Schlumberger

Drilling Emissions Management

Reduce emissions during well construction through planning, monitoring, and innovation

Applications

- Forecast and visualize greenhouse gas (GHG) emissions
- Monitor drilling emissions in real time
- Oversee rig energy consumption trends
- Develop real-time emissions management and energy-use reduction solutions
- Use during onshore or offshore drilling operations

Key benefits

- Enables accurate emissions forecast for planned operations
- Enables carbon footprint minimization by comparing carbon footprint from different process or technology options
- Improves accuracy of rig emissions reporting
- Accurate real-time monitoring and visualization of rig emissions
- Helps identify fit-for-purpose and cost-effective solutions to reduce environmental impact
- Utilizes integrated workflows through the DrillPlan* coherent well construction planning solution

Getting emissions under control

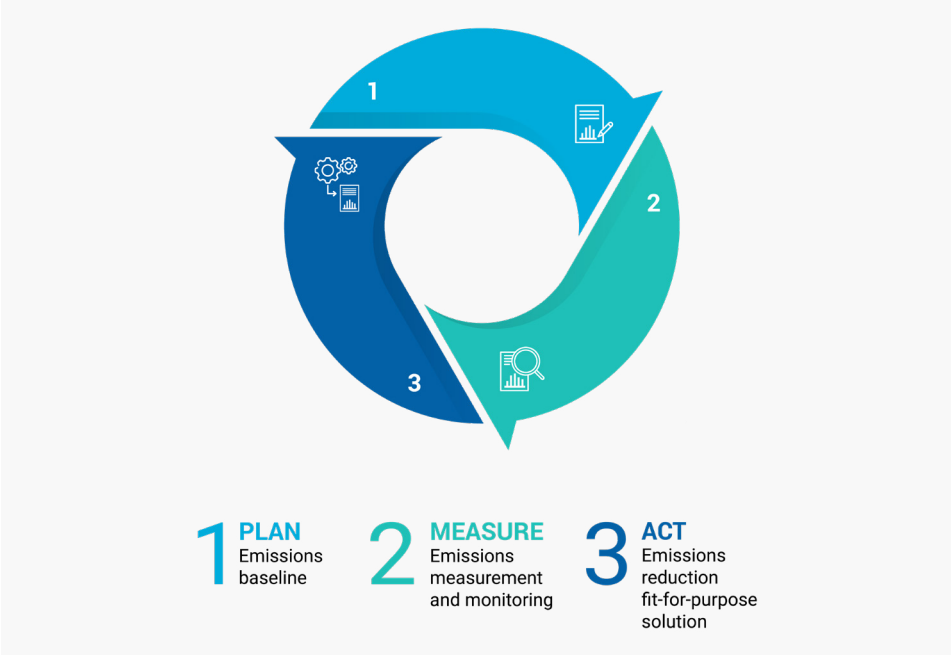
Oil and gas extraction activities create about 10% of current total E&P-related emissions. These emissions primarily consist of CO2 generated by equipment on drilling rigs, platforms and well construction and production related equipment and infrastructure. A key opportunity to reduce CO2 emissions is to improve operational efficiency, reduce energy consumption and target fuel use directly. This can be achieved on a component or project basis, resulting in reduced rig time, reduced transportation requirements, and improved fuel efficiency of generating systems that supply power to the rig and other infrastructure.

How it works

The goal of the drilling emissions management service is to drive down well construction emissions with an end-to-end solution including planning, monitoring, innovative solutions, and continuous improvement. Starting in the planning phase, drilling emissions are forecast and simultaneously the Schlumberger team designs a rig specific emissions monitoring approach to ensure carbon footprint minimization. During the operational phase, Schlumberger technology provides a continuous, real-time stream of data to help identify problems and improve reporting accuracy.

Identifying the right technology

Starting in the planning phase, the Schlumberger team assesses different operational sequences and technology choices aimed at minimizing emissions and designs a rig specific emissions monitoring approach. Alternate technologies, including Transition Technologies, are recommended for each unique case to minimize carbon footprint with maximal efficiency and minimal cost.



Our goal: Reduce emissions during well construction through planning, monitoring, and innovation.

Drilling Emissions Management

Real-time emissions monitoring

Once the well plan is finalized and drilling begins, real-time rig energy consumption measurements and emissions are correlated to the well plan. Energy consumption is used to calculate rig power plant exhaust greenhouse gas emissions, which are monitored and reported in terms of CO2 equivalent global warming potential. In real-time and during the post-job phase, emissions are compared to the plan and actions are suggested to to enable further reductions. These actions leverage our deep understanding of the well construction process, our emissions domain expertise, and fit-for-purpose products and services including our Transition Technologies portfolio.

Continuous improvement

The approach includes a continuous improvement process with three main components:

- carbon footprint modeling during the well planning phase
- real-time rig emissions monitoring during the operational phase using proprietary digital solutions
- comprehensive analysis of all collected information during the evaluation phase by matching and updating the footprint simulation model, capturing lessons learned, and preparing reports and recommendations for future operations.

All three phases are repeated for each well during the entire drilling campaign.

Integrated service offerings

Drilling emissions management can be implemented as part of Schlumberger Integrated Well Construction solutions or as a stand-alone consulting engagement. Value to the your drilling operation increases when Schlumberger services are combined for maximum impact on operational efficiency and the carbon footprint.

Drilling emissions management is an end-to-end integrated service enabling emission reductions for drilling planning and operations, at surface and downhole.

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