

# PowerSave High-Efficiency ESP Increases Annual Well Return by \$511,000 USD Over Previous Rod-Lift System

## CHALLENGE

An operator wanted a more efficient, cost effective alternative to rod pump systems

## SOLUTION

Deploy a PowerSave high-efficiency ESP driven by a permanent magnet motor

## RESULTS

- Increased production 70%
- Generated more than \$40,000 USD more revenue per month at \$30 USD per barrel
- Cut the monthly power bill 32% compared to rod lift and 30% compared to competing ESPs in the field

## Breaking a Bad Rod-Lift Cycle

An operator with a horizontal well in Saskatchewan, Canada was caught in the wasteful rod-lift cycle of having to replace rods on a regular basis and being limited to 100 m<sup>3</sup>/d (630 BPD) production. When the rod needed to be replaced yet again on the well, requiring yet another unplanned workover charge, the operator decided to look at alternative artificial lift technologies. After reviewing multiple electrical submersible pumping (ESP) systems, they made the decision to install Novomet equipment based on a track record of reliability and unmatched efficiency.



Replacing the pumpjack and rod-lift equipment with a PowerSave high-efficiency ESP with a PMM not only saved money, it also increased oil production by 70%.

**Saskatchewan**

## Installing a High-Efficiency ESP, PMM

Novomet delivered a 4.06-in. (103-mm) [PowerSave high-efficiency ESP system](#) driven by a powerful 4.60-in. (117-mm) [permanent magnet motor](#) (PMM) to replace the rod lift system previously used to produce the well. The pump was installed at 1200 m (3,937 ft) measured depth and 1121 m (3,678 ft) total vertical depth.

## Measuring Results, Reaping Benefits

Replacing the pumpjack and rod-lift system with a high-efficiency ESP delivered immediate results. Monthly fluid production (water and oil) went from 100 m<sup>3</sup>/d to 170 m<sup>3</sup>/d (630 BPD to 1,070 BPD). Production went from 10.4 m<sup>3</sup>/d to 17.68 m<sup>3</sup>/d (from 65 BPD to 111 BPD). Switching from rod lift to the PowerSave ESP resulted in an immediate 70% increase in daily oil production.

The high-efficiency ESP system increased total monthly oil production of the well by 218.4 m<sup>3</sup> (1,375 bbl). At a conservative \$30 USD per barrel, this represents an additional \$41,277 USD per month revenue on the well, or \$495,324 USD per year.

While increased production led to higher revenue for the operator, they were also able to boost profits by reducing OPEX with the high-efficiency ESP installation. The table below compares the electrical cost per cubic meter for the pumpjack, a competitor's ESP running an induction motor in an offset well in the same field, and the PowerSave ESP with PMM.

Power Costs for Different Artificial Lift Methods			
	USD/m <sup>3</sup>	Monthly Cost	Annual Cost
Pumpjack	\$0.870	\$4,437	\$53,244
Competing ESP	\$0.863	\$4,401	\$52,812
PowerSave ESP	\$0.597	\$3,045	\$36,540

The PowerSave ESP reduced the monthly power bill 30% compared to the offset well ESP system and 32% compared to the pumpjack. This works out to an annual OPEX savings of over \$16,000 USD compared to rod lift and competing ESP systems.

Combining head-to-head OPEX savings with gains from increased production, the well is on track to put over \$511,000 USD more in the producer's pocket for the year.

## About the Technology

The PowerSave high-efficiency ESP system combines proprietary pump-stage design, precision parts manufactured using powder metallurgy, and advanced permanent magnet motor 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. Higher ESP efficiency has also been shown to have a direct correlation to higher reliability since less energy is lost on heat and vibration. 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](http://novometgroup.com/powersave).

Our permanent magnet motors lead the industry in efficiency and reliability. On average, they reduce ESP power consumption between 15 and 25% compared with the induction motors used by most competitors. The PMM delivers 93% efficiency starting at 50% load and taking that same efficiency up to 100% load. Induction motors lag behind with typically exaggerated claims of 78 to 80% efficiency at 100% load only and typical real-world efficiencies of only 70 to 75%. When combined with our energy-efficient pump stages, operators typically see their ESP-related power bills drop by 25–30%, with savings reaching as high as 50% compared to older equipment.