Reduce Field Costs and Increase Functionality with a Robust Electric System

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OneSubsea
A Cameron & Schlumberger Company
ELECTRIC SYSTEM TECHNOLOGY

✅ RELIABILITY
✅ OPERABILITY
✅ MAINTAINABILITY
✅ CAPEX/OPEX SAVINGS
✅ GAME-CHANGING
RELIABILITY

Reference: Typical distribution of critical failure modes for a OneSubsea E/H Mux system
CM1 Please provide a reference to the source of these stats. Is this market information? If so, please cite the source(s).
Canada, Meredith, 2/22/2016
OPERABILITY

• Operational Performance
  • Faster response time
  • Higher precision valve positioning
  • No position cycling required
  • Indexing – accurate position reading
  • Well and field startup
  • Well and field shutdown

• Flexibility
  • Suited for deepwater operations
  • Can be operated on batteries in an early production facility
  • Absence of a complex hydraulic system
MAINTAINABILITY

• Monitoring Production Efficacy
  • Detection/identification of rate changes
  • Reservoir Performance Monitoring: more wellhead slots for downhole monitoring and control equipment

• Reduced System Downtime
  • Reduced intervention time
  • Reduced single well failures
CAPEX/OPEX SAVINGS

- Case studies done by OSS for various size fields have shown reductions in CAPEX, as compared to the electro-hydraulic system. (Up to 30%)

Case studies have shown that some of the ideal field configuration characteristics for electric actuation include:
- Cluster fields (4-5 XTs and a manifold)
- Long step-out (>30 km)
- Water and gas injection branches

**Case 1:** 3 Production XTs

**Case 2:** 6 Production XTs, 2 WI XTs, 1 Prod Manifold

**Case 3:** 14 Production XTs, 8 WI XTs, 2 WI Manifolds, 2 Prod Manifolds

**Case 4:** 6 Gas Injection XTs, 1 Gas Manifold
Tree
Hydraulic Actuators

Electric Actuators
Manifold

Hydraulic Actuators

Electric Actuators
GAME-CHANGING

- HSE
  - No high-pressure operations at the surface
  - No risk of hydraulic fluid emissions and environmental exposure
- Long tie-back and ultra-deep water
  - Longer step-outs and greater depths
- Increased Oil Recovery (IOR)
  - Reservoir pressure maintenance
  - Reservoir sweep
- Enhanced Oil Recovery (EOR)
  - Chemical injection
“While the industry is understandably preoccupied with generating shorter-term value, we must also keep an eye on where longer-term value and permanent efficiency gains can be achieved. Innovation is not just about finding the breakthrough technologies, although that is important too, it is also about making things simpler and more efficient and ultimately helping the industry to safely cut costs.

Elisabeth Tørstad, CEO of DNV GL – Oil & Gas