A leader in lower upstream carbon intensity operations

Our upstream low carbon intensity provides Aramco with an inherent competitive advantage in the future energy landscape. It is the result of our unrivaled initiatives, which start at the subsurface.

Managing emissions begins at the subsurface

All of our production strategies have enabled outstanding water management performance throughout our reservoirs over many decades. Produced water management plays a key role in lowering carbon intensity, by reducing energy demand to lift fluids, separate, treat, and dispose or reinject the produced water.

Investing in infrastructure, technologies, and digital solutions

Our investments in infrastructure to capture and reduce flared gas, along with our continuous development and deployment of digital solutions to monitor, manage, and reduce our energy intensity and flaring emissions sets us apart from most producers. In 2019, Aramco was benchmarked with the lowest energy intensity among major oil and gas producers, and we have maintained a flare volume of <1% of total raw gas production since 2012.

Oil and gas reservoirs are thousands of feet below the surface. They are complex, made of different rocks and fluids, and are therefore dynamic. The technologies it takes to map, navigate and target specific zones in the subsurface is our specialty.

We devise field development plans to ensure the health and sustainability of our reservoirs using the latest technologies, while keeping our energy and emissions intensity in mind.

Managing emissions begins at the subsurface

Our philosophy of sustainable reservoir management is what sets us apart. Instead of maximizing production from our fields, we prioritize the long-term health of our reservoirs, and opt to produce at lower rates, which prevents premature water breakthrough and can potentially and irreversibly damage reservoirs.

To optimize our well placement and field development plans, we use advanced simulators, such as TeraPOWERS, which can predict water movement within the reservoir and help to optimize production efficiency. Using real-time data, our engineers and scientists can steer multilateral wells with maximum reservoir contact, resulting in precise well placement. This helps target hydrocarbon zones, while minimizing the energy-intensive production of associated water. Our production wells utilize advanced valves and devices, which can detect and manage unwanted water production at the subsurface. This reduces power consumption and CO₂ emissions.

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