

Subsea Expo – Subsea Tie-Backs

Pumping, In-Line Separation and Local Seawater Injection

Andy Robertson – Field Developments Manager - Advisian

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Worley Group

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Subsea Processing Overview

Subsea Processing



Production Enhancement



Active Heating



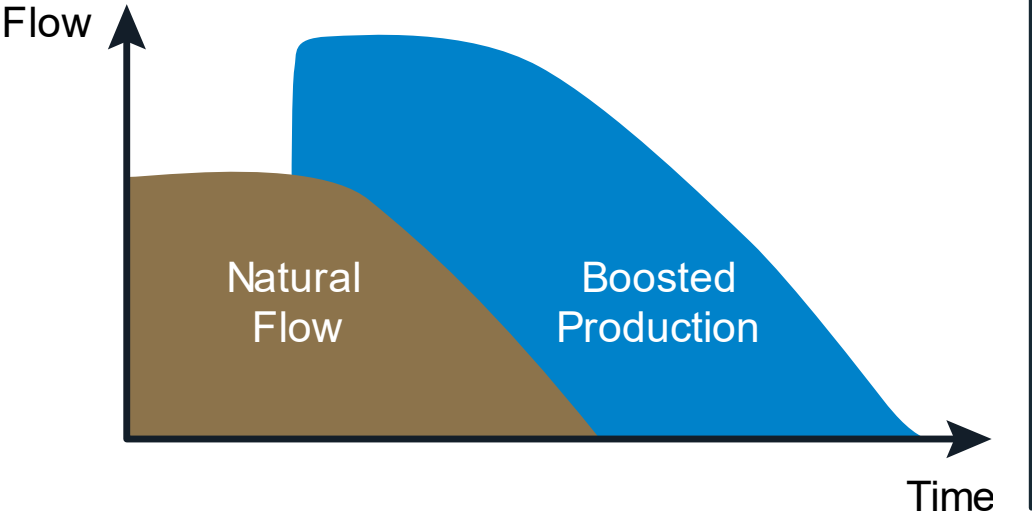
Power



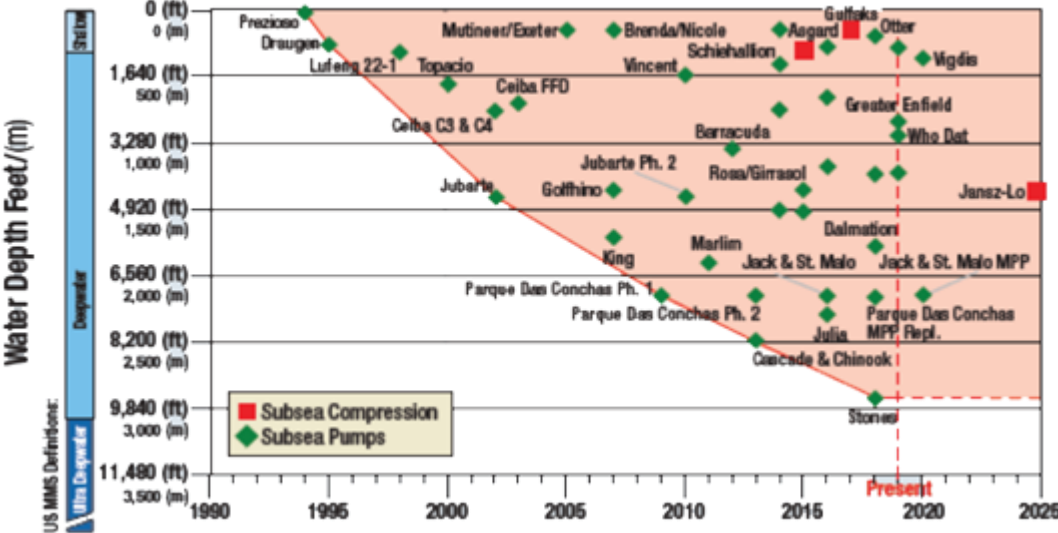
Controls



Support Services



GRAPH 7: WATER DEPTH vs. INSTALLATION YEAR FOR SS BOOSTING SYSTEMS (As of Feb., 2019)



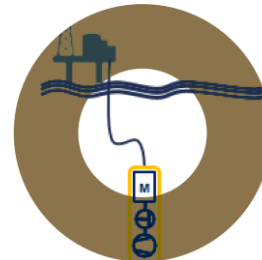
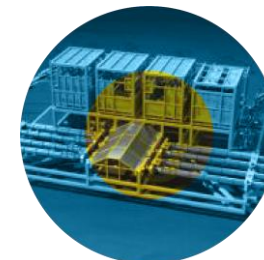
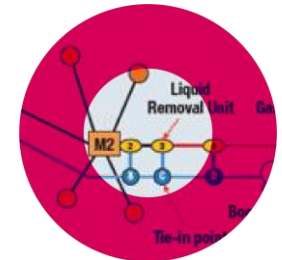
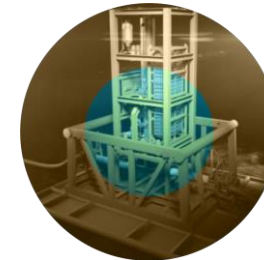
Production Enhancement

Production Enhancement

	Subsea Separation	Seawater Injection	Multiphase Pumping	Wet Gas Compression
1st Deployment	1969	2001	1994	2011
Developments	10	5	41	5
In Progress	2	2	6	5

Where next for Subsea Boosting?

Engineering Technology	5 2019	6 2020	7 2021	8 2022	9 2023	10 2024	6 2025	7 2026	8 2027
1.0 SS GAS COMPRESSION & PROCESSING									
Pseudo Dry Gas Technology (Patented Technology)	TRL-3		TRL-4 TRL-5	TRL-6					
2.0 FULL WELLSTREAM SUBSEA BOOSTING									
Fast subsea Pump Unit with Hydromag™				TRL-4					
Aptara™ Modular Compact Pump (MCP)	TRL Levels were not available at poster publication time								
Barrier fluidless subsea pump	TRL-3	TRL-4	TRL-5	TRL-6			TRL-7		
3.0 SUBSEA SEAWATER TREATMENT AND INJECTION									
Seabox™ (Disinfection and particle removal)	TRL-6			TRL-7					
SWIT™ (Smartwater)	TRL-4		TRL-6			TRL-7			
SPRING®: Subsea Desulphation process				TRL-6			TRL-7		
4.0 SS SEPARATION									
MULTIPIPE: Subsea gravity gas-liquid separator						TRL-6			TRL-7
SPOOLSEP: Subsea gravity liquid-liquid separator			TRL-4			TRL-6			



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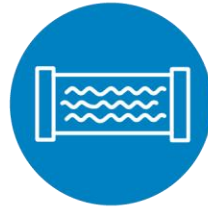
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Production Enhancement

Production Enhancement



Subsea Separation



Seawater Injection



Multiphase Pumping



Wet Gas Compression

1st Deployment

1969

2001

1994

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Developments

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In Progress

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