NOVOMET

CASE STUDY

PowerSave ESP Reduced Power Costs by $111,469 USD in a Head-to-Head Test of Low-Flow Wells

CHALLENGE

Producer wanted to reduce power consumption in low-flow wells to manage OPEX

SOLUTION

Conduct comparative study between PowerSave ESPs and industry-standard ESPs

RESULTS

- Cut annual ESP-related power costs by $111,469 USD
- Reduced energy consumption by 43%
- Lowered OPEX and lifting costs on low-flow wells

Looking for Ways to Reduce Power Consumption and Manage OPEX

A producer in Ecuador wanted to reduce power consumption to manage OPEX in older, low-flow wells. They reviewed multiple companies and technologies before deciding to focus on the PowerSave high-efficiency ESP system from Novomet. The producer installed a PowerSave system in one well and the conventional ESP technology that dominated the field in an offset well. The wells had similar characteristics and conditions, offering the consistency needed for the producer to accurately compare performance and efficiency between the PowerSave ESP and the conventional system.

Putting PowerSave ESPs to the Test

The producer installed the PowerSave ESP system in Well A. The system consisted of two high-efficiency pumps driven by a permanent magnet motor. The intake was set at 9,706 ft (2960 m) and produced a little more than 500 BFPD (79.49 m^3/d) with 20% water cut. Total dynamic head for the pump was 10,892 ft (3320 m).

PowerSave ESPs with permanent magnet motors are reducing power consumption by 43% in low-flow wells in Ecuador.

Ecuador

The producer installed the most widely used ESP system in the field in Well B. It consisted of two competitor pumps with conventional pump stages and an industry standard asynchronous induction motor. The intake was set at 9,732 ft (2966 m) and produced a little less than 500 BFPD (79.4 m^3/d) at 18% water cut. The total dynamic head was 10,618 ft (3236 m).

Tracking the Results

The PowerSave ESP in Well A ran at a frequency of 73 Hz to drive the 105-HP 6000-RPM permanent magnet motor. The high efficiency ESP consumed an average of 51.52 kW/h.

The conventional ESP in Well B ran at a frequency of 58 Hz to drive the 168-HP industry standard induction motor. This system consumed an average of 90.08 kW/h.

Assessing the Results

The PowerSave ESP in Well A reduced the calculated energy consumption by 43% compared to the industry standard system.

After two months of operation, the PowerSave system averaged 1,236 kWh per day. The conventional ESP averaged 2,179 kWh per day. Using the field-wide diesel-generator cost of $0.33 USD per kWh at the time, the PowerSave system saved the producer $305 USD per day and $9,289 USD per month. The PowerSave ESP system in Well A cost 43% less to operate than the conventional ESP in Well B.

During the first year alone, the producer paid $111,469 USD more to produce Well B than to produce Well A.

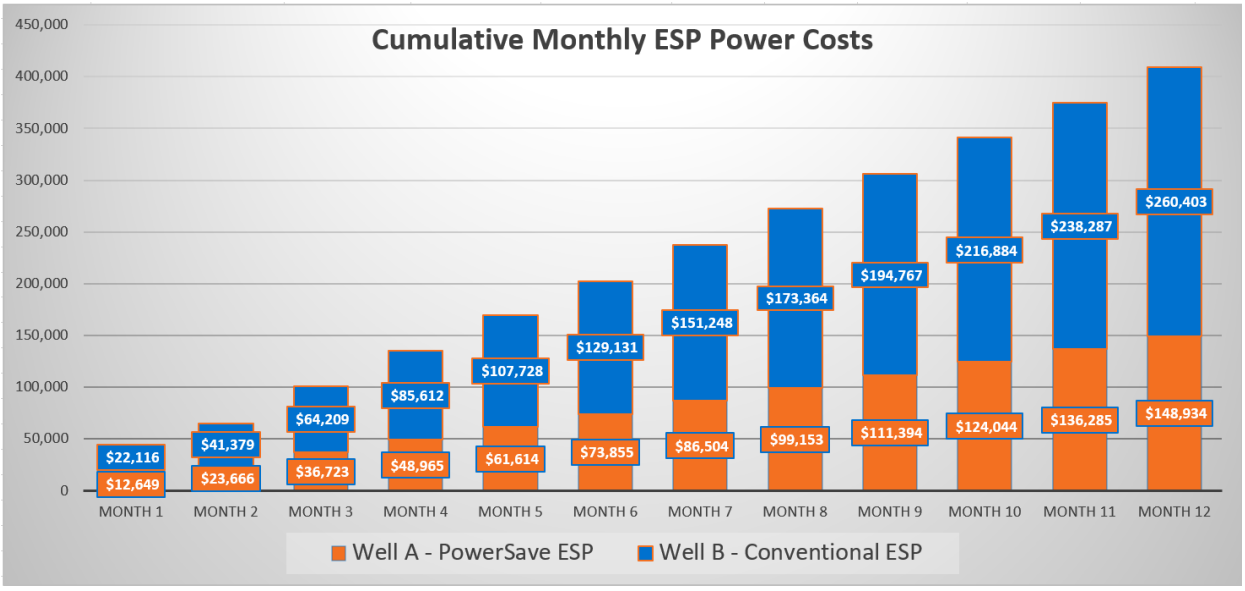
Acting on the Results

The producer continued to test PowerSave systems and has adopted the technology for use in its low-flow wells. They have significantly lowered their OPEX and lifting costs by implementing PowerSave technology across the field.

About the Technology

The PowerSave ESP system combines proprietary pump-stage design, precision parts manufactured using powder metallurgy, and advanced permanent magnet motor (PMM) technology to lower ESP power consumption by 30% or more when compared to the next most efficient competing systems.

It is not unusual to see electricity savings of 50% or higher depending on the equipment being replaced. While reducing ESP electrical consumption is an effective way to lower OPEX, it has the added benefit of reducing carbon emissions. To learn more, visit novometgroup.com/powersave.



The PowerSave ESP in Well A saved the producer $111,469 USD over the course of 12 months compared to the conventional ESP in Well B.