

GARAH Critical Screening Parameters						Source (Ref.list)	Comments	3001
Shale Name:		Alum ShaleFormation					Middle Cambrian to Lower Ordovician	REFERENCE LIST : 1 . Nielsen, A.T. & Schovsbo, N.H. 2007. Cambrian to basal Ordovician lithostratigraphy in southern Scandinavia. Bulletin of the Geological Society of Denmark 53, 47–92. 2. Schovsbo, N.H., Nielsen, A.T. & Gautier, D.L. 2014. The Lower Palaeozoic shale gas play in Denmark. Geological Survey of Denmark and Greenland Bulletin 31, 19–22. 3. Gautier, D.L., Schovsbo, N.H. & Nielsen, A.T. 2014. Resource potential of the Alum Shale in Denmark. Unconventional Resources Technology Conference (URTeC). SPE-2014-1931754-MS. DOI 10.15530/urtec-2014-1931754, 10 pp. 4. Fabricius, I., Haugwitz, C., Larsen, P.B. & Schovsbo, N.H. 2017. Elasticity and density of Paleozoic shales from Bornholm. 6th Biot Conference on Poromechanics. Extended abstract 1–7, Sciencesconf.org:biot2017:131766 5. Gasparik, M., Bertier, P., Gensterblum, Y., Ghanizadeh, A., Krooss, B.M. & Littke, R. 2014. Geological controls on themethane storage capacity in organic-rich shale. International Journal of Coal Geology 123, 34–51. 6. Ghanizadeh, A. Gasparik, M., Amann-Hildenbrand, M., Gensterblum, Y. & Krooss, B.M. 2014. Experimental study of fluid transport processes in the matrix system of the European organic-rich shales: I. Scandinavian Alum Shale, Marine and Petroleum Geology 51, 79–99. 7. Pedersen, G.K. 1989: The sedimentology of Lower Palaeozoic black shales from the shallow wells Skelbro 1 and Billegrav 1, Bornholm, Denmark. Bulletin of the Geological Society of Denmark 37, 151–173. 8. Yang, S., Schulz, H.-M. Schovsbo, N.H. & Bojesen-Koefoed, J.A. 2017. Oil-source rock correlation of the Lower Palaeozoic petroleum system in the Baltic Basin (northern Europe). AAPG Bulletin 101, 1971–1993. 9. Sanei, H., Petersen, H.I., Schovsbo, N.H., Jiang, C. & Goodsite, M.E. 2014. Petrographic and geochemical composition of kerogen in the Furongian (U. Cambrian) Alum Shale, central Sweden: reflections on the petroleum generation potential. International Journal of Coal Petrology 158–169. 10. Petersen, H.I., Schovsbo, N.H. & Nielsen, A.T. 2013. Reflectance measurements of zooclasts and solid bitumen in Lower Palaeozoic shales, southern Scandinavia: correlation to vitrinite reflectance. International Journal of Coal Petrology 114, 1–18. 11. Henningsen, L.M., Jensen, C.H., Schovsbo, N.H., Nielsen, A.T. & Pedersen, G.K. 2018. Shale fabric and organic nanoporosity in lower Palaeozoic shales, Bornholm, Denmark. Geological Survey of Denmark and Greenland Bulletin 41, 17–20.
Country:		Denmark						
Age (Age):								
Age (Epoch):		Furongian				1		
Basin:		North Sea				2		
Chance of success parameters						Source (Ref.list)	Comments	
Mapping status		Moderate				2	Proven SR in Baltic Basin only	
Sedimentary variability		Low				1		
Structural complexity		Moderate				2		
Available HC data		Poor				3		
Proven source rock		Possible				8		
Maturity variability		Moderate				2	no data for North Sea	
Depth		Average				2		
Mineral composition		Unknown						
Detailed parameter list		Min	Max	Mean	Distribution	Source (Ref.list)	Comments	
1. Area (km2)						2	Distribution maps provided via EUOGA project	
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2. Thickness (gross, m)		20	180	80	Triangular	2		
2a. Thickness (net, m)		20	150	75	Triangular	2		
2b. Net/Gross (%)		85	100	90	Triangular	2		
							Distribution maps provided via EUOGA project	
3. Depth (m)		1500	7000	4.000	Triangular	2		
4. Density (g/cm3)		2,3	2,6	2,45	Triangular	4		
							Distribution maps provided via EUOGA project	
5. TOC (%)		0	17	9	Triangular	3		
6. Porosity (%)		4	12	7	Triangular	11	correlate with TOC	
							Distribution maps provided via EUOGA project	
7. Maturity (%VR) or graptolite equivalent		1,8	3	2,5	Triangular	2, 10		
8. Reservoir pressure (psi)		2945	8300	7106	Triangular		assumed	
							assumed	
9. Reservoir Temperature (°C)		64	202	135	Triangular			
10. Gas saturation (%) (Sg)		15	80	50	Triangular		assumed	
							assumed	
11. Oil Saturation (%) (So)				0				
12. Gas generation mgHC/g TOC (Hydrogen index)		360	560	470	Triangular	9		
							prior to type III	
13. Kerogen type				II		2		
14. Sorption capacity VReq. - 1,9 % (mmol/g)		0,12	0,31	0,2	Triangular	5		
							assumed	
15. Matrix permeability (nDarcy)		7	45	40	Triangular	6		
16. Adsorbed gas storage capacity (scf/ton)		30	75	50	Triangular	5		
							assumed	
17. Compressibility factor (z)		0.76	1	1,01	Triangular			
18a. Bg - Gas formation volume factor		0.0089	0.0183	0.0133	Triangular		assumed	
18b. Bo - Oil formation volume factor								
							assumed	
19. Langmuir Pressure (pL, psi)		432	700	435	Triangular	5		
20. Langmuir Volume (nL, scf/ton)		20	63	36	Triangular	5		
							assumed	
21. Bulk mineral constituents XRD								
21a Total Clay content (%)		40	70	55	Triangular	4, 7		
Content of smectite							assumed	
Content of Illite & Mica								
Content of Kaolinite								
21b Quartz-feldspars content (%)		0	30	40			assumed	
21c Carbonate content (%)		0	10	5	Triangular			