

Unlocked hydrocarbons

The kingdom plans to drill in deeper and more complex reservoirs than ever before. The world's best oil field services firms are lining up for contracts. Whoever holds the key to unlocking Bahrain's trapped hydrocarbons will be the island's winners.

In recent decades there has been reason to overlook Bahrain's oil and gas resources. By global standards, the kingdom's oil production is meagre. Daily output has been declining and there has not been a worthwhile hydrocarbons discovery in nearly 80 years. Bahrain has been written off as "a backwater with little hope of making new discoveries." But all that is expected to change, as the kingdom will once more move towards the vanguard of the global oil and gas industry. The next two decades will see exponential upstream growth, as the exploration sector plans to drill as many as 3,600 oil and gas wells. Bahrain's engagement in offshore and deep, tight gas exploration and tertiary oil recovery will place the small archipelago at the forefront of oil field technology. This dramatic expansion will inevitably lead to a strong demand for oil field services.

LAND OF OPPORTUNITY

The kingdom's commitment to increased capacity is opening up the region to oil field services providers. Given the scale of Bahrain's increased production goals, a number of companies are competing for the opportunity to service the country's oil fields. Old hands such as National Petroleum Services (NPS) and Schlumberger are leading the pack, but the need for advanced recovery technologies has caught the attention of smaller firms looking for an opportunity to ply their more specialised services.

In the past there have been few contracts for outside suppliers. Bapco has handled much of the upstream and downstream work. "We have not done many projects in Bahrain because Bapco has always done it by itself," Khalid Mohammed Kanoo, chairman of Kanoo Oil and Gas, told TOGY. "They did not pass a lot of work to us because their needs were not great."

Bapco has been a regional trailblazer in oil field technology. It was the first company in the Middle East to test for deep gas in the 1970s and it has completed a number of development drilling programmes to extend the life of its ageing onshore oil field. As of mid-2009, Bapco had drilled 64 non-vertical wells using directional, horizontal and re-entry technology at its oil field in Awali. It targeted several geological formations of varying thickness in shallow and

medium target depths, including the Ahmedi, Bahrain, Wara and Arab formations.

In the past, Bapco's in-house petroleum engineers and geoscientists have entirely planned and executed drilling programmes. But the objective to triple daily production of the Bahrain Field will require more specialised recovery techniques. Occidental Petroleum (Oxy), the self-proclaimed standard setter for enhanced oil recovery projects, will employ the most advanced methods to release hard-to-reach oil and extend the life of the oldest field in the Arabian Gulf. In Oman, Oxy extended gross daily production of Oman's giant Mukhaizna oil field by six times in three years using steam flooding.

Harnessing the secondary and tertiary oil and gas resources in Bahrain will require firms adept at thermal recovery techniques that can work hand in hand with Oxy. Enhanced oil recovery firms have developed materials and

The pressure on Bahrain to increase domestic gas supplies has pushed the industry to new limits.

equipment to deal with thermal obstacles, such as steam flooding and CO₂, and can remain operational at temperatures above 350°C. With its FloScan imaging technology, Schlumberger has been able to work with deviated and near-horizontal oil wells, mapping water and oil entry points to recover almost 100 percent of targets.

CALLING ALL CARBONATE SPECIALISTS

In Bahrain, the oil field services firms with the biggest competitive edge will be those with extensive knowledge of carbonate reservoirs, which hold more than 60 percent of the world's oil and 40 percent of the world's gas reserves. More than 70 percent of the Middle East's oil reserves are trapped in carbonate reservoirs, like the Bahrain Field. Effective management of

FIGURES

**PLANNED
WELLS TO BE
DRILLED**

3,600

Over the next 20 years