



PEAK
GLOBAL CONSULTANCY

Simplify Now,
Reduce Decommissioning Costs Later



Ageing Asset Challenges

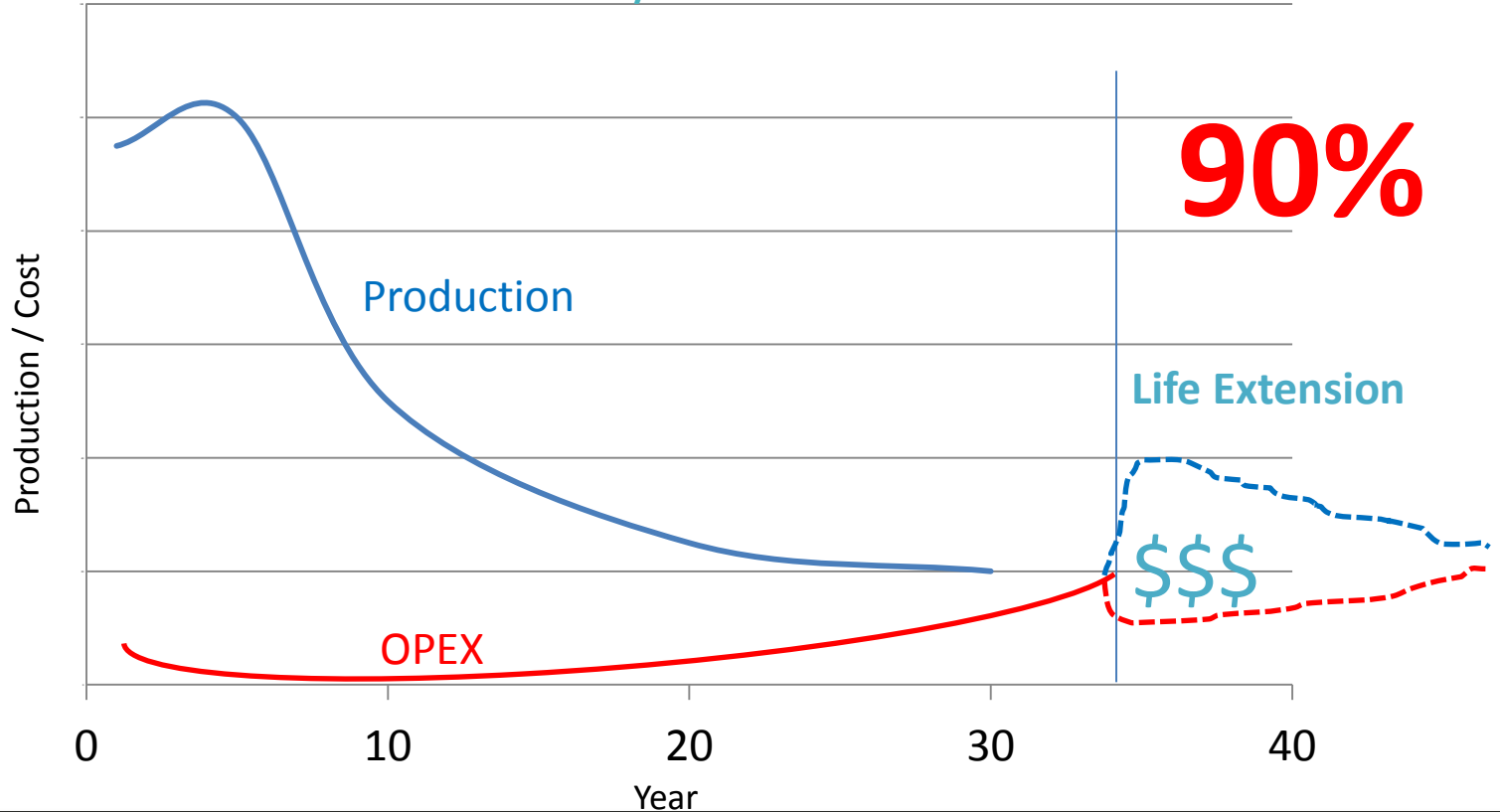
Ageing Assets

- Base Production ↓
- Field life ↓
- Integrity ↓
- OPEX ↑



The UKCS Challenges

Production / OPEX Profile



Ageing Assets: Features become Opportunities & Embrace Technology

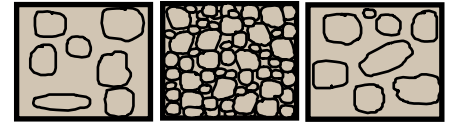
1. Pressure Reduction



2. Reduced Volatile Hydrocarbons



3. Different Production



4. Production Technology



5. Process Technology

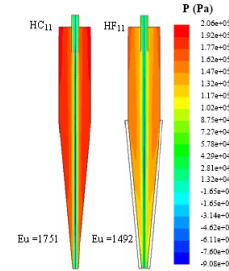


Figure 3: Simulated pressure profiles for conventional and filtering hydrocyclones (DU= 5 mm, $\ell = 21$ mm and $Q = 301$ cm³/s).

6. Instrument & Controls Technology



7. Doing things Differently



Simplification Now, Reduced Decom Later



1. Pressure Reduction:

Opportunity	Benefit / Value	Decommissioning Interface
<p>Remove Relief valves and SIL equipment</p> <p>De-rating equipment: - reduced inspection - increased corrosion allowance, etc.)</p>	<p>Isolation of instrumentation and equipment.</p> <p>Extended life of remaining operating equipment</p>	<p>Early equipment & instrumentation decom/ reduced scope for final decom.</p>



Simplification Now, Reduced Decom Later

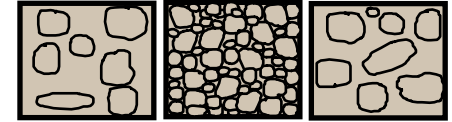


2. Reduction of Volatile H/Cs:

Opportunity	Benefit / Value	Decommissioning Interface
Re-assess; - deluge requirements - passive protection -Performance Standards!	Increase uptime Reduce inspection and maintenance	Early equipment decommissioning/ reduced scope for final decom.



Simplification Now, Reduced Decom Later



3. Different Production

Opportunity	Benefit / Value	Decommissioning Interface
Equipment not required	Reduced OPEX	Early equipment decom, reduced scope for final decom.
Reduce Power consumption	Reduced OPEX	
Utilise Off-Design ops: - Increased prodn (jet pump, rewheel, etc.	Increased Production	Early decom of large equipment.
Replace big with small	Reduced OPEX	



Simplification Now, Reduced Decom Later



4. Production Technology

Opportunity	Benefit / Value	Decommissioning Interface
4-D seismic / smarter drilling. ESP reliability WI capacity/availability EOR	Improved recovery (MER)	More time for technology to advance and to become repeatable



Simplification Now, Reduced Decom Later

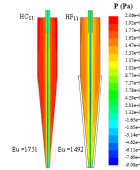


Figure 3: Simulated pressure profiles for conventional and filtering hydrocyclones (DU= 5 mm, $\tau = 21$ min and $Q = 301$ cm³/s).

5. Process Technology:

Opportunity	Benefit / Value	Decommissioning Interface
<p>Debottleneck topsides Eg. Jet pumps, booster compressors.</p> <p>Support secondary Prod, e.g. Improved WI. Prod water handling, gas lift dist.</p> <p>Improve equipment efficiencies, e.g. CFD, new internals, re-wheeling comp/pumps, etc.</p>	<p>Increase production & improve recovery (MER) and Reduce numbers of live equipment</p>	<p>Defer full decommissioning</p> <p>Allow early non-essential decommissioning</p>



Simplification Now, Reduced Decom Later



6. Instrument and Control Technologies.

Opportunity	Benefit / Value	Decommissioning Interface
Improved and more reliable control and ESD	Reduced trips - Increased Production	Extend CoP date – more time for decom planning and technology/ commonality developments. Early decom of test equipment.
Remote control	Reduced OPEX	
Operator training	Safer Operations	
Multiphase metering	Reduced CAPEX and OPEX	



Simplification Now, Reduced Decom Later



7. Doing things Differently.

Opportunity	Benefit / Value	Decommissioning Interface
Separation; Upgrade internals for new & future profiles	Reduce inspection & maintenance	Early decom of unused vessels & equipment
Flares; reduce to single MP flare	Safer operations, reduced inspection	Reduced decom scope
Drains; bring CD pipework topsides	Reduced leakage & OPEX	
Materials; non metallic	Lower CAPEX and OPEX	Simpler decom activities



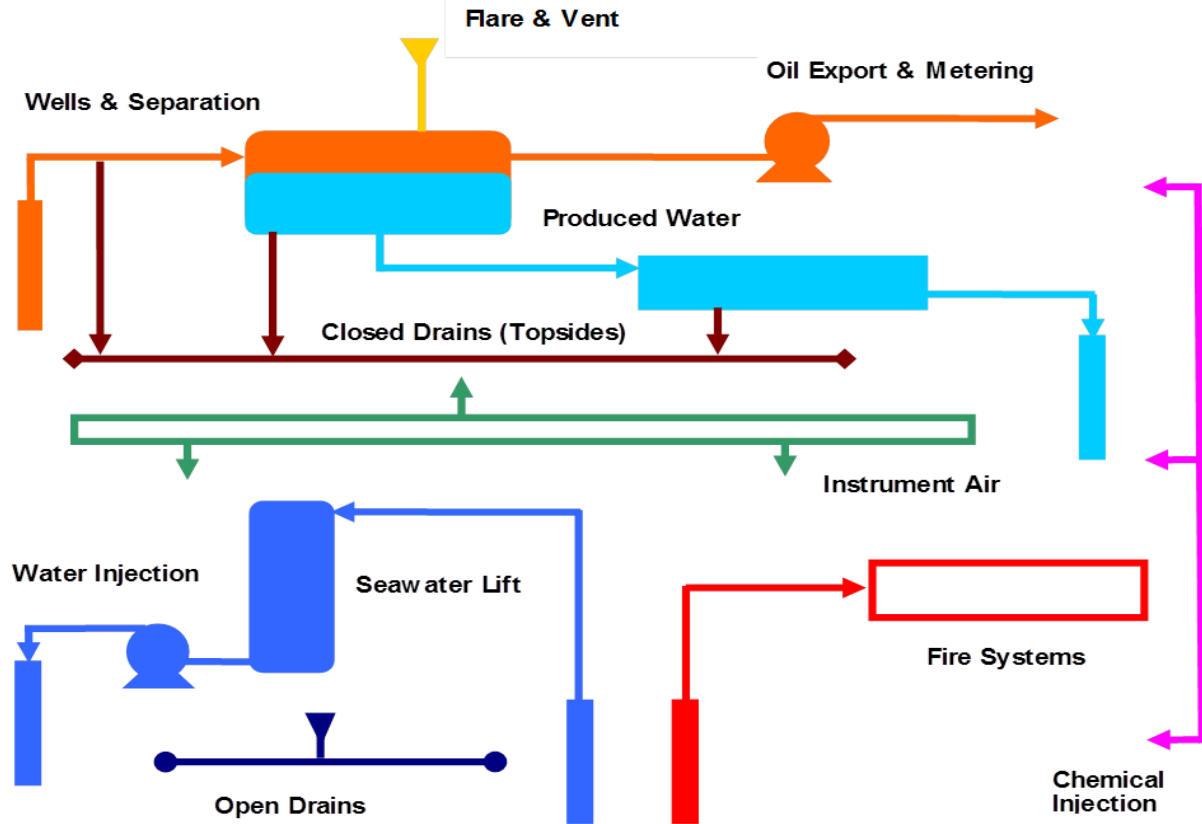
Full Platform Case Study

Project: LLX & Prod Effn

1. Infill Drilling
2. Power Reliability
3. Process Simplification
4. Control /ESD Upgrade
5. Structural Integrity
 - 20 additional years operation
 - Triple production rate



Case Study: Process Simplification




Typical Simplification Benefits

10-30%* Additional Production	10-30% Reduced OPEX	20% + Reduced Decom costs*
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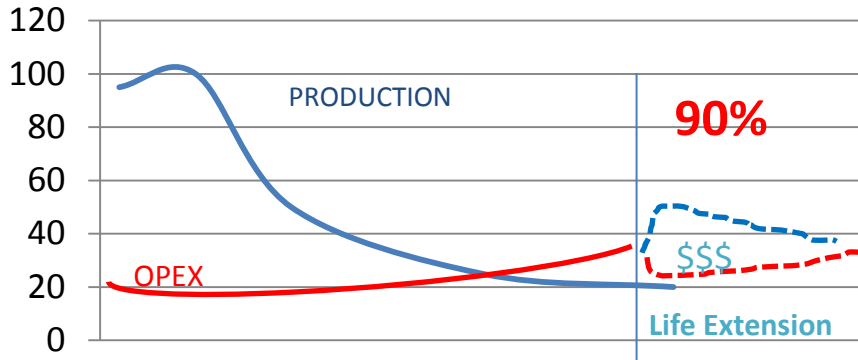
Some numbers:

10% Production improvement
For 10 mbd field = \$ 60K /day

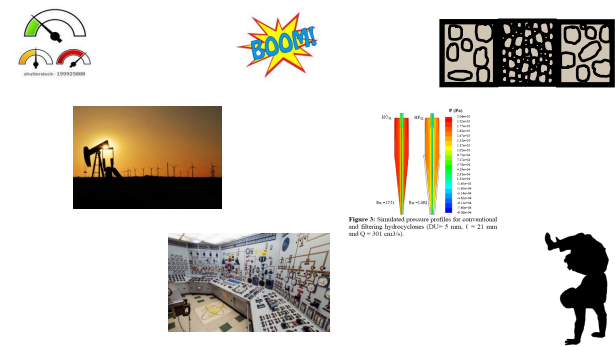
* Allows time for decommissioning technologies and common practices to improve further,
 additional reductions in decom costs.



1. UKCS Challenges



2. Ageing Assets: Features become Opportunities & Embrace Technology



3. Simplification Now, Reduced Decom Later

Opportunity	Benefit / Value	Decom Interface
Separation; Upgrade internals for new & future profiles	Reduce inspection & maintenance	Early decom of vessels & equipment
Flares; reduce to single MP flare	Safer operations reduced inspection	Reduced decom scope
Drains; bring CD pipework topsides	Reduced leakage impact inspection/maint enanc costs.	Simpler decom activities
Materials; non metallic	Lower CAPEX and OPEX	

4. Full Platform Case Study



5. Benefits

Typical Simplification Benefits		
10-30% Additional Production	20-30% Reduced OPEX	20%+ reduced Decom costs





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Thank you.

Questions - Comments - Thoughts?

