

The first successful offshore slickline deployed ESP project in Asia

Reducing risk and heavy ESP workover cost offshore Brunei



European Union Artificial Lift Forum

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AccessESP

HSE moment: The upside of avoiding heavy workovers

GoSafely

Avoiding ESP
HWOs means
less POB for
far fewer days
→ reduces risk

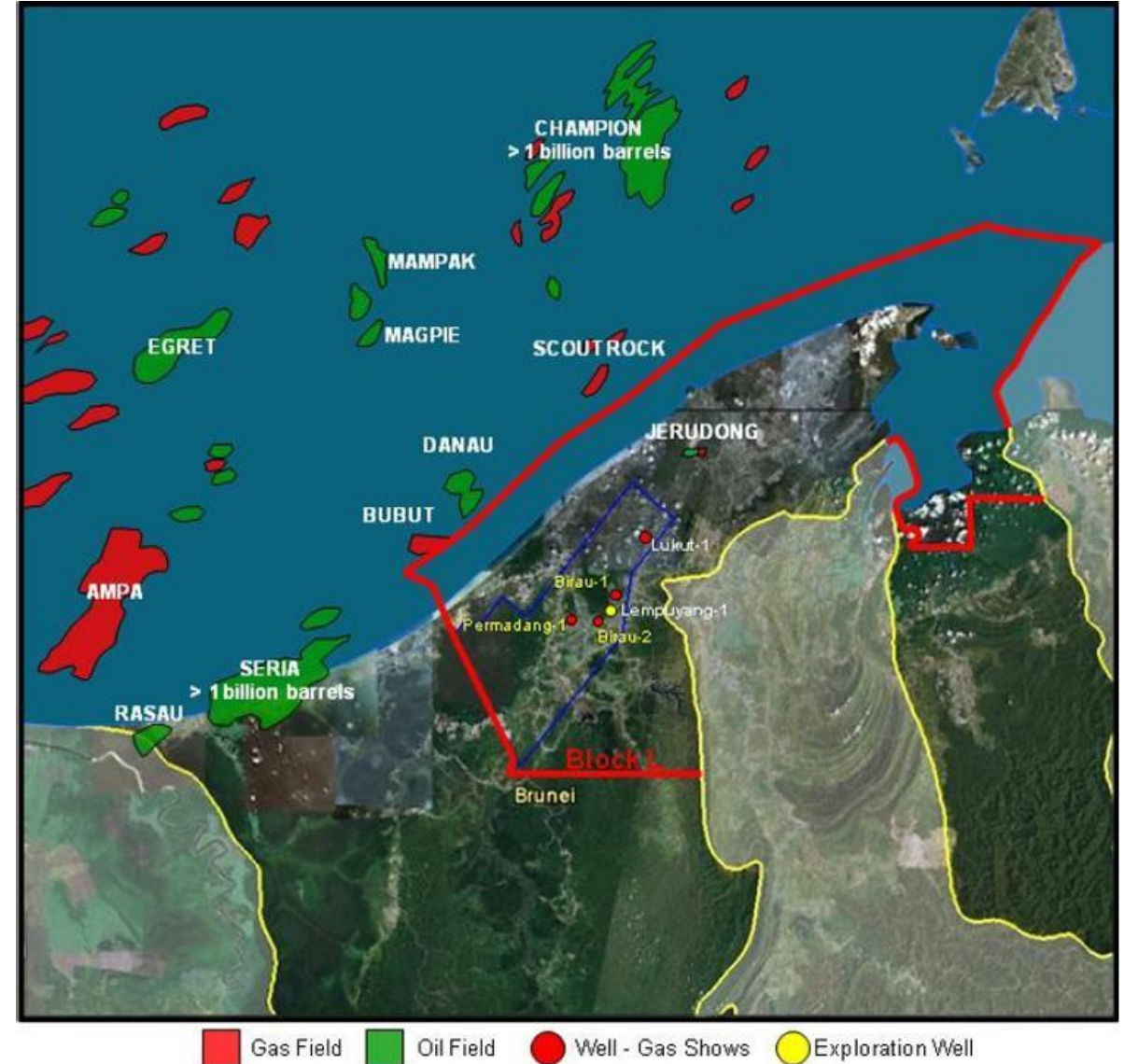
GoGreen

Avoiding ESP
HWOs means
less diesel burn
and less carbon
→ reduces GHG



Situation

- Offshore Brunei
- Traditionally gas lifted
- Producing 40+ years
- 50 platforms
- 400+ wells
- Recent water flood project lifted with conventional tubing-deployed ESPs
- Chemical injection required
- Small platforms require rig-and-barge workovers between \$3MM to \$6MM



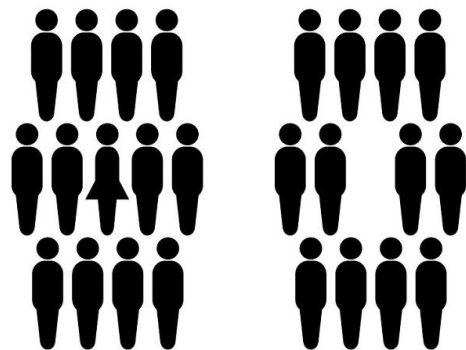
Status quo tubing-deployed ESP vs GoRigless ESP System

Conventional ESP & heavy WO

- Accepted, not changed in years
- Pull tubing
- More POB
- Higher risk, more exposure
- Limited jackup availability
- Higher risk of failures
- >\$3 million intervention
- 15 tons diesel/d → 45 tons/d CO₂
- High deferred production

GoRigless ESP & S/L workover

- New, passed extensive qualification
- Tubing install, then S/L WO
- Much fewer POB
- Reduced risk, less exposure
- High slickline availability
- > 6 years failure free
- \$100K to \$200K intervention
- Thousands of tons of CO₂ emissions avoided
- Much higher production, millions NPV added



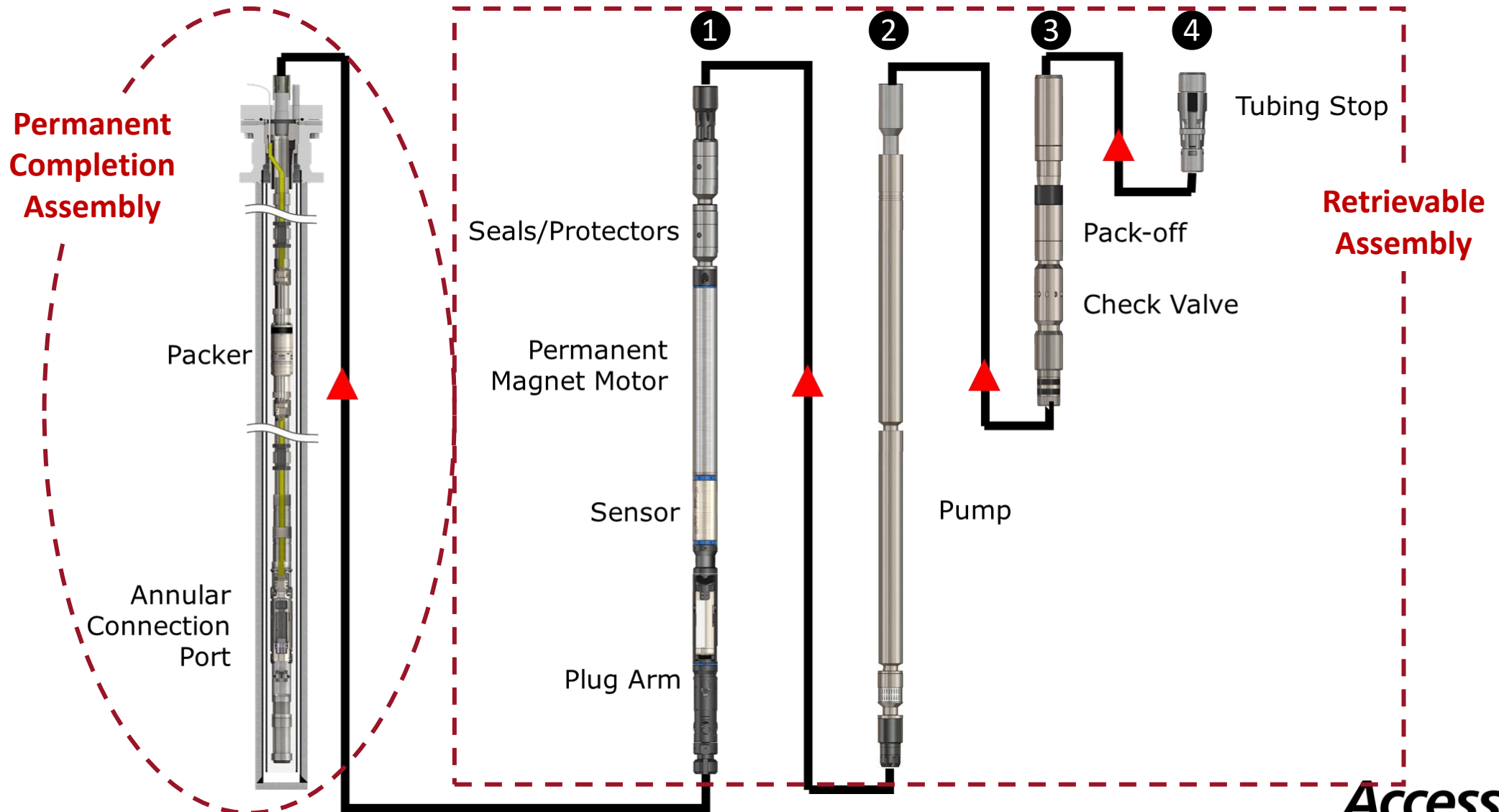
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Key differences that drive higher performance and value

- ✓ 3.8 in. OD → deployment/retrieval in 4.5-in. tubing, TRSSV and packer
- ✓ Live well deployable
- ✓ All components fit in standard lubricator with a maximum weight of 1,500 lbm
- ✓ Four 0.125-in. slickline runs much faster, safer than pulling tubing
- ✓ Compatible with lower completion sand screens and sand control packer
- ✓ Fullbore access enables coiled tubing cleanouts and other well work
- ✓ Full chemical injection flexibility
- ✓ Ultra-reliable, high power density PMM



Install once for life of well and retrieve/replace quickly and cheaply

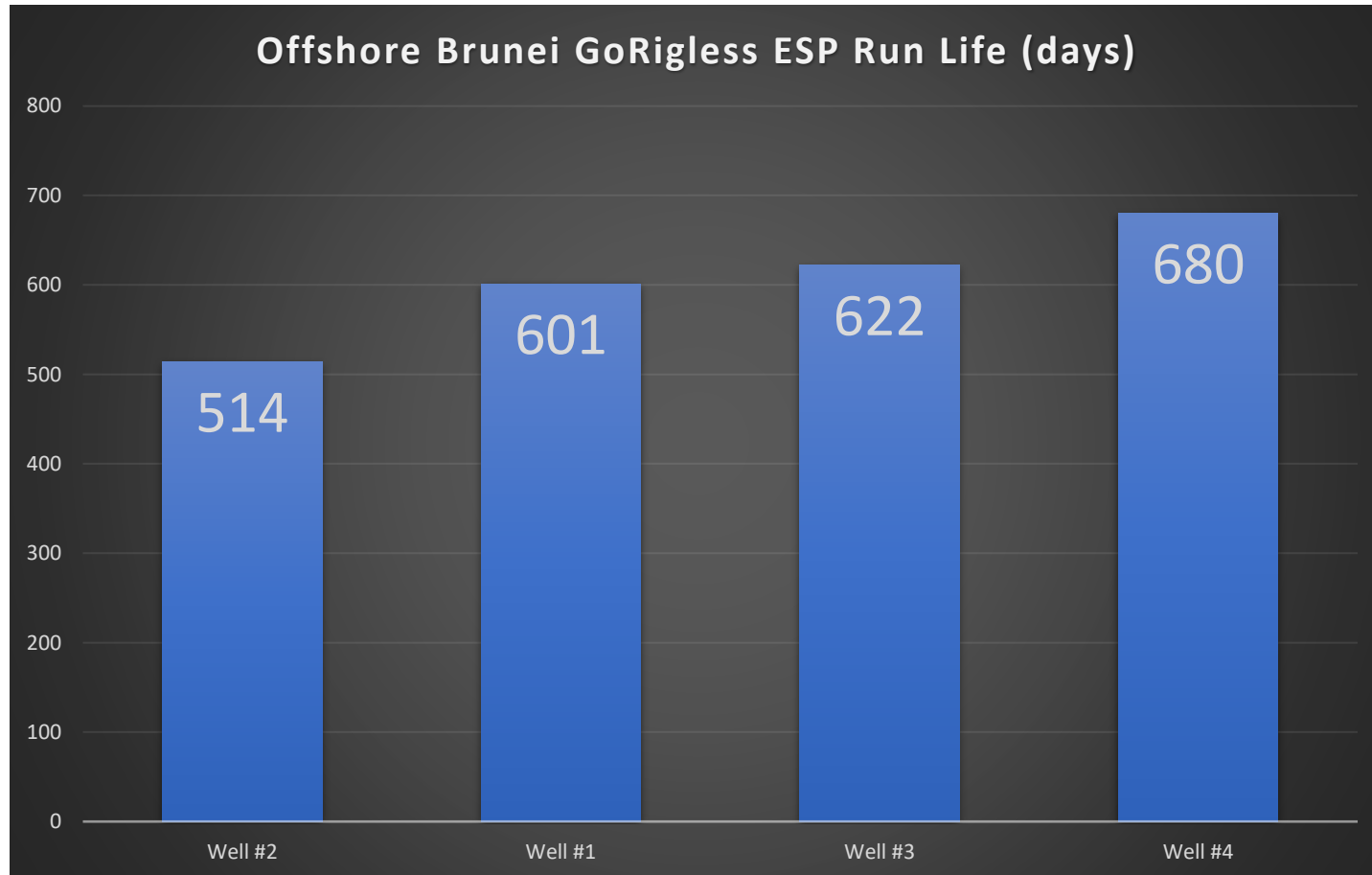


Brunei and global track record

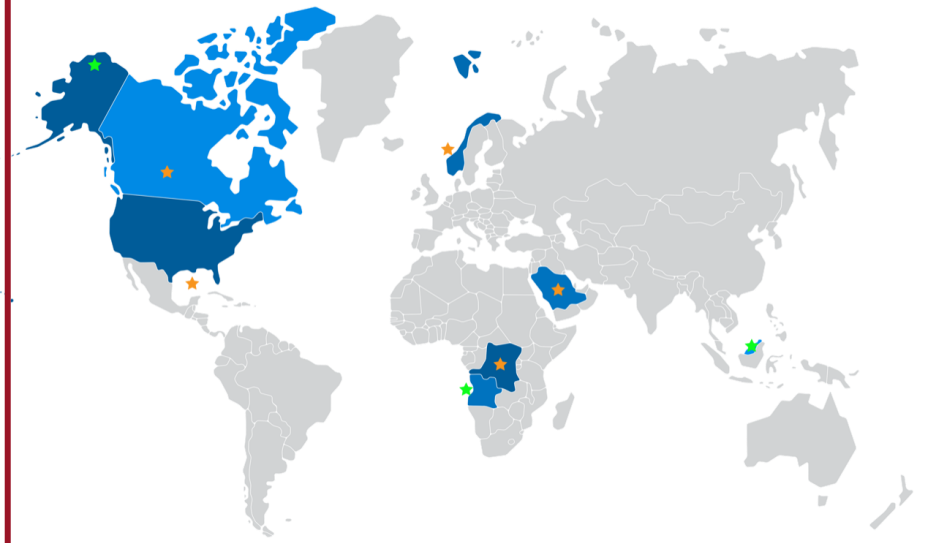
2 live well interventions:

- Pack off and a planned ESP change out

4 wells failure free



25 wells, 6 years failure free



New ESP completions and gas lift conversions

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Critical insights to achieving the technical limit in ESP performance

Inertia to change overcome through rigorous pre-qualification and business case

System efficiently and safely changed out with slickline avoids millions in HWO cost

- Much less POB
- Live well change out
- No change to completion design or chemical injection
- Standard lubricator, mast, crane and slickline
- Change out failed pump without pulling motor
- Resize pump to optimize drawdown
- Each HWO metric ton diesel not burned → 3 metric tons CO₂ not emitted

HWO costs avoided, higher uptime, higher production

For more information



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GoRigless

*Committed to reducing risk,
lowering total cost of operations, cutting
greenhouse gas emissions and
improving recovery by
achieving the technical limit
in ESP performance.*

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