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SPE workshop

Integrated Artificial Lift Excellence: Technologies, Operations, and the Digital Future

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High-Speed ESP for Overcoming Installation and Operational Barriers

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Any of these challenges impacting your operations?

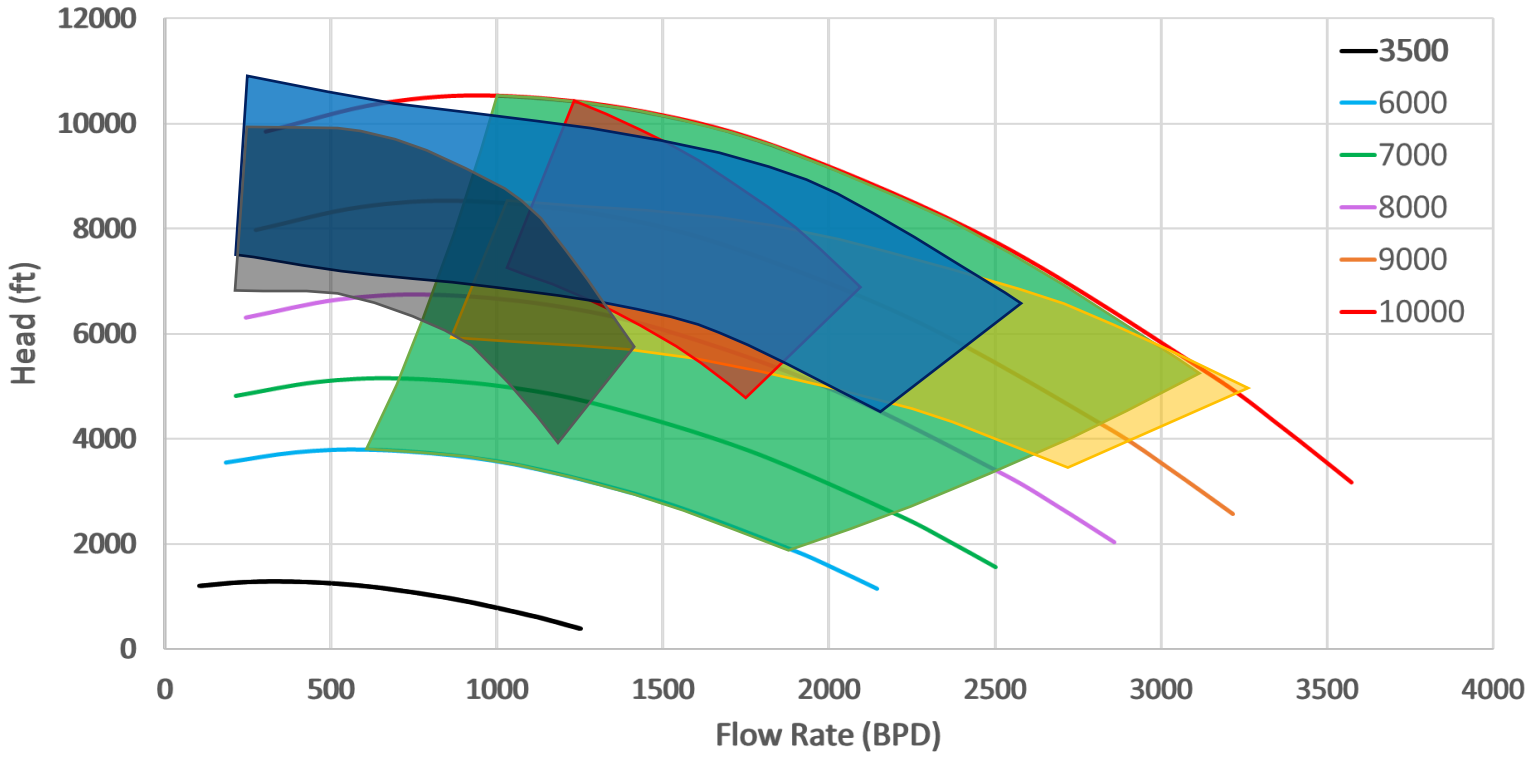
- Operational uncertainties
- Highly deviated wells with complex trajectory
- Production deferment
- HSE exposure during ESP assembly
- Expensive rig time
- Workover cost

The High-Speed Approach

Traditional Pumps ~ 3500 RPM

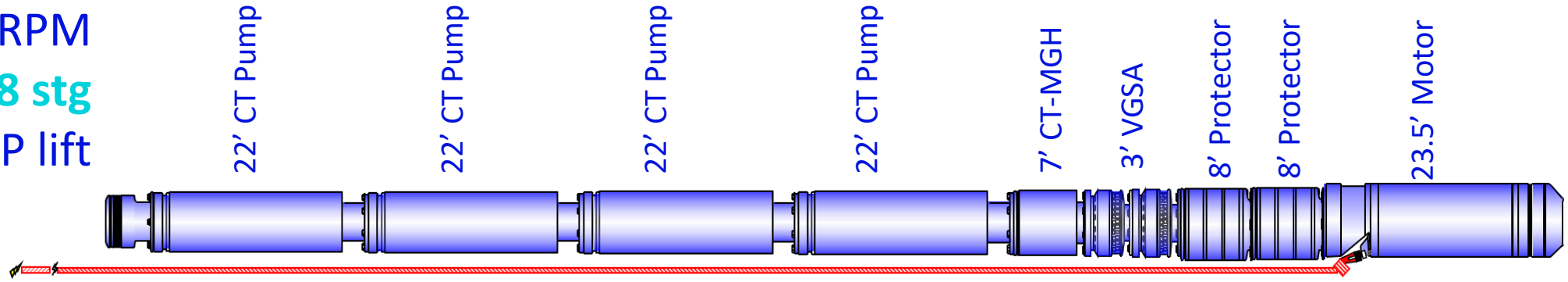
$$Affinity\ Law\ ,$$

$$Head_{RPM2} = Head_{\mathrm{RPM1}} \left(\frac{RPM2}{RPM1}\right)^2$$



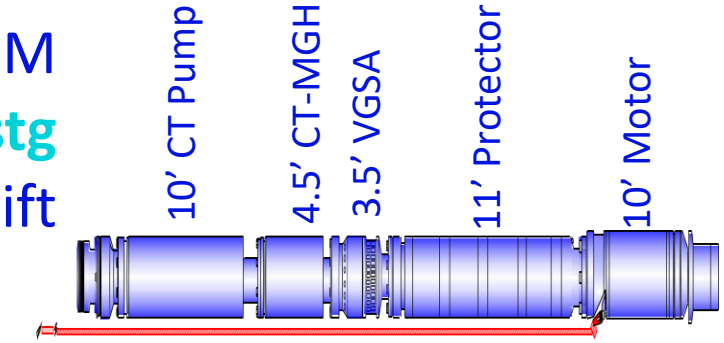
Traditional vs High Speed – ESP string

3500 RPM
1750 BPD, **468 stg**
8720 ft. BEP lift



140 ft

10,000 RPM
1857 BPD, **37 stg**
9053 ft. BEP lift



39 ft

Over 70% reduction in ESP length!!

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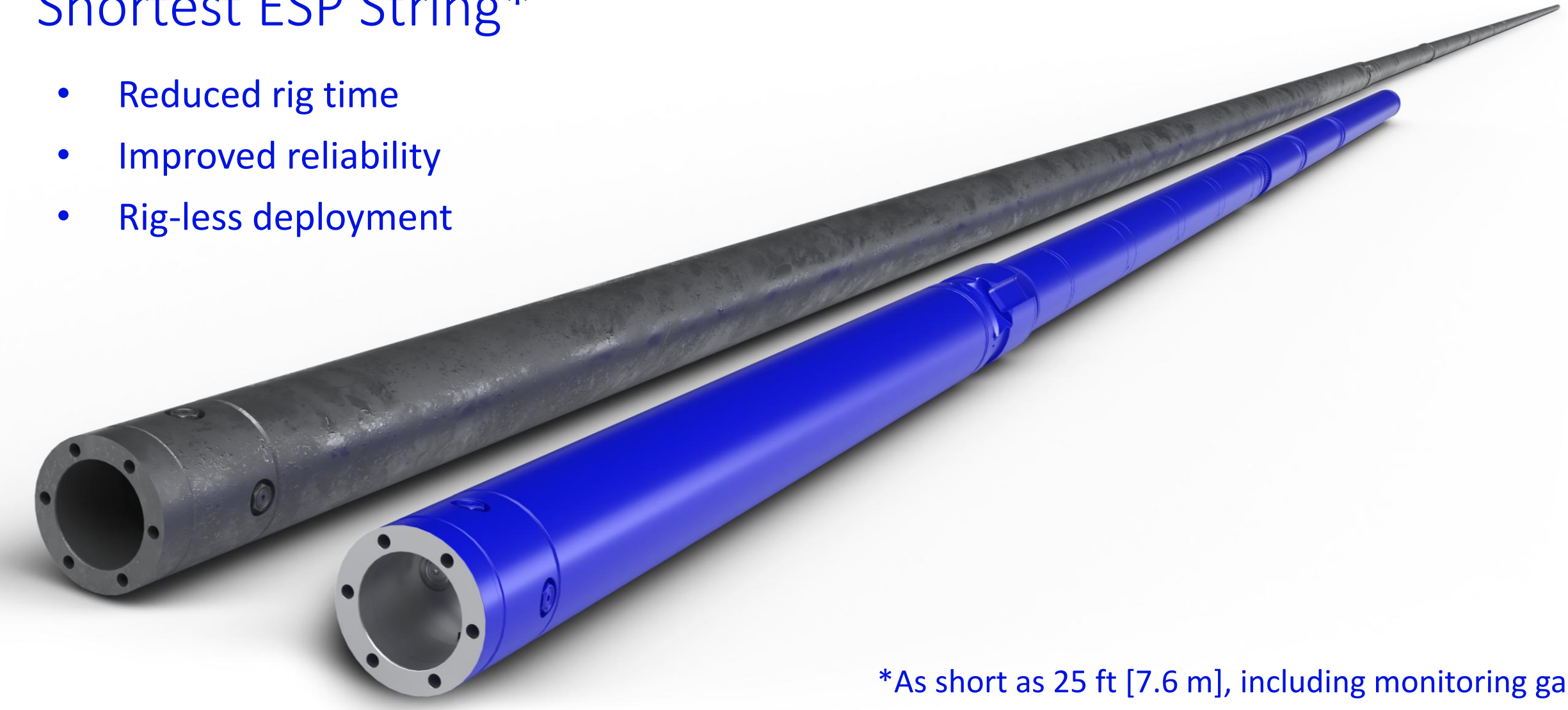
Shortest ESP String*

- Reduced rig time
- Improved reliability
- Rig-less deployment



*As short as 25 ft [7.6 m], including monitoring gauge

Navigate complex doglegs

- Pass severe doglegs
- Convenient ESP set-in zone
- Set closer to perforations

Widest Operating Flow

- Production Flexibility
- Avoid ESP changeovers
- Reduced inventory

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Driving Down Emissions

- High system efficiency
- Lowest embedded carbon
- Reduced logistics & storage

Technology highlights

- Equipment OD – 4” (Pump) / 4.56”(Motor)
- Operating speed – 5000 to 10000 RPM
- Flow rates – 500 to 3150 BPD
- Max BHT – 350F
- Motor technology – 2-pole induction motor (167Hz)
- Stage metallurgy – Proprietary alloys (up to 4x harder than Ni-Resist)
- Bearings – High-speed Tungsten Carbide
- Housing and shaft – Standard and premium metallurgies

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Thank You