

Schlumberger



Lift IQ

Production life cycle management service

Lift IQ

Transforming artificial lift operations

Monitoring and surveillance is proven to minimize downtime, maximize production, and reduce total operating cost. High-value offshore wells have historically been monitored; however, large brownfields are now being connected to further optimize production and enable remote operations.

The Lift IQ* production life cycle management service is the premiere monitoring and surveillance platform for artificial lift systems. It provides real-time analytics and optimization with four convenient levels of coverage. From operations in a single well to an entire field, the Lift IQ service taps into the renowned engineering, manufacturing, and surveillance expertise of Schlumberger with access to service centers 24 hours a day and convenient locations across the globe.

Schlumberger is redefining artificial lift excellence with the Lift IQ production life cycle management service.

Monitoring

Surveillance

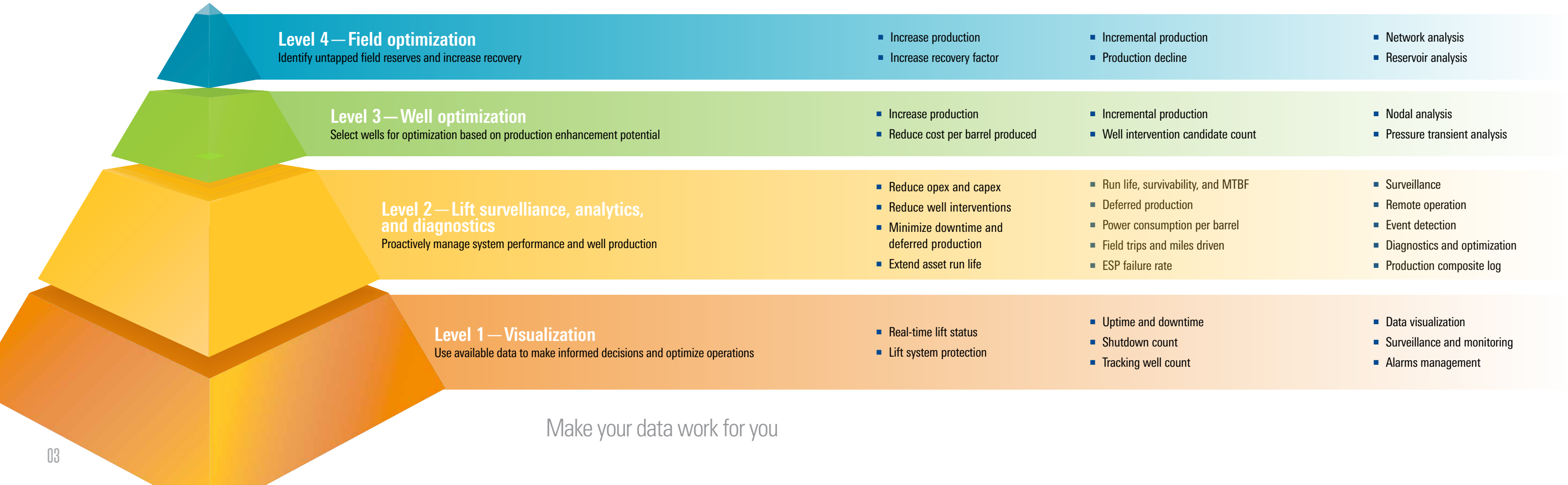
Diagnostics

Optimization

Analytics

- Reduce total cost of ownership
- Mitigate risk of deferred production and workover costs
- Minimize downtime and achieve higher operational reliability
- Increase production through optimization and enhancement techniques
- Eliminate risk of early failure
- Extend ESP run life
- Optimize power consumption
- Obtain valuable well and reservoir diagnostics

Convenient Service Levels



24/7 Surveillance and Support

Dedicated artificial lift surveillance engineers are based at one of many Schlumberger Artificial Lift Surveillance Centers (ALSCs), where they monitor alarms 24/7, 365 days of the year. Our engineers track ESP trips and alarms, from initial identification and diagnosis of the root cause to quick recommendations of remedial action.

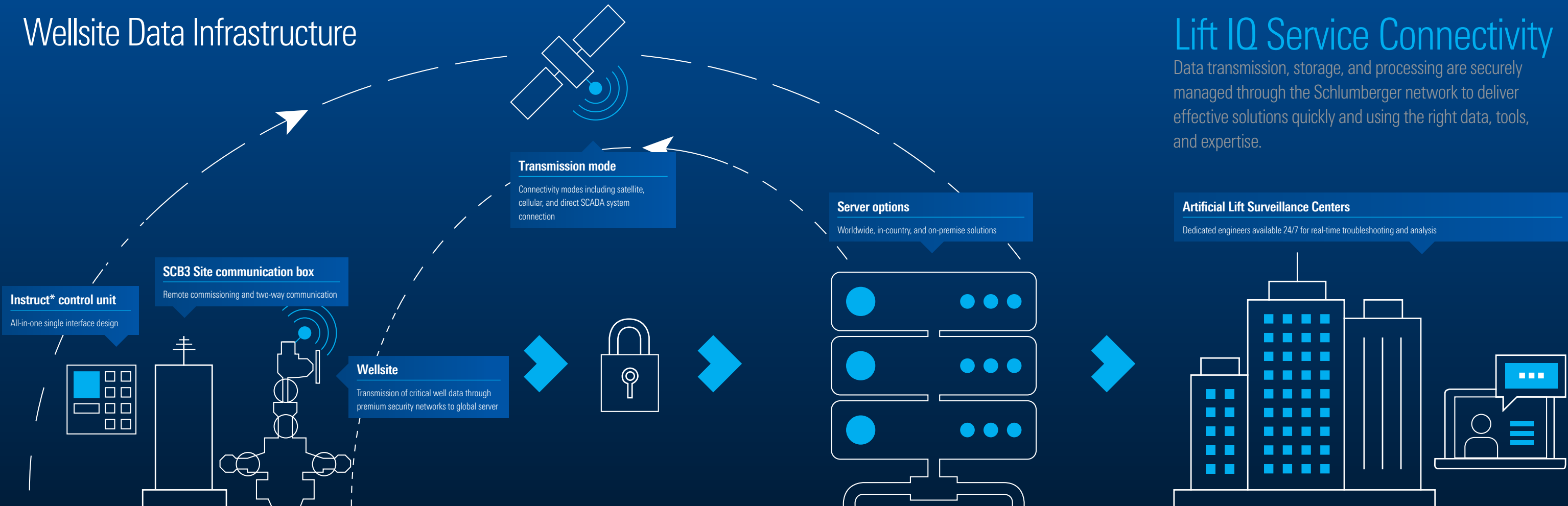
The Schlumberger ALSC monitors hundreds of data signatures—conditions that cause alarms to be sent. One-third of these alarms are considered critical to preventing ESP downtime, misuse, or failure. Prevention of tripping prevents stress on equipment, thereby minimizing failures of pumps and controllers, prolonging their life, and reducing workover costs and the costs of deferred production.

Experience matters

- 90 years of experience and technology leadership
- 32 countries and 187 oil companies using Lift IQ service
- Distinction in research and engineering; manufacturing; operations; application engineering; dismantle inspection failure analysis; and quality, health, safety, and environment (QHSE) reporting
- Multidisciplinary collaboration and support across Schlumberger
- Access to InTouchSupport.com* online support and knowledge management system and QHSE reporting systems, best practices, case studies, and knowledge base repository

- Artificial Lift Surveillance Centers
- Assembly, Repair, and Testing (ART) Center
- Technology and Manufacturing Center

Wellsite Data Infrastructure

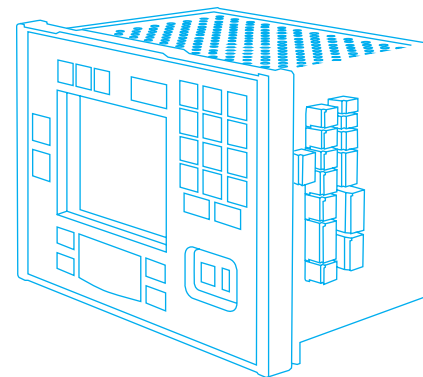
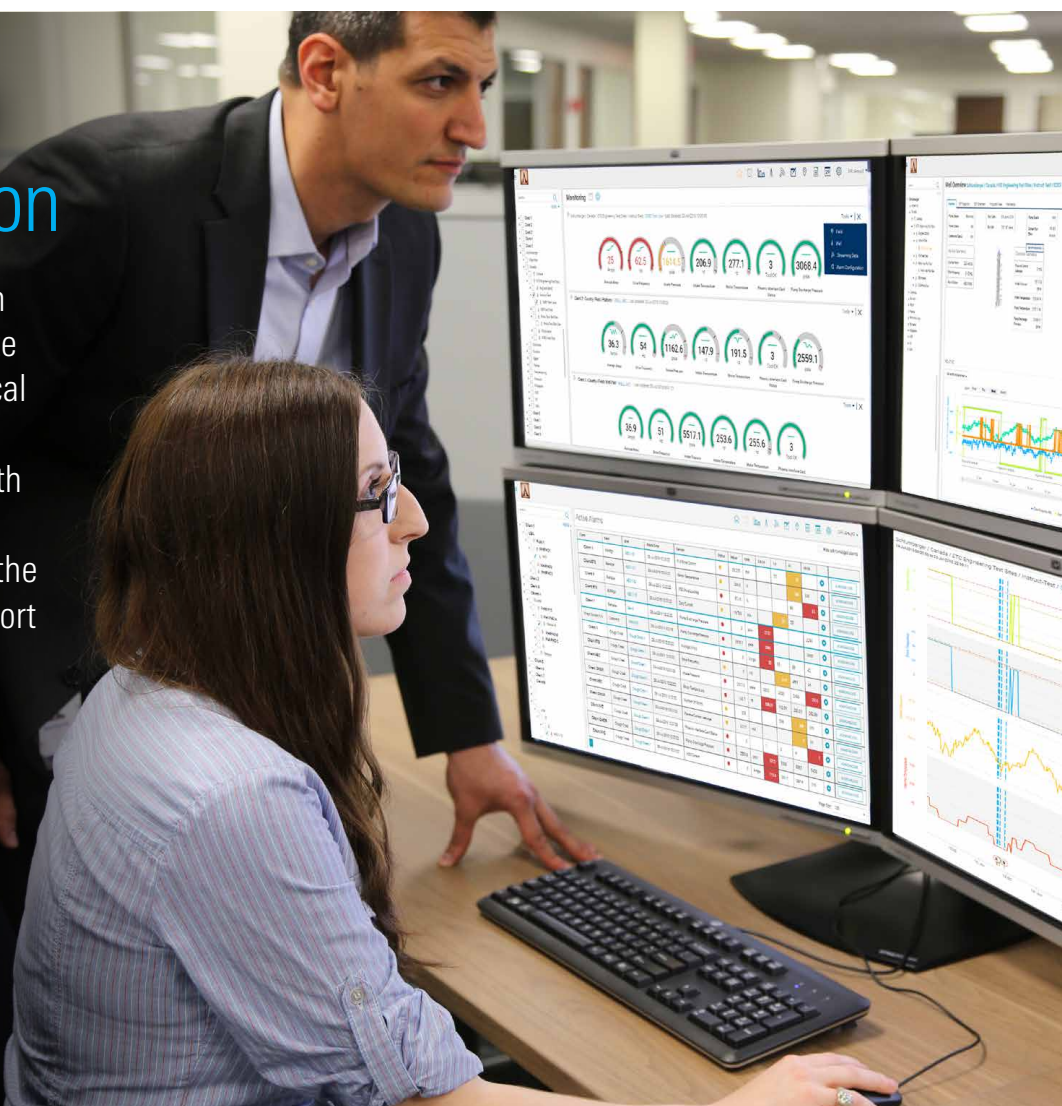


Lift IQ Service Connectivity

Data transmission, storage, and processing are securely managed through the Schlumberger network to deliver effective solutions quickly and using the right data, tools, and expertise.

Data Collection and Transmission

The Instruct all-in-one acquisition and control unit and the SCB3 site communication box are two critical components required to transmit data using the Lift IQ service. With easy-to-use interfaces, the units securely store data and connect the wellsite with 24/7 real-time support and surveillance.



Instruct All-In-One Acquisition and Control Unit

The Instruct unit is designed for the Schlumberger SpeedStar* variable speed drive, SpeedStar MVD* medium-voltage variable speed drive, low-voltage variable speed drive, stand-alone downhole monitoring, and SCADA systems.

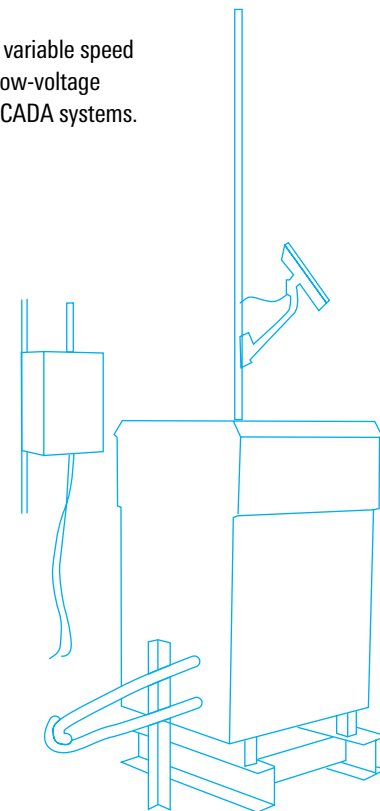
slb.com/Instruct

SCB3 Site Communication Box

The SCB3 site communication box provides remote commissioning and two-way communication via the Artificial Lift Surveillance Centers. It uses local storage to prevent data loss during network outages as well as alarm notifications and exemption reports.

The SCB3 connects to any industry standard controllers using Modbus®.

slb.com/AL



Integrated Proprietary Platform

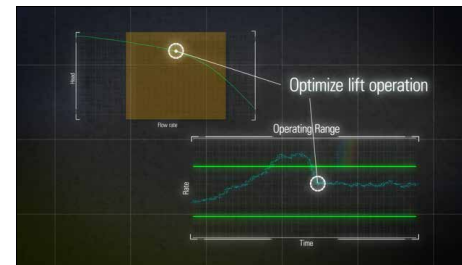
Lift IQ service provides access to all critical wellsite data in one software solution. No more singular programs that lack synchronized integration. Lift IQ service seamlessly merges data into one platform for quick and easy management of all monitoring and troubleshooting requirements.

- One platform with a solutions-based approach
- Monitoring and surveillance
- Well and field performance indicators
- For alarms and events management
- Online ESP diagnostics and optimization



Diagnostics and Optimization

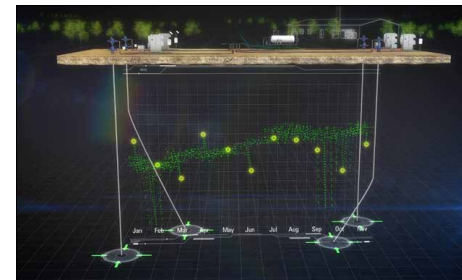
Receive real-time ESP diagnostics and optimization using high-frequency data through Schlumberger proprietary DesignPro* ESP design software. The DesignPro software provides insight into ESP performance and enables engineers to optimize production in the most efficient manner.



Visualization screen after the system stabilizes under defined conditions.

PCL Production Composite Log

This service includes a lift health check, which provides power optimization, enhanced inflow, and decline curve modeling as well as pressure and rate transient analysis.



Real-time flow rate and water-cut trends.

Find out more at slb.com/AL

TECH REPORT

COLOMBIA
CARACARA SUR

GOR, ft ³ /bbl [m ³ /m ³]	200 [35,615]
Bubblepoint pressure, psi [MPa]	150 [1.03]
Bottomhole pressure, psi [MPa]	1,200–2,300 [8.3–15.9]
Pump setting depth, ft [m]	4,000–6,000 [1,219–1,829]
Well depth, ft [m]	6,000–8,000 [1,829–2,438]

Background

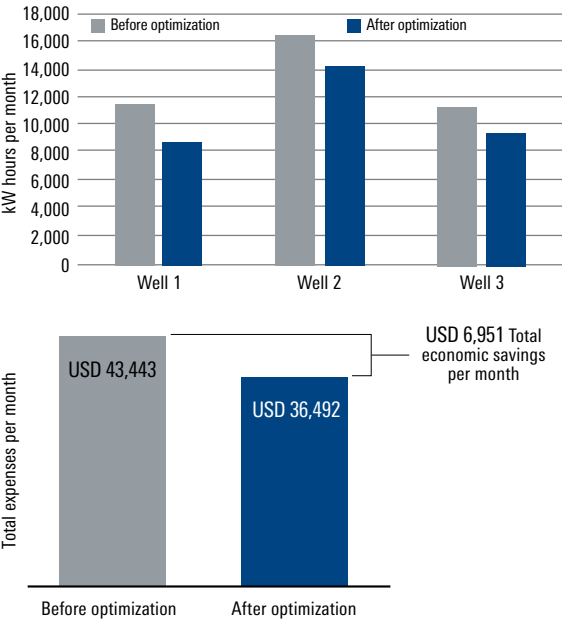
With the current economic climate, the Schlumberger ASLC encouraged Compañía Española de Petróleos (Cepsa) to evaluate system operations to increase efficiency. The installed ESPs were designed based on predicted reservoir and production conditions. However, at the current stage of production, the ESPs were encountering 90% water cut with motor load of less than 45%, which made them inefficient and expensive to run.

Technologies

- Lift IQ production life cycle management service
- DesignPro ESP design software
- PIPESIM* steady-state multiphase flow simulator

Electric Cost Optimization for ESP Saves Estimated USD 480,000 for Cepsa

Lift IQ service obtains real-time data to enable 16% reduction in electric costs during field test



Using Lift IQ service, Schlumberger monitored the ESP operational data for the Caracara Sur field, evaluated the statistical information, and also reviewed production trends, surface and downhole variables, well intervention history, failure cause, and total electric cost and consumption.

Based on this evaluation, Schlumberger used DesignPro software and PIPESIM simulator to optimize electric cost for the ESPs, reducing electric costs by 16% per month across three wells—an approximate savings of USD 79,000 per year. Once introduced to the remaining wells, total savings are expected to reach USD 480,000. This optimization enabled Cepsa to reinvest these expenses in other operational areas and improve overall electrical stability and infrastructure.

TECH REPORT

RUSSIA

Type of field	Gas condensate
GOR, ft ³ /bbl [m ³ /m ³]	3,370 [600]
Bubblepoint pressure, psi [MPa]	2,100 [14.5]
Bottomhole pressure, psi [MPa]	1,014–2190 [7–15.1]
Pump setting, ft [m]	5,577 [1,700]
Well depth, ft [m]	8,530 [2,600]

Background

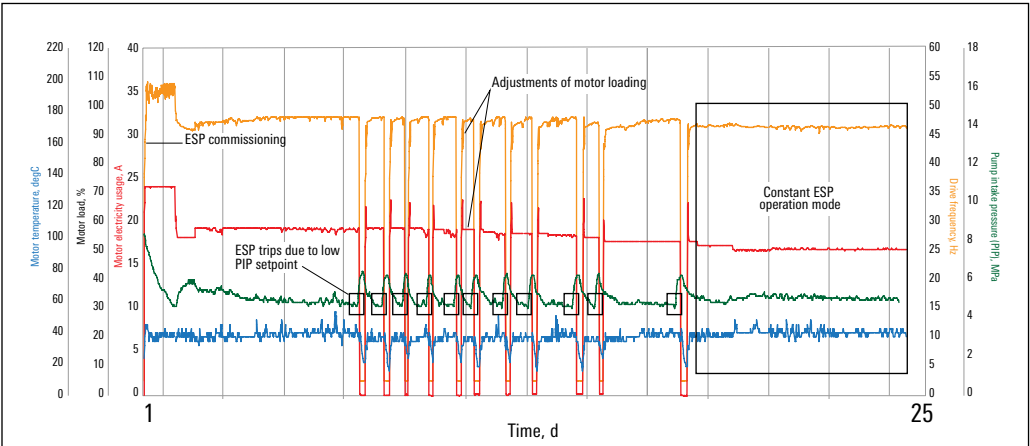
An operator in Russia needed to optimize production by transitioning from gas lift to an ESP in several wells. However, once the ESPs were installed, their operation was compromised due to high GOR, periods of natural flow, limited drawdown pressure, and a Christmas tree configuration that is rarely used with ESPs. As a result, the operator encountered frequent ESP stops, short operating cycles, excessive motor heating, and increased downtime and production deferment.

Technologies

- Lift IQ production life cycle management service
- DesignRite* artificial lift design and optimization software
- PIPESIM* steady-state multiphase flow simulator
- Avocet* production operations software platform

Lift IQ Service Reduces ESP Downtime by 27%

Real-time monitoring enables operator to make adjustments to ESP operation based on improved motor feedback as conditions changed



Schlumberger deployed Lift IQ service to provide real-time control and acquire data, which was analyzed using DesignPro software, PIPESIM simulator, and Avocet platform. Based on this analysis, the team made ESP trip and set point adjustments, improved cyclic-mode periods, and implemented motor amps and load-feedback modes to address the issues encountered. As a result, the operator was able to eliminate ESP stops and enhance ESP longevity, reduce downtime by 27%, and improve overall lift efficiency. Additional reports provided by Schlumberger surveillance engineers continue to help the operator evaluate ESP performance and develop production optimization strategies.



Production life cycle management service

Monitoring
Surveillance
Diagnostics
Optimization
Analytics



slb.com/liftiq

*Mark of Schlumberger
Other company, product, and service names
are the properties of their respective owners.
Copyright © 2017 Schlumberger. All rights reserved. 17-AL-260958

Schlumberger