All-Electric Systems and long step-out Initiatives

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Product Management, Subsea Electrification





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Electric solutions for long distance tie-backs





Electrifying subsea



All-Electric intervention

- Electric workover systems
- Electric Blow Out Preventers (BOP)

All-Electric production

- Electric trees
- Electric HIPPS
- All-Electric production systems

Electric actuation

- Automate manual valves
- Replace leaking hydraulic systems
- Electric chokes for process control
- Electrif SURF modules
- Electric manifolds









System level definition and validation of All-Electric

All-Electric battery limits

- Chemicals
- Downhole operation

Technology concept

- Battery vs spring fail-safe
- Controls architecture

Cost benefit validation

Example cost benefit analysis

SPS hardware cost; 50km, 2 manifold, 8 XT system



All-Electric solution defined based on system level operational and economic evaluation



The power of data in subsea All-Electric



- Electric actuator integrity
- Valve system integrity
- Production system integrity
- Enterprise potential
- Industry potential



Fullstream electrification

Seawater Treatm

Normally unmanned facilities

Separation

Gas Compression

- Maintenance planning
- Reduced OPEX
 - Remote operation

All-Electric production

- 10-30% cost reduction
- Performance, system health
- Improved HSE, zero discharge

Electric completions

- Electrical downhole safety valve
 - 20-30% faster installation and commissioning
 - Multiple individually controlled downhole zones

Subsea power & processing

- Increase and/or maintain production Enable production
- Mitigate capacity constraints



All-Electric systems and long step-out inititaives

- Electrification facilitates cost effective long step-out systems
- All-Electric solutions enable next generation intelligent production systems
- All-Electric production systems should be seen in a fullstream perspective



