

## DEH Experience List

Project	Client	Year Installed	Pipeline	Design requirements	Frequency of use/ Tail prod.	Design life [years]	Water Depth [m]	Flowline Installation Method	Installation Contractor	DEH Riser Cable	Water Depth at platform [m]	DEH Riser Config.	FO Fault Detection
<b>Åsgard</b>	Statoil	2000	10" 13%Cr, 6 off 6-8.5 km	27°C for hydrate prevention	Intermittent, accumulated approx. 1 year	20	max 305	Reeling	Technip	4 x1600 mm <sup>2</sup>	305	Pliant wave	No
<b>Huldra</b>	Statoil	2001 (Decom 2014)	8" 13%Cr 16 km	27°C for hydrate prevention, 37°C for wax prevention	Intermittent, accum. approx. 1 year + tail prod.	20	175	Reeling	Technip	2x800 mm <sup>2</sup> (Static)	175	J-tube	No
<b>Kristin</b>	Statoil	2004	10" 13%Cr 6 off 6-6.7 km	27°C for hydrate prevention	Intermittent, accumulated approx. 1 year	20	315-380	Reeling	Technip	4 x1600 mm <sup>2</sup> + 7 hydraulic lines	315	Pliant wave	No
<b>Urd</b>	Statoil	2005	12.5" Carbon, clad 9 km	25°C for hydrate prevention	Intermittent, accumulated approx. 1 year	15	360-390	Reeling	Technip	4 x1600 mm <sup>2</sup>	390	Pliant wave	No
<b>Ormen Lange</b>	Norsk Hydro, Statoil, Shell	2006*	30" Carbon 2 off 20 km	Melting possible ice plug	-	-	550-850	J-lay**	Saipem	-	-	-	No
<b>Tyrihans</b>	Statoil	2007/8	16 and 18" Carbon, clad 42 km	23°C for hydrate prevention.	Intermittent, accum. 1 year + last 3 years tail production	20	280-320	S-lay	Acergy (Piper)	1600 + 1700 mm <sup>2</sup> Coaxial	320	Pliant wave	Yes
<b>Morvin</b>	StatoilHydro	2008/9	10.5" 13%Cr 20.1 km	25°C for hydrate prevention		20	375	Reeling	Technip	Power umbilical Coaxial	305	Pliant wave	Yes
<b>Alve</b>	StatoilHydro	2008	12" Carbon, clad 16 km	25°C for hydrate prevention		20	390	Reeling	Technip	Utilizes Urd DEH Riser	(see Urd)	(see Urd)	Yes
<b>Skarv Idun</b>	BP Norge	2010/11	12" Carbon, clad 12 km	25°C for hydrate prevention	Intermittent, accumulated approx. 1 year	25	325-375	Reeling	Subsea 7	1200 + 1300 mm <sup>2</sup> Coaxial	370	Pliant wave	Yes
<b>Skuld</b>	Statoil	2012	12/14" Carbon, clad 25 km	25°C for hydrate prevention	Intermittent, accumulated approx. 4 year	20	360-390	Reeling	Subsea 7	4 x1600 mm <sup>2</sup>	390	Pliant wave	Yes
<b>Shah Deniz</b>	BP	Batch 1: 2016 Batch 2: 2018 (?)	14" Carbon, 12" Fortified at ends 10 off 4-18.5 km	25°C for hydrate prevention	Intermittent, accumulated approx. 5 year	30	518	S-lays	Saipem (PLBH + SCV)	1200 + 1300 mm <sup>2</sup> Coaxial (static) 10 off	95	J-tube	Yes
<b>Lianzi</b>	Subsea7 (Chevron)	2015	12.75" Carbon 43 km	21°C for hydrate prevention, 125 W/m for wax remediation	Intermittent, accumulated approx. 2.1 year	20	1050	Reeling	Subsea 7	1600 + 1800 mm <sup>2</sup> Coaxial	390	Catenary wave	Yes



## DEH Experience List

Project	Client	Year Installed	Pipeline	Design requirements	Frequency of use/ Tail prod.	Design life [years]	Water Depth [m]	Flowline Installation Method	Installation Contractor	DEH Riser Cable	Water Depth at platform [m]	DEH Riser Config.	FO Fault Detection
<b>Maria Riser</b>	Statoil	2016	RC to feed Kristin P101 and Maria 14" pipeline	25°C for hydrate prevention	Intermittent, accumulated approx. 1 year	25	315	-		4 x1600 mm <sup>2</sup> + 9 hydraulic lines + 2 FOC	315	Pliant wave	Yes

\*\* The DEH System for Ormen Lange is based on a retrofit system. The 30" export pipelines are equipped with connectors to allow connection of anode banks as well as the piggybacked cable. Prototype cable manufactured and qualified.

**Nexans DEH cables delivered to date:**

Piggyback Cables: 30 off, 379 km | Riser Cables: 24 off, 22 km | Feeder Cables: 45 off, 44 km

**In total: 99 cables, 445 km**