works best to support pre-round applications, or best as a post-award activity that is part of an exploration work plan?

Pre-application  Post award  Both/Either

2. Are you likely to wish to participate in the group shoot initiative to acquire new seismic data in 2017 and beyond?

Yes  No

If you've answered "no", appreciate your freeform feedback on your reasons:

3. Please score the importance of the areas (0 = none, 5 = high), and place an "x" to indicate the type(s) of survey in which you'd like to participate:

Area	Importance of new data		Data type required			
	To you	To UKCS	2D	3D	OBN	Swath
A. North of 62°N						
B. West of Shetland						
C. Orcadian Basin, Moray Firth & East Shetland Platform						
D. CNS outside of 3D broadband						
E. Southern North Sea						
Other:						
Other:						

**2D** = 2D broadband data, "regional grid" spacing, max streamer length. **3D** = 3D broadband data & **OBN** = 3D OBN/OBC data, 3D surveys fit for prospect maturation and for exploration well planning. **Swath** = swath of OBN/OBC data for "proof of concept" of imaging capabilities on which to tie key fields, wells. Processing products will need to be defined for each survey type.

4. Would you like access to the field tapes?

Essential  Desirable  Not necessary

5. What would be a typical maximum budget that your company would consider committing for a group shoot acquisition and processing effort?

US\$1-3MM  US\$3-6MM  US\$6-10MM  US\$10MM+

6. In which year would you like to fund data acquisition?

2017  2018  Later

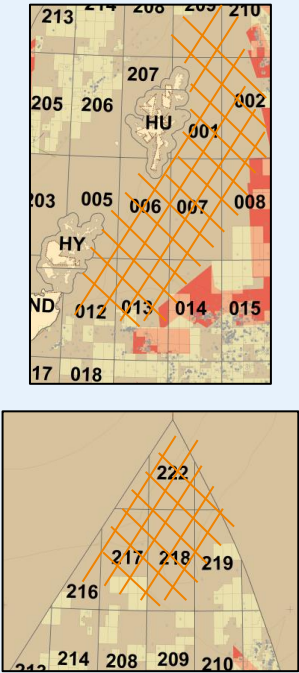
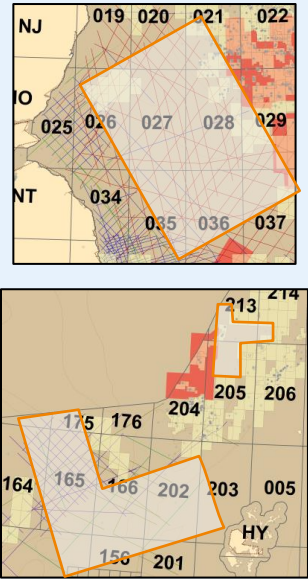
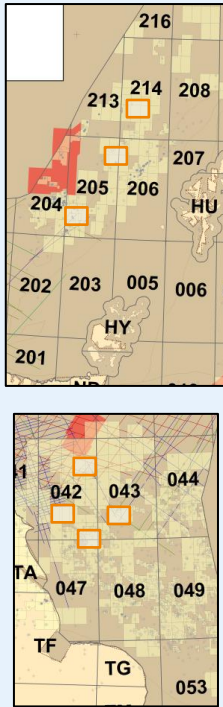
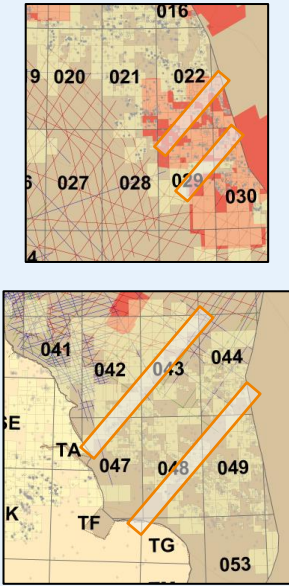
7. Would your preference be as an "Early" or a "Late" participant?

Early  Late

8. Please add any other relevant comments into the box below.



# POTENTIAL MODELS FOR GROUP-SHOOTS

Regional 2D grid	[Sparse] broadband 3D (towed, OBN/OBC) for exploration, large footprint	Licence-specific 3D surveys 1 contract/1 acquisition operation (per larger AOI)/1 mob-demob.	OBN/OBC swath "Proof of concept" for better/deeper imaging
OPEN ACREAGE, poor-fair 2D coverage	OPEN ACREAGE, fair-good 2D coverage or older 3D	MODERATELY LICENSED, some modern 3D coverage	HEAVILY LICENSED, vintage-modern 3D coverage
<p>(eg. NNS, Orcadian Basin*)</p> 	<p>(eg. MNSH, WoS, Orcadian Basin*)</p> 	<p>(eg. WoS, SNS)</p> 	<p>(eg. CNS, SNS)</p> 

\*Orcadian Basin 2D survey proposed for 2016 Government funded seismic programme.

# QUESTIONNAIRE RESPONSES SUMMARY BY AOI

## B: West of Shetland

No. of companies	10
Rate $\geq 3$	9
Data types	2D, <u>3D</u> , OBN, Swath

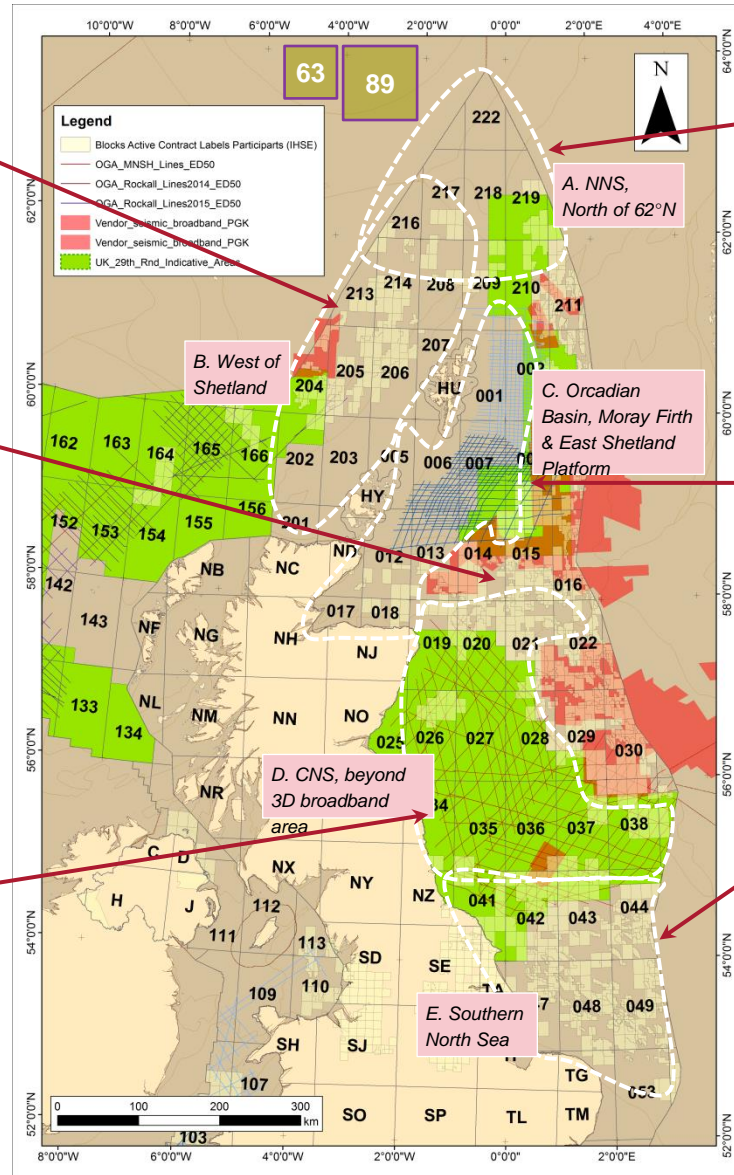
2

## S of Buzzard, W of Polarcus

No. of companies	1
Rate $\geq 3$	1
Data types	<u>3D</u>

## D: CNS, beyond 3D broadband

No. of companies	11
Rate $\geq 3$	6
Data types	<u>3D</u> , OBN, Swath



## A: NNS, North of 62°N

No. of companies	13
Rate $\geq 3$	8
Data types	2D, 3D

3

## C: Orcadian Basin, MF + ESP

No. of companies	12
Rate $\geq 3$	10
Data types	2D, <u>3D</u> , OBN, Swath

1

## E: SNS

No. of companies	8
Rate $\geq 3$	5
Data types	<u>3D</u> , OBN, Swath

# RECOMMENDATIONS + NEXT STEPS

Based on sufficient support stated in Questionnaire responses, the Group Shoot Workgroup will proceed with the group-shoot initiative and plan to acquire 3D broadband data.

## Next steps

- Invite 12 interested companies to framing in June'16, starting assumption is 1 to 3 surveys in higher priority areas (“West of Shetlands”, “North of 62°N”, and “Orcaidian basin, Moray Firth & East Shetland platform”)
- Likely 2016-17 planning for 2018 3D broadband shoot
- Group-shoot participation via Data Quality Marks will be recognised in licence application marking criteria.





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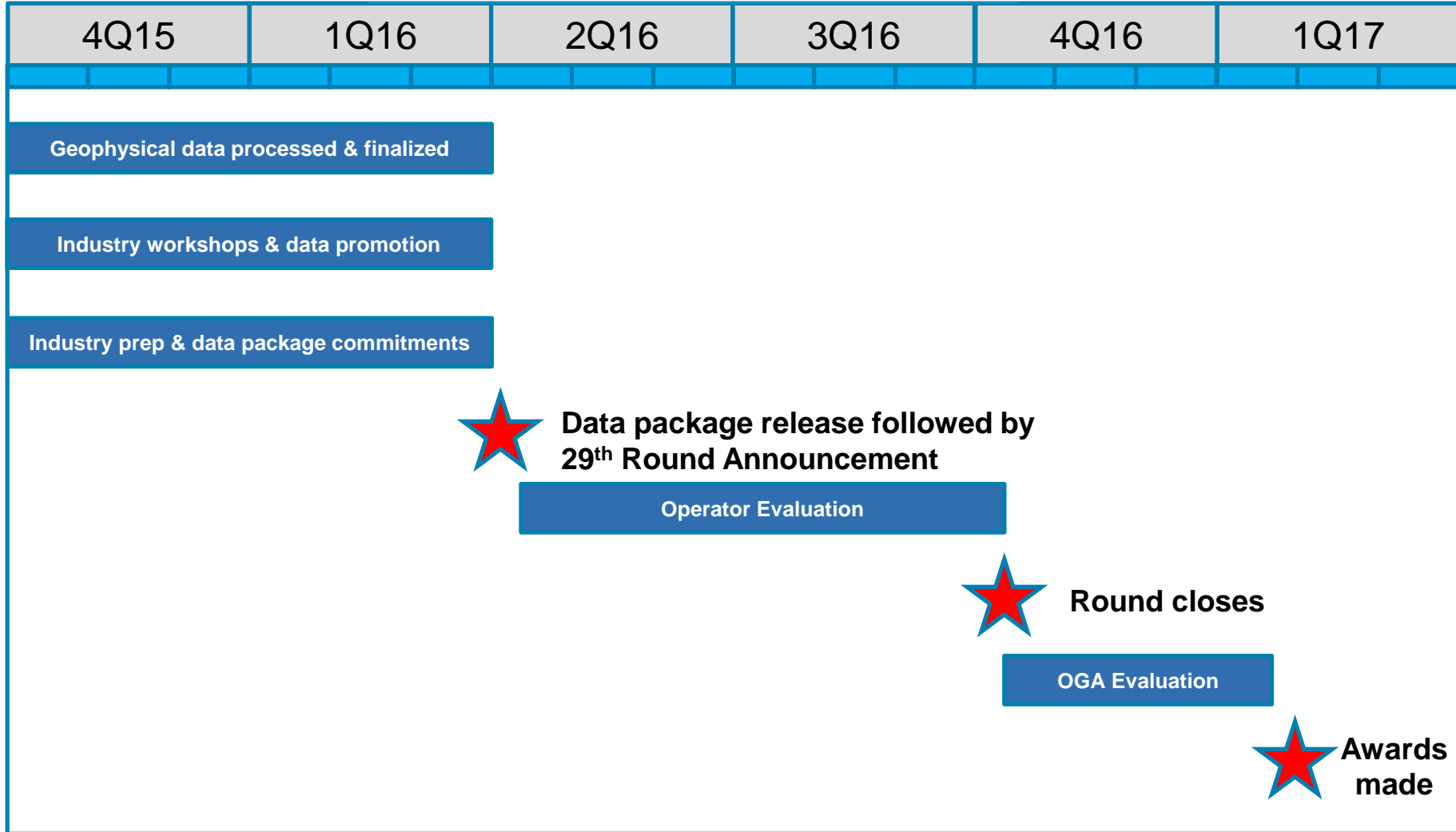
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# 29<sup>th</sup> Frontier Round

N.B. Timing subject to completion of Strategic Environmental Assessment



**29<sup>th</sup> Round - Rockall, MNSH and East Shetland Platform**



# SEA Process Update

GOV.UK

Search



Departments Worldwide How government works Get involved  
Policies Publications Consultations Statistics Announcements

Closed consultation

## UK Offshore Energy Strategic Environmental Assessment 3 (OESEA3)

From: Department of Energy & Climate Change  
First published: 3 March 2016  
Part of: Energy industry and infrastructure licensing and regulation and UK energy security

### We are analysing your feedback

Visit this page again soon to download the outcome to this public feedback.

### Original consultation

This consultation ran from  
3 March 2016 9:00am to  
29 April 2016 5:00pm

#### Summary

Draft plan/programme to enable future offshore renewables leasing and licensing for oil and gas, hydrocarbon and carbon dioxide gas storage

### Documents



#### [OESEA3 - Non Technical Summary](#)

Ref: 16D/033  
PDF, 3.07MB, 38 pages



Department of Energy & Climate Change

## UK Offshore Energy Strategic Environmental Assessment



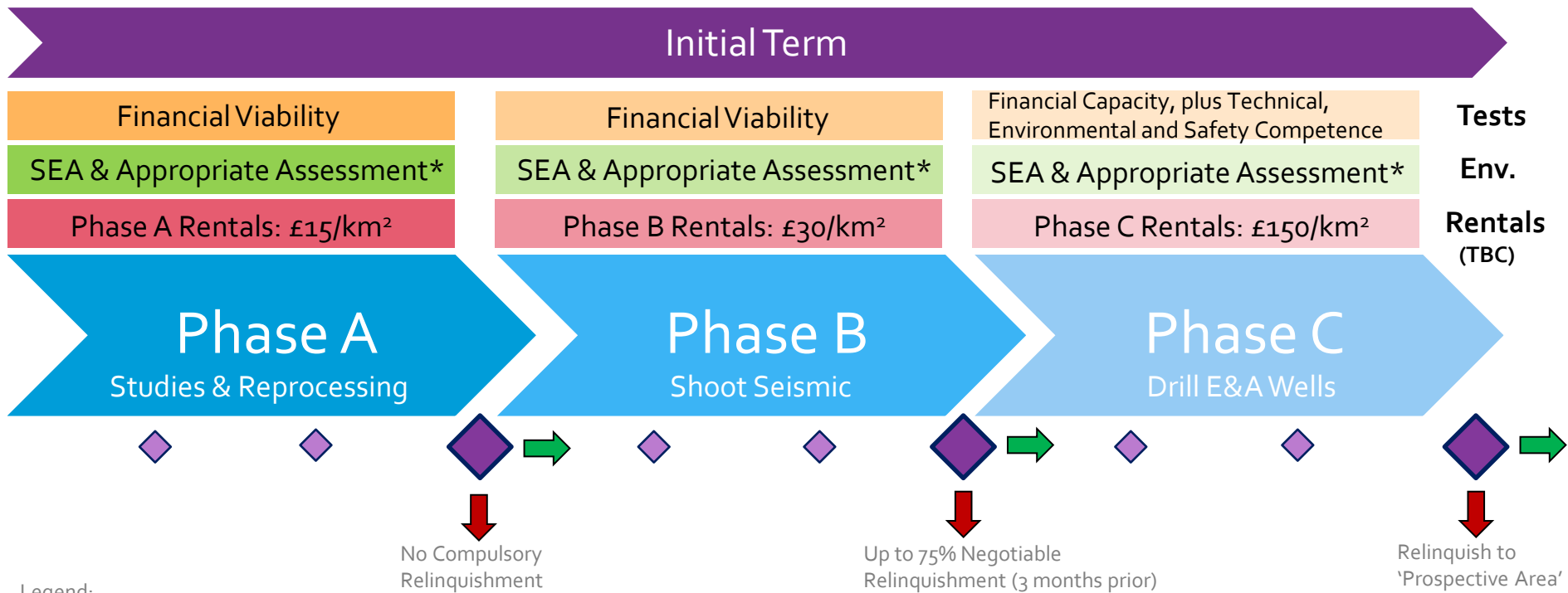
### OESEA3 Non-Technical summary

Future Leasing/Licensing for Offshore Renewable Energy, Offshore Oil & Gas, Hydrocarbon Gas and Carbon Dioxide Storage and Associated Infrastructure

March 2016



# Innovate Production Licence



Legend:



NB.

- All licensees must pay a fixed levy each year. Rental are paid annually on the anniversary of the license start date.
- Innovate Licenses are available everywhere on the UKCS. No limit to area that can be applied for, but maximum award equivalent to: 10 contiguous blocks per Innovate Licence, with an aggregate total of 40 blocks per applicant per round
- \* Appropriate Assessments only necessary in and adjacent to blocks where required

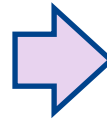


# Proposed Changes to Marks Scheme

- 29<sup>th</sup> Round Marks Scheme being ‘road tested’ by Licensing Workgroup
- Marks Scheme will be published with new guidance upon opening round

## 28<sup>th</sup> Round Marks Scheme

Seaward marks scheme summary	
<b>Geotechnical database used</b>	
3D Seismic: .....	30 (max)
2D Seismic: .....	20 (max)
Seismic reprocessing: .....	15 (max)
Well data: .....	6 (max)
Other: .....	12 (max)
<b>Geotechnical evaluation already performed, both Regional and Block specific</b>	
Well interpretation/ties: .....	6 (max)
Stratigraphic interpretation: .....	6 (max)
Structural interpretation: .....	6 (max)
Seismic interpretation: .....	6 (max)
Hydrocarbon system: .....	6 (max)
Depth interpretation: .....	6 (max)
Exploration rationale and timing: .....	6 (max)
Other: .....	10 (max)
<b>Specific prospectivity identified</b>	
Fully evaluated prospects: .....	21-30 each
Prospects not fully evaluated: .....	11-20 each
Leads: .....	10 each (max)
New plays: .....	5 each (max)
<b>Geotechnical Work Programme</b>	
3D seismic .....	25 (max)
2D seismic .....	15 (max)
Seismic reprocessing: .....	10 (max)
Geotechnical studies/new data acquisition: .....	25 (max)
<b>Drilling Work Programme (marks only for Traditional and Frontier (both types) applications)</b>	
Firm well: .....	50 (+0-20 if deep)
Contingent well: .....	10 – 30 (+0-10 if deep)
Drill-or-drop with early decision point (marks for Traditional only): .....	0-20 (timing-dependent)
<b>Promote assessment</b>	
Future resourcing:	
Immediate technical Work Programme .....	7 (max)
Later phase Work Programme .....	7 (max)
Marketing/potential customers .....	7 (max)
<b>Existing discoveries</b>	
Technical assessment: .....	10 (max)
Economics: .....	5 (max)
Commercial: .....	5 (max)
Infrastructure access and ullage: .....	5 (max)
Plans and timing: .....	5 (max)
<b>Re-developments</b>	
Technical assessment: .....	20 (max)
Economics: .....	10 (max)
Commercial: .....	10 (max)
Infrastructure access and ullage: .....	10 (max)
Plans and timing: .....	10 (max)



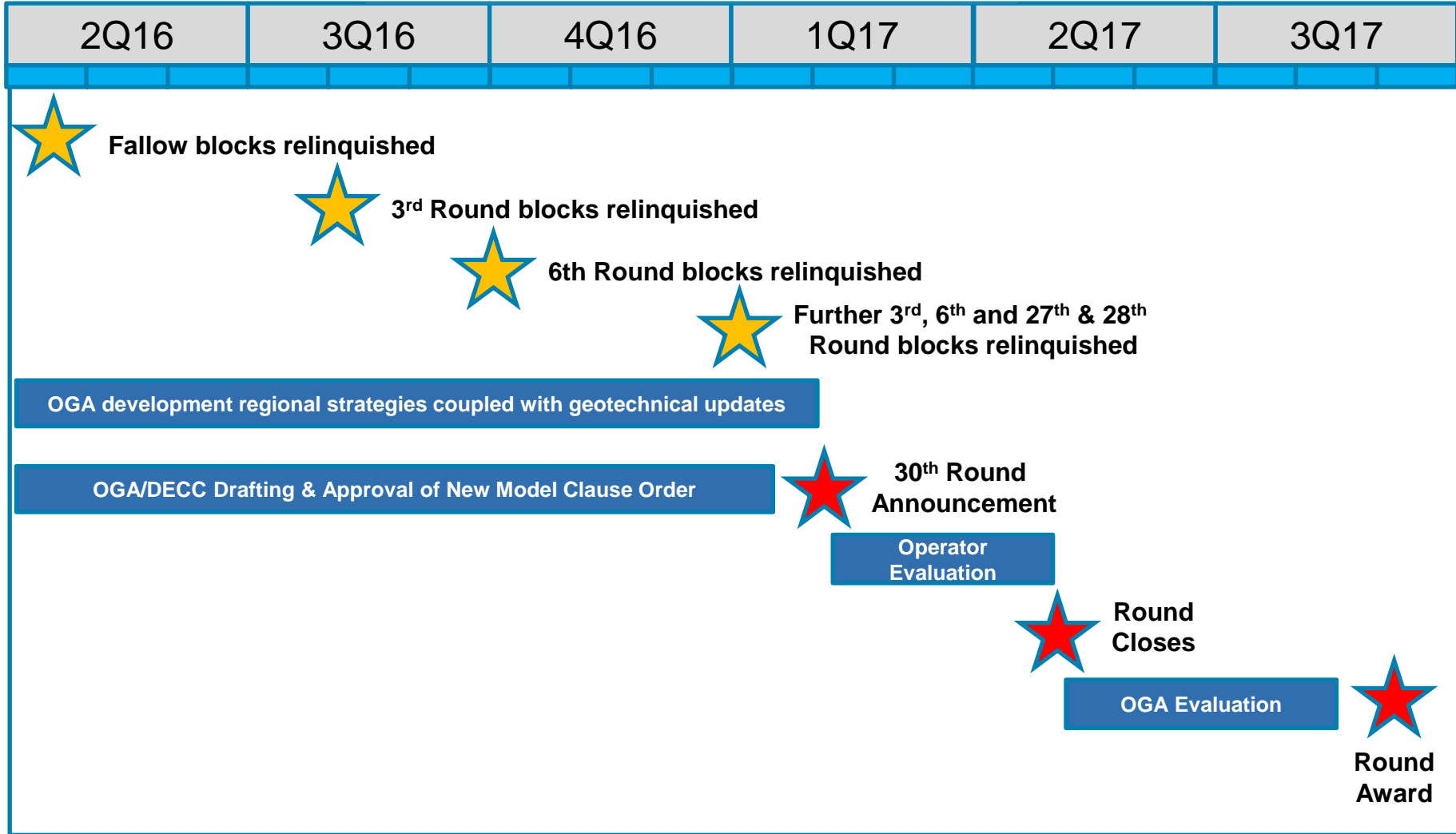
## 29<sup>th</sup> Round Marks Scheme

<b>Geotechnical Database used</b>	
3D Seismic: .....	30 (max)
2D Seismic: .....	20 (max)
Seismic Reprocessing: .....	15 (max)
Well data: .....	6 (max)
Other: .....	12 (max)
<b>Geotechnical evaluation already performed (both Regional &amp; Block specific)</b>	
Well interpretation/ties: .....	6 (max)
Stratigraphic interpretation: .....	6 (max)
Structural interpretation: .....	6 (max)
Seismic interpretation: .....	6 (max)
Hydrocarbon system: .....	6 (max)
Depth interpretation: .....	6 (max)
Exploration rationale and timing: .....	6 (max)
Other: .....	10 (max)
<b>Specific prospectivity identified</b>	
Fully evaluated prospects: .....	21-30 each
Prospects not fully evaluated: .....	11-20 each
Leads: .....	10 (max)
New Plays: .....	5 (max)
<b>Geotechnical Work Programme</b>	
<b>Phase A Programme</b>	
3D Seismic (Purchase): .....	30 (max)
2D Seismic (Purchase): .....	20 (max)
Seismic Reprocessing: .....	15 (max)
Geotech Studies/Purchasing new data: .....	25 (max)
<b>Phase B Programme</b>	
3D Seismic (Share): .....	30 (max)
2D Seismic (Share): .....	20 (max)
Geotech Studies/ Acquiring new data: .....	25 (max)
<b>Phase Timing Mark (Research Factor Work Programme)</b>	
<b>Phase A to Start Phase (i.e. Seismic/Drill or Drill/Drill)</b>	(Iteration)
Pilot Studies, Seismic Purchase & Reprocessing	Long 10
	Mid 5
	Short 10
<b>Phase B to Start Phase (Pilot New-Short Seismic and Contingent Well)</b>	
Pilot New-Short Seismic	Long 25
(Contingent well based on new seismic)	Mid 20
	Short 25
<b>Phase C to Start Phase (Pilot Well)</b>	
Pilot Well	Long 30
(Includes consideration of depth, technical difficulty and number of wells/iterations)	Mid 40
	Short 50
<b>Existing Discoveries</b>	
Technical assessment: .....	10 (max)
Economics: .....	5 (max)
Commercial: .....	5 (max)
Infrastructure: .....	5 (max)
Plans and timing: .....	5 (max)
<b>Re-developments</b>	
Technical assessments: .....	20 (max)
Economics: .....	10 (max)
Commercial: .....	10 (max)
Infrastructure: .....	10 (max)
Plans and timing: .....	10 (max)



# 30<sup>th</sup> Mature Round

N.B. Timing subject to completion of Strategic Environmental Assessment



**30<sup>th</sup> Round - Focus on infrastructure-led exploration**



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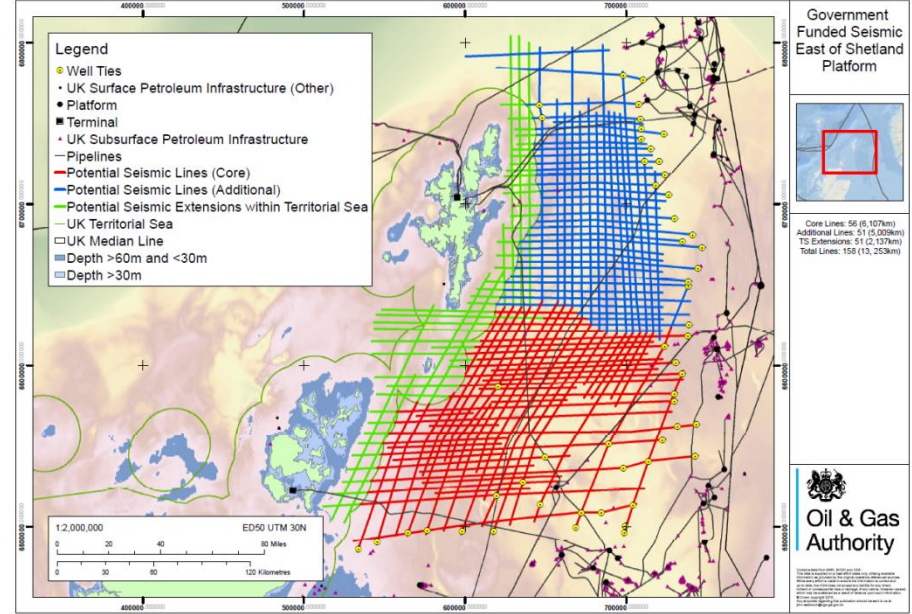
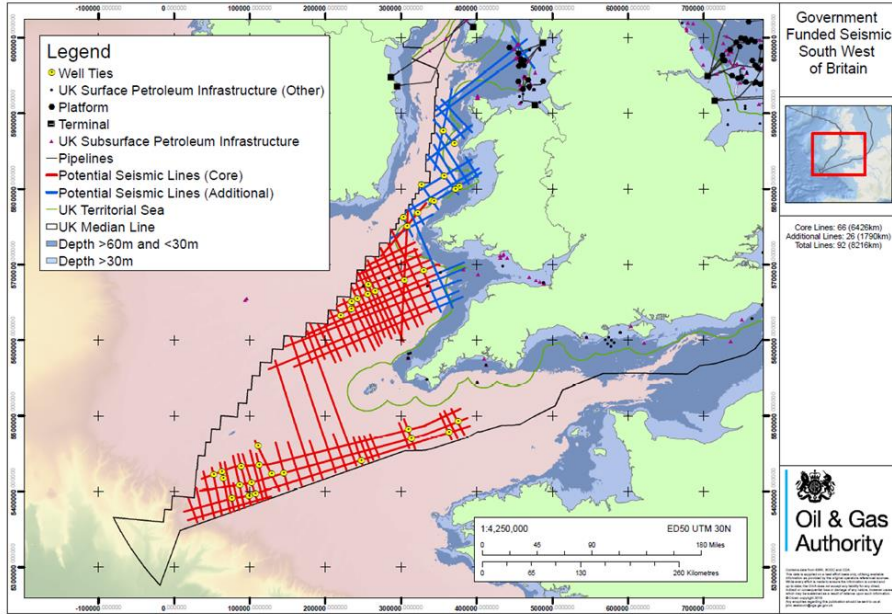
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# 2016 Seismic Acquisition



## Lot1 – South West Britain

Celtic Sea and the Western English Channel, the Bristol Channel, the St. George’s Channel and the Irish Sea

**Core** ~6500 km (full fold)  
**Extension up to** ~4000 km (full fold)

## Lot 2 – Orcadian Basin/East Shetland Platform

East Shetland Platform, including the East Orkney Basin, East Fair Isle Basin and Dutch Bank Basin.

**Core** ~6100 km (full fold)  
**Extension up to** ~5500 km (full fold)

- Long-offset, broadband, 2D seismic data plus marine gravity and magnetic data.
- Pre stack time migration processing



# 2016 Seismic Tender

- Surveys subject to potential variations:
  - ongoing feedback from industry stakeholders;
  - environmental & other permitting constraints;
  - tender responses;
  - detailed technical & operational refinement;
  - survey risk assessment;
  - median lines.
  
- OGA has commissioned EIA and noise studies in advance (29<sup>th</sup> May 2016)
  
- Commenced an ‘informal’ permitting process with the Environmental Management Team at DECC EDU-OGED.

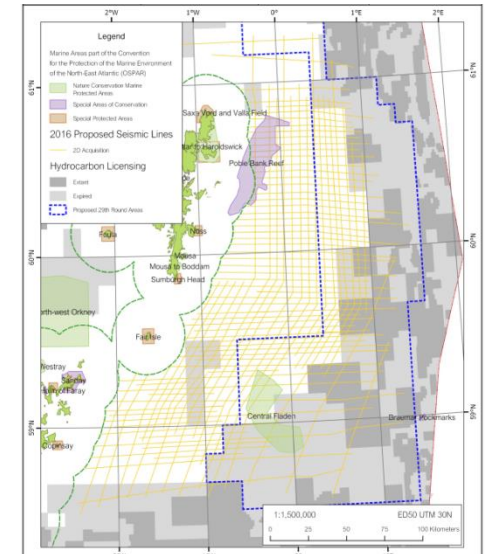
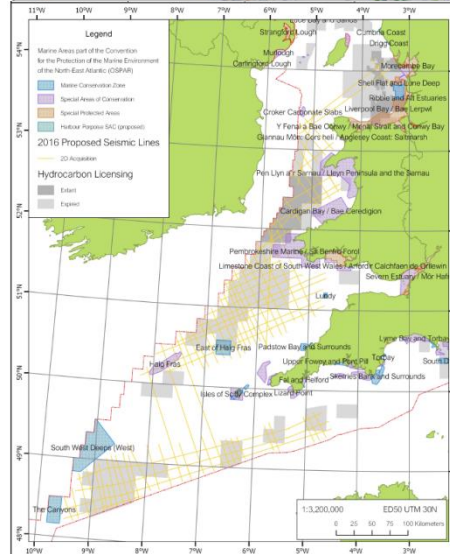
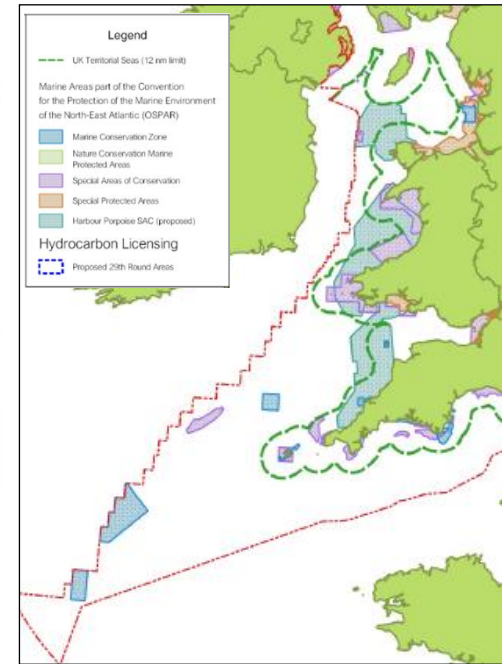
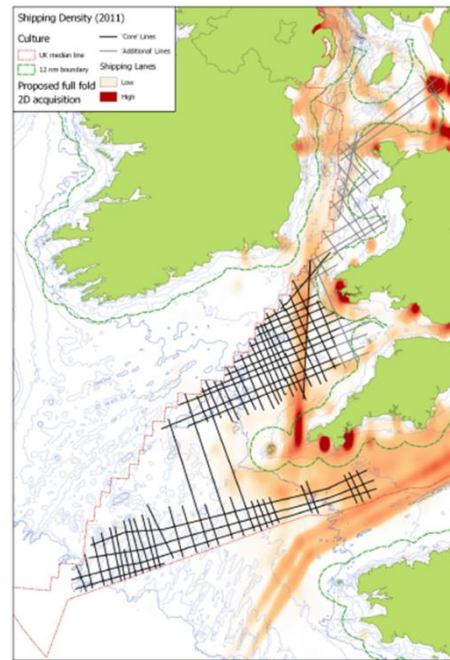
Tender Timeline	Date
Advert and full invitation to tender issued	14 April 2016
Deadline for questions relating to the tender	Friday 29 April 2016
Responses to questions published	Friday 6 May 2016
<b>Deadline for receipt of tender</b>	<b>Monday 16<sup>th</sup> May 2016 at 14.00 BST</b>
All suppliers alerted of outcome	6 <sup>th</sup> June 2016
Alcatel (Mandatory Standstill) Period	7 <sup>th</sup> June – 16 <sup>th</sup> June 2016
Contract award on signature by both parties	20 <sup>th</sup> June 2016
Contract start date	1 <sup>st</sup> July 2016
Seismic vessel notified operational	14 <sup>th</sup> July 2016
Completion of acquisition	~ 30 <sup>th</sup> September 2015



# 2016 Seismic Challenges

SW Britain in Particular Poses a Number of Added Challenges:

- **Environmental**
  - Harbour Porpoise
  - Bottlenose Dolphins
- **Shipping**
  - English Channel & Irish Sea
  - Fishing Activities
- **Met-Ocean Conditions**
  - Strong Currents

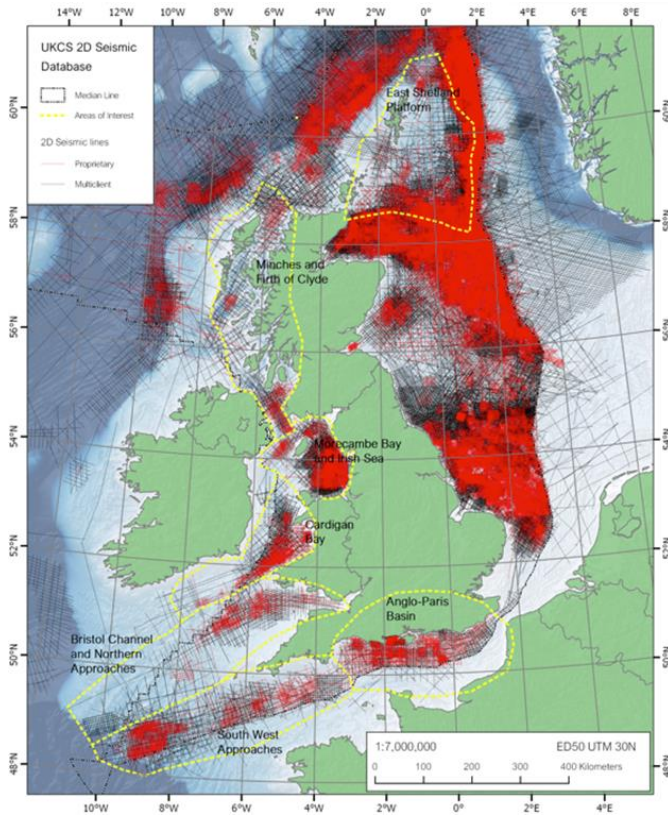






# 2016 Reprocessing Tender

- Supplementary Data to 2016 Acquisition
- 40,000 to 70,000 km 2D Data Sought for Reprocessing
- Western Britain, English Channel, East Shetland Platform Areas



Tender Timeline	Date
Advert and full invitation to tender issued	Friday 29 April 2016
Deadline for questions relating to the tender	Monday 16 May 2016
Responses to questions published	Friday 20 May 2016
<b>Deadline for receipt of tender</b>	<b>Tuesday 31 May 2016 at 14.00 BST</b>
All suppliers alerted of outcome	Week commencing 27 June 2016
Alcatel (Mandatory Standstill) period starts	By Monday 4 July 2016
Contract award on signature by both parties	Thursday 14 July 2016
Contract start date	Thursday 14 July 2016

Lot	Area
Lot1	Anglo-Paris Basin
Lot2	South West Approaches
Lot3	Bristol Channel & Northern Approaches
Lot4	Cardigan Bay
Lot5	Morecambe Bay and the Irish Sea
Lot6	East Shetland Platform and Fair Isle
Lot7	Minches and Firth of Clyde



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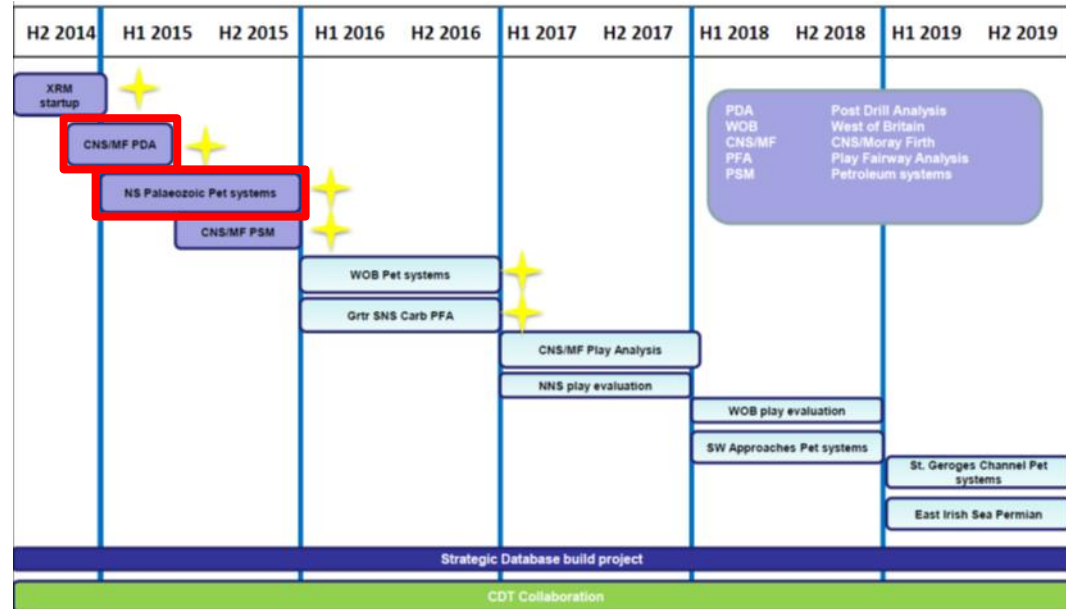
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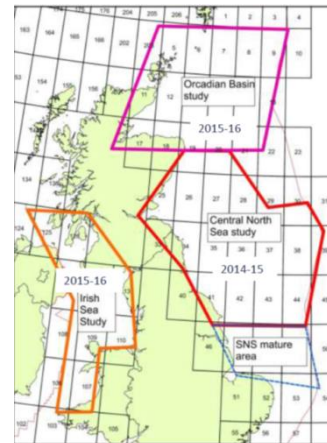


# 21CXRМ Context

- Originally kicked off by PILOT Exploration Task Force
- *Aim*: Reduce well failure rates through stronger basin and play level understanding
- SLR Review and Project Plan
- Requested Funding of £5 MM/yr over 5 years (Total £25 MM)



- Two Projects were initially selected to prove the concept of the *collaborative model*
  - Palaeozoic Petroleum Systems Study (CNS & EIS) – BGS Project via DECC’s existing OGMRP Contract
    - Due to complete by end May 2016
  - CNS & MF Post-Well Analysis (97 Wells) – DECC/OGA Short-Term Assignment by Christian Mathieu
    - Published November 2015
- Henry Allen (Torridonia) acted as 21CXRМ-Industry Liaison Coordinator

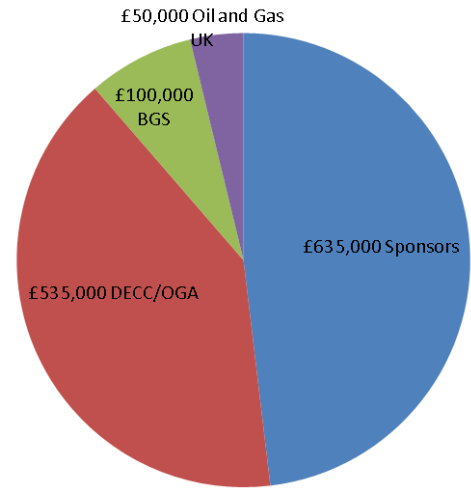
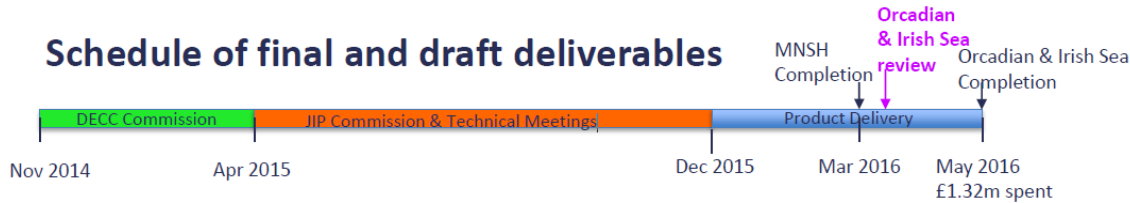


Project areas	Support	Do not support	Neutral
✦ CNS/MF Post Drill analysis	14	1	11
✦ CNS/MF Petroleum systems	11	2	13
CNS/MF Play analysis	4	9	13
✦ NS Palaeozoic systems	18	0	8
✦ Greater SNS Carboniferous	17	0	9
NNS Play Analysis	7	2	17
✦ West of Britain Petroleum systems	11	1	14
West of Britain Plays	6	4	16
SW Approaches Petroleum systems	2	0	24
St Georges Channel/Cardigan bay Pet sys	1	0	25
East Irish Sea Permian	2	1	23



# 21CXRMPalaeozoic

## Schedule of final and draft deliverables



£1.32 MM total spend

- Approx. 50/50 Government/Industry Funds
- £1.3m budget
- 40 Industry Sponsors
- Remains open to new Sponsors
- Uses all data and also all knowledge offered (wells and seismic)
- Completion target May 2016 (Final Reports)
- *Results restricted to Sponsors until after 29<sup>th</sup> Licencing Round*
- Results available along with the release of 2015 OGA Seismic
- Then released on the Web in 2017

Reports	Time & Depth Surfaces, base Zechstein and below	Models	Data
Gravity/magnetic	5 in the Central North Sea/Mid North Sea High	Gravity	Gravity/magnetic
Well correlations and palaeogeography	9 in the Orcadian study area (picks vary locally)	Basin modelling	Well tops with biostratigraphic constraints
Seismic and tectonics	9 in the Irish Sea area		Geochemistry/maturity
Petrophysics			Porosity-permeability
Source rock geochemistry			Unit extents, subcrop map
Basin modelling			Interpreted petrophysical curves
Petroleum Systems Synthesis			

Alpha Petroleum Resources	Conoco Phillips	Origo Exploration UK
Antrim Resources	Dana Petroleum	Parkmead (E & P)
Apache North Sea	Dolphin Geophysical	PGS
Atlantic Petroleum UK	Dong E & P	Premier Oil Plc
Aurora Petroleum	Dyas UK	Senergy
Azinor Catalyst	EBN (Netherlands)	Shell
Bayerngas Europe	Edison/Euroil (UK)	Spectrum
BG Group	ENI	Statoil
BP	E.ON E & P UK	Talisman Sinopec
Cairn Energy	GDF Suez E & P UK	TGS-NOPEC
Centrica Energy	I H S	ThinkTank Maths Limited
CGG Veritas	Ineos	Total E & P
Chevron Upstream	Maersk Oil North Sea UK	Verus Petroleum
Chrysaor	MOL Operations UK	Western Geco/Schlumberger
Cluff Natural Resources	Nexen Petroleum U.K.	





# Learnings from the BGS Palaeozoic Project



- Sponsors favourable towards joint Funding and Collaboration model
- Successful external review process
- Allowed integration of Onshore and Offshore knowledge.
- Able to utilise full dataset (released and unreleased)
- Contribution of previously unreleased data beyond the basic set, following OGA/CDA request



- No integration of dry-hole analysis, and non risk-based approach.
- Basin modelling limited and not representative
- Project did not fully cover all of play extent
- Some areas studied to lower standard
- Insufficient Peer-Assists through project execution
- Minimal resampling and analysis of core data.
- Data cannot be shared openly outside the sponsor group and so has limited promotional value for 29<sup>th</sup> Round
- Insufficient Cross-Border Collaboration
- Project too late to be informed by Government-Funded Seismic



# 21CXRМ Next Steps

- **Governance & Advisory Committees**

- 21CXRМ Board functions will in future be performed by Exploration Board
- A small Technical Advisory Committee will be formed
  - Skilled Petroleum System/Play Map/Specialist Practitioners from Industry
  - Committee to be Chaired by Jo Bagguley (OGA Regional Geologist)

- **Area of Interest (Near Term)**

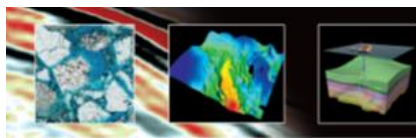
- SW Britain (East Irish Sea, Cardigan Bay, South Celtic Sea, SW Approaches, English Channel)
- Well-Based Studies plus Specialist Studies
  - E.g. Maturity and FIS Studies, Palynology, Seal Analysis, Petrophysics
  - Study scope to be set by Technical Advisory Committee
  - Work Cross-Borders where possible (Ireland, France, Isle of Man)
- Link to 2016 Government Seismic Release
  - Studies intended to inform company evaluations of new seismic

- **Funding & Collaborative Model**

- Industry Expected to contribute larger share of project costs. OGA will contribute funds.
- Tender Work Fairly and Openly to Service Community (including BGS).
- Tender run by OGA, evaluation with industry participants.
- Study Content Restricted to Participants, but OGA to use selected material for UKCS Promotion.



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**Henry Allen**  
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**Paul Herrington**  
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**Alison Monaghan**  
BGS

**Ian Roche**  
Aurora Energy Resources

**John R. Underhill**  
Heriott Watt University

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Call for Abstracts – 31 October 2015

# Palaeozoic Plays of Northwest Europe

26-27 May 2016

The Geological Society, Burlington House, Piccadilly, London



Palaeozoic hydrocarbon plays in NW Europe remain relatively under-explored, both on- and offshore, despite the great success of local plays such as the Carboniferous and Permian in the southern North Sea. There is renewed momentum to understand and explore these plays further, including for example the joint-industry Palaeozoic Project, part of the UK Industry/Government's "21st Century Exploration Roadmap" initiative.

This Petroleum Group conference is intended to bring together new and existing knowledge about the Palaeozoic in NW Europe. Themes will include, but are not limited to:

- Palaeozoic exploration plays
- Palaeozoic source rocks
- Existing oil and gas field examples
- Outcrop analogues
- Palaeozoic shale oil and gas
- Pre-Mesozoic fractured plays

### Call for Abstracts:

Please email (300 word limit) paper and poster contributions to [laura.griffiths@geolsoc.org.uk](mailto:laura.griffiths@geolsoc.org.uk) by October 31st 2015.

### For further information please contact:

Laura Griffiths The Geological Society, Burlington House, Piccadilly, London W1J 0BG.  
T: +44 (0)20 7434 9944 or email: [laura.griffiths@geolsoc.org.uk](mailto:laura.griffiths@geolsoc.org.uk)



*At the forefront of petroleum geoscience*

[www.geolsoc.org.uk/petroleum](http://www.geolsoc.org.uk/petroleum)

London, 26-27 May 2016



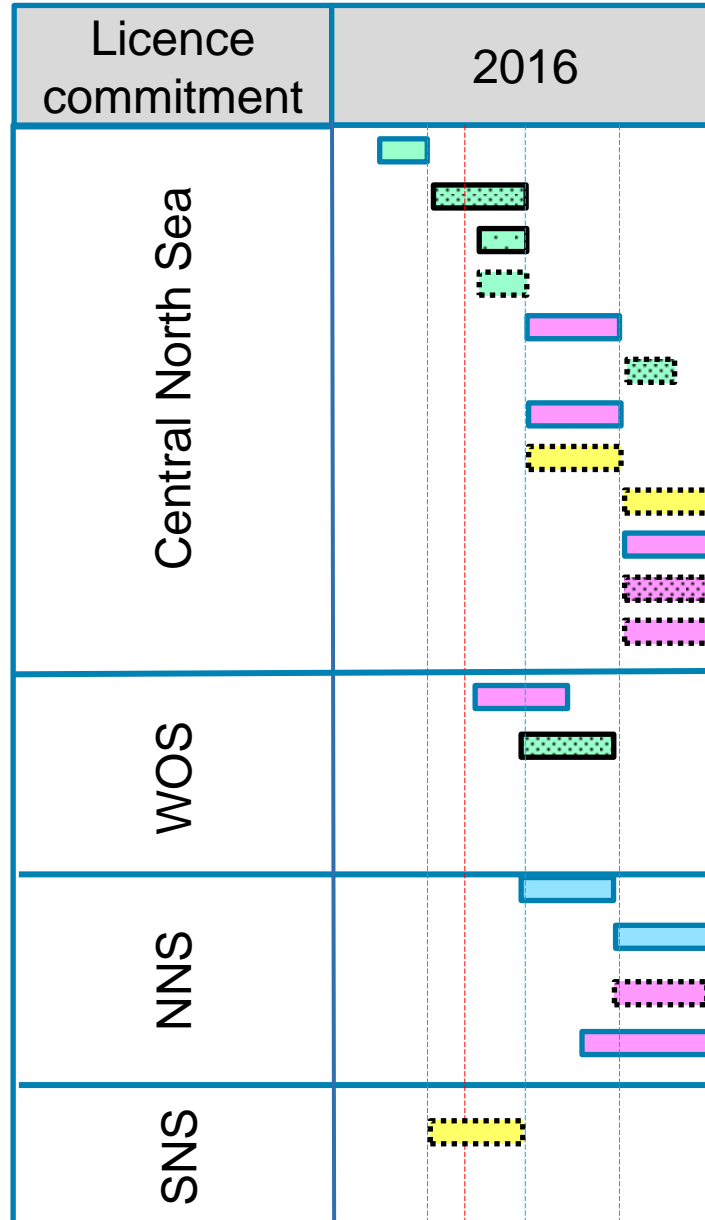
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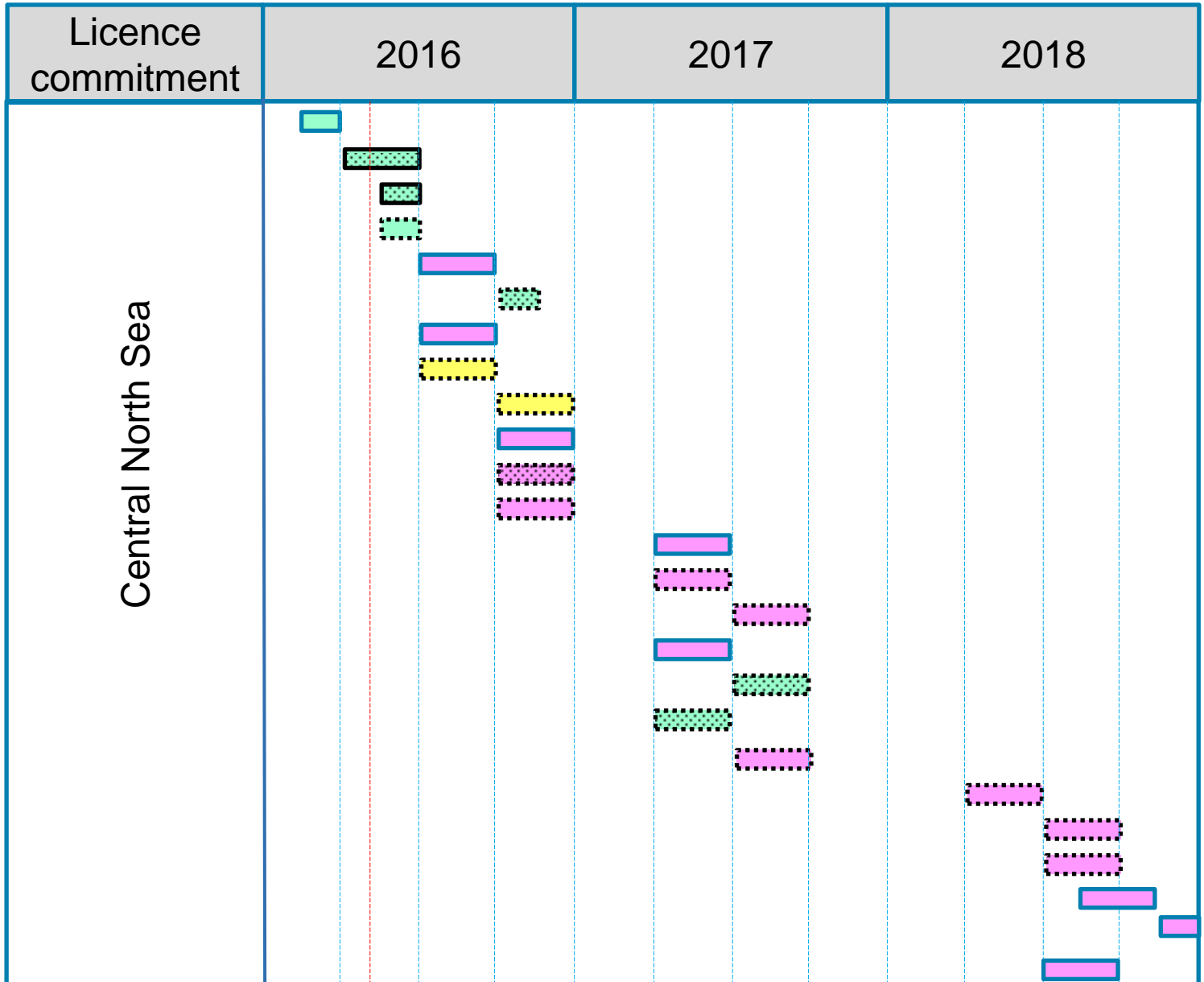
# 2016 E&A Well Look-ahead



Contingent Firm Non-Obligation Drill or Drop Exploration Appraisal Degree of confidence



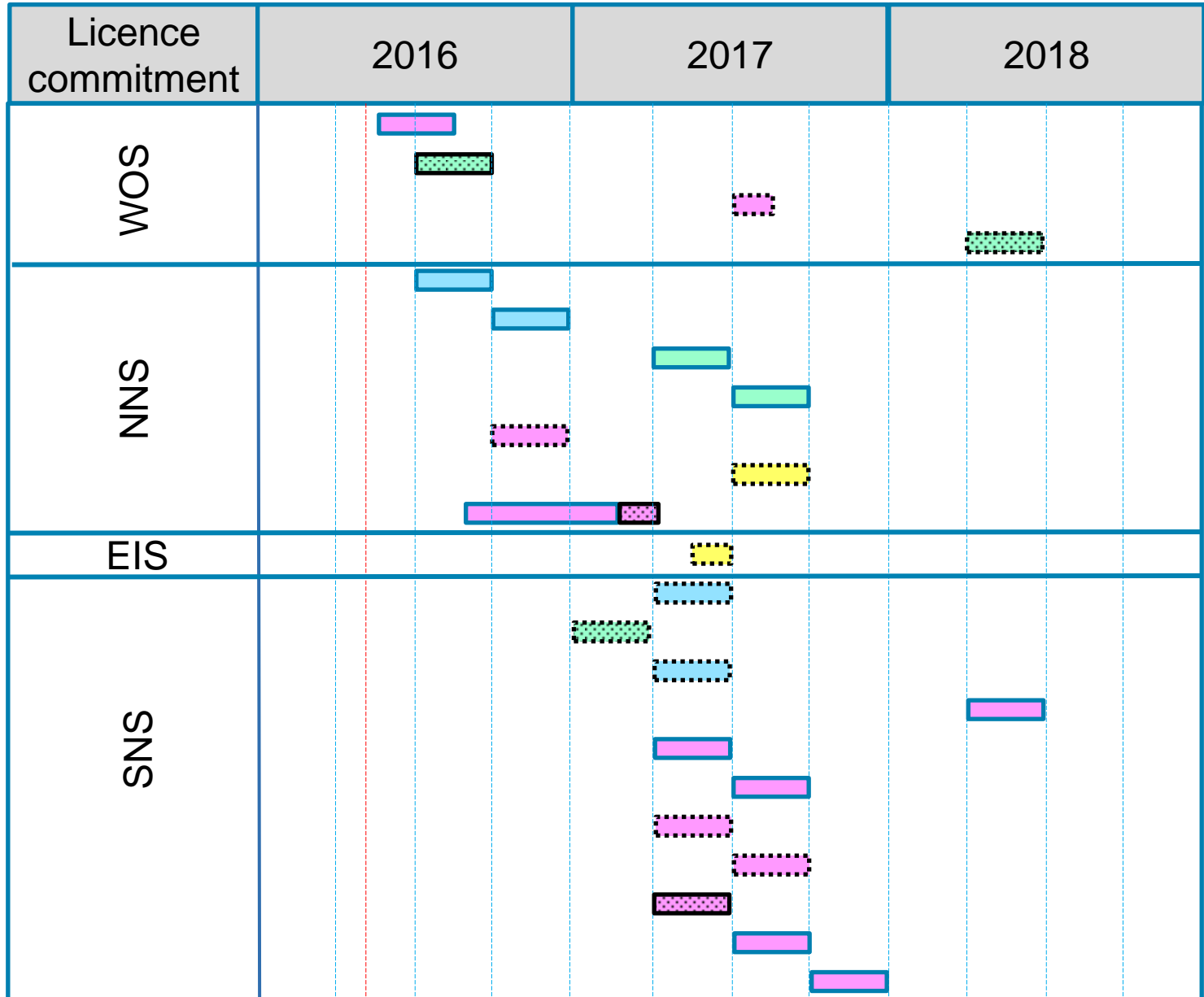
# 2016-18 E&A Well Look-ahead



Contingent
  Firm
  Non-Obligation
  Drill or Drop
  Exploration
  Degree of confidence
  Appraisal



# 2016-18 E&A Well Look-ahead



Contingent
 Firm
 Non-Obligation
 Drill or Drop
 Exploration
 Appraisal
 Degree of confidence





# Agenda

- |                      |                                                                          |
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# Relinquishments

## 27<sup>th</sup> Round (& Other) Licences

Companies with Licences due to expire at end 2016 with no intention of further work are requested to relinquish now.

- Especially in or around the 29<sup>th</sup> Round Areas
- Please relinquish by end May if possible