AccessESP

GoGreen Initiative

Helping E&P and service companies achieve their carbon reduction targets

The AccessESP GoGreen Initiative is a commitment to work closely with operators and service companies to develop and deploy advanced technologies that significantly decrease the number and frequency of heavy interventions that require workover rig operations, thereby reducing greenhouse gas emissions.

AccessESP managers and engineers share their carbon reduction expertise during VIP Seminars, Networking Meetings and Value Chain Labs with industry peers. GHG emission reduction opportunities are also discussed during company Board and Customer Advisory Board meetings.

When GoRigless™ ESP and UpCable™ Power Delivery Systems are deployed, the significant reduction in heavy interventions means far fewer workover rig days are required for production operations. For every metric ton of diesel fuel that is not burned during a heavy workover there are three metric tons less carbon dioxide emissions. For every heavy intervention avoided, emissions may be reduced by several hundred to a few thousand metric tons.

Additional greenhouse gas emission reductions are achieved when new or existing gas-lifted wells switch to GoRigless ESP completions. Because ESPs typically require 40 to 50 percent less power than gas lift to deliver an equivalent volume of fluid, a rigless ESP well emits about half the GHG emissions than a gas-lifted well.

AccessESP UpTime™ Test Services also contribute to GHG reductions by recycling power during system tests and by helping tune variable speed drive specifications for optimum performance, lower power consumption and reduced emissions. The company's power generation and testing equipment, deployed at the Houston Performance Center and the Houston Performance Test Center, are highly energy-efficient systems that recycle unused power. AccessESP continues to enhance ESP performance and is committed to designing, developing and deploying technologies and services that help E&P companies achieve their targets for reducing carbon intensity and greenhouse emissions.

Example HWO avoidance carbon reduction

Carbon emission avoidance example assuming a semisubmersible rig would require 10 days roundtrip transit to perform a heavy workover that lasts 10 days.

10 days semi transit by AHTV
= 250 metric tons diesel

10 days semi-heavy intervention
= 300 metric tons diesel

+ 20% associated support vessels
= 60 metric tons diesel

= 610 metric tons of diesel not burned

= 1830 metric tons of CO_2 not emitted

For more information
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Benchmarking study results

Subject matter experts from oil and gas companies, drilling contractors, marine supply vessel companies, universities and climate think tanks participated in a GoGreen Initiative global study. Key insights of the study were:

- When a rig is used for a heavy intervention to pull tubing and replace an ESP, diesel fuel consumption in metric tons can be multiplied by three to derive CO_2 tons emitted.
- Some engineers add 20% to the rig fuel consumed to estimate CO_2 emissions from offshore support vessels or vehicles that support land workover operations.
- With a GoRigless ESP System, days required to complete a heavy intervention can be significantly reduced so thousands of tons of CO_2 emissions can be avoided on an annual basis.
- Since fuel usage for small jackups to large semis conducting heavy interventions varies from about 15 metric tons to 40 metric tons of fuel burned per day, and support vessel fuel burn adds 20 percent per day, total fuel consumption varies from 18 to 48 metric tons per day—the equivalent of 54 to 144 metric tons of CO_2 avoided for every heavy intervention day reduced. This estimate does not include the fuel burn of transportation to get the rig to and from the platform.
- Land rig diesel fuel consumption may vary from 3 to 5 metric tons per day, so avoiding a heavy intervention on land reduces CO_2 emissions by 9 to 15 metric tons per day.
- Comparing GHG emissions of ESP vs gas lift wells requires estimating bottomhole pressure for each lift type in a field system and multiplying by the lbm/d/bhp emissions factor.
- One well studied, which produced 3500 BWPD with 80% water cut lifting from 7000 ft in 4.5-in. tubing, gave CO_2 emissions from ESP power requirements as 1505 lbm/day for a reciprocating gas engine and 1604 lbm/day for a gas turbine. Emissions for gas lift was estimated at 6613 lbm/day for a reciprocating gas engine and 7047 lbm/day for a gas turbine. The ESP required 76 bhp vs 334 bhp for gas lift. EPA data for GHG emissions is 110 lbm/MMbtu, which equates to 19.8 lbm/d/bhp for reciprocating engines and 21.1 lbm/d/bhp for turbine engines.
- One operator studied a platform powered by 30-MW gas turbines and estimated 400 kW of gas lift power was required per well to achieve a certain volume lifted and that changing to an ESP only required 200 kW of lift power. Since ESPs can drawdown wells better, the switch to ESP allowed higher reserves to be booked, production boosted and carbon taxes reduced. The GoRigless ESP System minimizes system failures and does not require heavy interventions; therefore, wells on gas lift producing high volumes should be evaluated for switching to higher well performance with lower GHG-emitting ESP technology.

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