

# Solution for production gain by 20% against formation pressure decline

## Challenges

- Reservoir depletion
- Low flow rate
- Risks of failure of standard submersible equipment

## Results

- Reducing OPEX up to 30%
- Production gain by 20%
- Power saving by 60%

**The reservoir depletion and the decline of non-compensated formation pressure can dramatically decrease the production rates and complicate the output. The accumulation of highly pressurized gas in the casing space or high line pressure is the common reason for well production rate decrease.**

**We have developed a solution that returns the separated gas from casing space into the tubing: the Jet ESP artificial lift system by Lex can increase the production rate up to 20%.**

During the operation of wells, the reservoir pressure declines permanently in the absence of pressure maintenance systems. It leads to a decrease in producing ability of well, and the initially installed equipment cannot effectively adapt to these changes and fully compensate for the production loss. Consequently, the production rates go down, and premature failures of the submersible equipment multiply the number of repairs, ultimately leading to operating company profit drop.

Normally, the companies exercise two approaches to pressure decline:

- Replacement of high-production equipment with smaller size machinery to avoid the deployment of energy-intensive and inefficient operation. The well stops for maintenance, which augments losses exponentially.
- Discontinuous running of the equipment to optimize production. This technique may increase fault risks.

The equipment depth-setting activities may become more difficult due to the dimensions and

impossibility of operating in deviated sections to achieve the desired setting depth.

When burial, a decrease in bottom-hole pressure is possible, which leads to a boost of drawdown and inflow. But this process is followed by the additional appearance of solids content and a large amount of free gas, which leads to premature failures of standard equipment.

A new solution, developed by engineers at Lex, is the **Jet ESP** artificial lift system, which consists of the UHS ESP™ and a jet pump mounted on one tubing string. The technology returns the separated gas from annular space to tubing, decrease annular and, consequently, bottom-hole pressures, thus producing the increased inflow.

The Ultra-High-Speed ESP with the PM motor can rotate up to 12,000 rpm to produce a wide operating range, allowing the pump to maintain maximum performance within the set operating limits even faced with an unstable inflow.

High rotating speed cuts down the length of the UHS ESP™ 3 times compared to standard equipment. It provides more considerable depths in deviated sections (including below the perforation zone) and brings the bottom-hole pressure down, consequently increasing the drawdown. Modular design and hard alloys quadruple the resistance to solids compared to standard equipment.

The introduction of the solution by Lex can allow our customers to cut down on their OPEX by 30% and increase avg 20% production gain per each well, as well as reduce the specific power consumption by 60%.