



Intelevate™ Team Optimizes Field Power Consumption to Target \$290,000 in Annual Electricity Savings

USE OF POWER INDEX FOR ELECTRIC SUBMERSIBLE PUMPS (ESP) OPTIMIZATION IDENTIFIES POWER SAVINGS OPTIMIZATION OPPORTUNITIES ON UNCONVENTIONAL WELLS
NORTH DAKOTA

OVERVIEW

A major operator with operations in North Dakota needed a practical method to regularly evaluate power consumption of 134 ESP pumps and identify optimization opportunities to save on electricity usage.

CHALLENGE

ESP power consumption is a significant cost for hydrocarbon production. The challenge for operators is efficiently evaluating power usage and identifying candidates for optimization. Currently, field personnel must drive to remotely located wells to measure electrical parameters and diagnose running conditions, which is time-consuming, inefficient, and increases safety risks. The issues are exacerbated in unconventional wells because of their rapid, unpredictable post-fracture decline curves, which move ESPs into inefficient operation until field personnel arrives for evaluation.

CHALLENGE

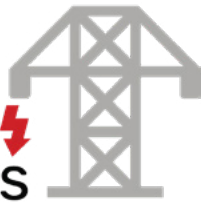
For unconventional wells, rapid post-fracture decline rates lead to a drop-off in ESP efficiency, which can negatively affect power usage. Current optimization methods are inefficient, requiring field personnel to drive millions of miles annually to remotely located wells.

SOLUTION

Summit utilized the Lutz Power Consumption Index to develop a quarterly KPI used by Intelevate engineers along with the Summit Knowledge database, Spyglass, and the Summit monitoring platform to propose efficient optimization actions.

RESULT

- 17% of the customer's active ESP units identified as needing optimization
- 4 million driven miles estimated to be saved
- \$290,000 estimated electrical cost savings

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SOLUTION

The Lutz Index (L.I.), introduced by Thomas Lutz (P.E.) in 1997, is a simple energy calculation used to identify candidate wells for ESP power optimization. Utilizing easily obtained performance parameters – system power, flow rate and total dynamic head – the index represents how much power is required by the ESP system to produce 1 barrel of well fluid over a total dynamic head of 1,000 ft.

RESULTS

Study results in this field showed that 81% of units were within recommended power consumption limits, 2% were below average and 17% had an above-average power consumption. The team produced a detailed report of wells for further on-site analysis and a recommended list of actions that aim to reduce yearly electricity costs by \$290,000 and save up to 4 million driven miles. The customer was exceedingly please with the Intelevate team's recommendations and has green-lighted the continued development and implementation of the power index project.

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