Successful installation of world’s most advanced all-electric intelligent well system
Location: Middle East

An operator in the Middle East drilled a long horizontal well in a field where water breakthrough is known to occur. To mitigate the risk of early water breakthrough and the resulting lost production, the operator turned to Baker Hughes to install the MultiNode™ all-electric intelligent well system, which is the first of its kind in the world.

Baker Hughes delivered the MultiNode all-electric intelligent well system, enabling controlled production from a large number of individual zones, previously not possible with traditional hydraulically controlled intelligent completions.

Throughout this project, Baker Hughes worked seamlessly with the customer’s team of engineers. They incorporated the strengths of local personnel and mobilized global experts from the intelligent production systems engineering team, product line management, and business development team.

The complex completion design incorporated three laterals in an isolated cased hole, as well as a horizontal open hole section, separated into eight individuals zones. MultiNode active flow control devices (AFCD) were installed in each of the eight production zones, and SureSENS™ 175 PT gauges were positioned throughout the completion for real-time downhole pressure and temperature monitoring to determine the productivity in each zone. The AFCD valves can be incrementally closed from the surface without well intervention to restrict flow from high-water-cut zones, increasing recovery from hydrocarbon-rich zones and enabling more consistent production as the well matures. Remotely controlling high-water producing zones improves the life of the well, eliminates future intervention costs, and increases ultimate recovery.

Baker Hughes deployed the right combination of innovative products and expertise to

Results
- Delivered first 8-zone, all-electric intelligent well system in the world

Challenges
- Land well in Middle East expected to produce unevenly over time across eight production zones
- New technology deployment previously untested in both cased and openhole wellbores
- Operation required working with seven hydraulic and electric control lines and penetrations through the bonnet, tubing hanger, and eight packers

Baker Hughes solution
- Increased production potential by installing a MultiNode all-electric intelligent well system that remotely controls production in eight individual zones
- Installed additional InForce™ HCM-S valves to provide redundancy and reduce risks associated with new technology qualification
- Performed thorough cleanout runs and deployed completion without rotation or circulation
- Performed a test run with stiff BHAs to ensure the completion will reach bottom without rotation or circulation
ensure the success of this complex completion installation. Experienced and knowledgeable, the crew delivered an innovative, reliable, versatile intelligent well system that will increase production rates, reduce workover costs, and enhance recovery over the life of the well. The end result was flawless delivery of one of the most advanced intelligent completions to date.