

Appendix 2: Unconventional Questionnaire

Questionnaire on data availability for GARAH Unconventional Resource Assessment

Introduction

The aim of the GARAH project is to assess cross-border resources, and the specific aim here is to compare existing data relevant to the EUOGA methodology assessment of any shale bound oil and gas resource. This questionnaire is intended to assess the data availability in your country related to un-conventional oil and gas resources in the North Sea study area. Initially, we are interested in any existing knowledge and data and if any existing assessments of potential resources has been done, and its associated methodologies. We will then take a play-based approach to collate information on unconventional petroleum systems across the North Sea, and compare exploration data to see if further insight can be made regarding particular plays and regions of exploration interest. Adopted EUOGA screening criteria are presented in Table 1 and 2. For more information on the EUOGA methodology please refer to the reports that can be found on <https://openecho.jrc.ec.europa.eu/project-deliverables>

Note: All geographic data should be supplied in ED50 UTM zone 31 format

Note: All references should be in Geological Society of London format

Name of your geological survey:

1. State-of-the-art of oil and gas development

a) Please provide a brief overview of current and planned activities for unconventional offshore shale based hydrocarbon exploration and development in your country? Please elaborate below.

Max. 500 words

2. Status of national assessment –Unconventional

a) Is your organisation currently working on an assessment of the unconventional hydrocarbon resource in shale or has your organisation already performed such task in your country for the North Sea Area?

Please elaborate on which units are being assessed and what selection criteria are used?

b) Is this assessment or parts hereof publically available?

If possible, please indicate references to these studies.

c) Have other institutions made an assessment of the shale hydrocarbon potential in your country?

d) Is the assessment from the other institution or parts hereof publically available?

If possible, please indicate references to these studies

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3. Geological description –Unconventional

a) Please give a brief description of the geographical extent of the assessed basins and the described shale layers within.

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b) Please give a short description of the geological evolution and structural setting of the assessed basins. This description should include information on the lateral continuity and depositional facies of the shale layers as well as give an overview of the main tectonic processes that influenced the basin. If possible, please include references to the most relevant papers.

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c) Please give a short description of each shale layer, including sedimentary features, depth and thickness trends as well as an overview of its main source rock properties and known hydrocarbon generation potential.

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Please fill out **table** for each shale formation that is identified as a potential target for unconventional hydrocarbon exploration and development (provided in separate excel document).

Appendix 1

Screening for potential unconventional hydrocarbon resources

Guidelines for screening of relevant unconventional are presented in Table 1, 2. Screening of their relevant part of the North Sea basins and gather data for shale attributes based on the selection criteria. Initial selection criteria for both thermogenic and biogenic shale gas and oil plays are to be mapped. Finalized selection criteria and the procedure of screening a basin will be finalized during the project.

Geological Properties:	Value/comment
TOC content and type	> 2%, Type I-II marine
Thermal maturity	>0.7% Ro, oil mature
Thickness	>20 m
Present day depth	< 7 km
Mineralogy	Brittle preferentially
Pressure regime	Normal to overpressure
Structural complexity	Low to moderate
Geographical Properties:	
Areal distribution	Offshore

Table 1. Initial screening criteria for thermogenic shale oil and gas.

Geological Properties:	Value/comment
TOC content and type	> 2%, Type I-II marine
Thermal maturity	<2% Ro, dry gas mature
Thickness	>20 m
Present day depth	< 2 km
Mineralogy	Brittle preferentially
Pressure regime	Normal to overpressure
Structural complexity	Low to moderate
Geographical Properties:	
Areal distribution	Offshore

Table 2. Initial screening criteria for biogenic shale gas.