Smart Motor System™

CUSTOMER CASE STUDY



Calyx Energy Runs Its Natural Gas Wells with **Higher Operational Efficiency** and **Achieves 20% Energy Reduction** with the Turntide Smart Motor System™

Based in Tulsa, Oklahoma, Calyx Energy has been a major player in the energy industry in the United States Mid-Continent region since 2014. The company has successfully grown its reputation as one of the best operators in the area by doing business through its core values of integrity, safety, and minimizing the environmental impact of energy production. As a result, the company now operates over 100 natural gas wells in the northern Arkoma Basin.

Calyx Energy takes a highly proactive approach to maximizing the efficiency and sustainability of its operations, recognizing that it is a win-win initiative for its business. The company has invested in cutting-edge technologies and processes that make operations safer, less burdensome on field personnel, and less energy-intensive on the planet, all while maximizing returns and profitability.

Calyx Energy is also mindful of staying ahead of the curve of rules and regulations that could impact its industry. They pro-actively implement environmental improvements so they can be prepared for new regulations well before they take effect. Calyx recognizes that a more sustainable natural gas well is better in the long run, where more efficient equipment limits energy use, reduces energy losses, and eliminates natural gas combustion where possible.

Application:

Motor Retrofit for Water Pumps in Natural Gas Wells

Issues:

- Incorrectly Sized Equipment
- Costly Remote Site Visits

Solution:

Turntide Smart Motor System (5HP)

Results:

- Reduced Energy Use
- Proper Motor Sizing
- Easy Management of Well Sites

Business Challenge

Natural gas wells are incredibly challenging to manage with high efficiency, both from a technology and process perspective. Oversized and inefficient equipment located in remote well site locations increases the risk of downtime, posing a challenge even for the most experienced oil and gas operators.

Natural gas wells operate using water pumps: water is pumped into the drilling location, which creates a pressure differential that enables natural gas extraction and production. These wells naturally degrade over time, and less water is needed for the extraction process in as little as 18 months. As a result, motors become oversized for their application and become highly inefficient.

Furthermore, oversized motors are more prone to breaking down. Downtime is costly for natural gas companies – thousands of dollars in production are lost every hour a well isn't operating. This matter is further complicated by location and labor constraints: wells are in remote, hard-to-reach locations, often operating without connectivity, and can be maintained and serviced only by skilled, experienced pumpers who are in short supply and have busy, set schedules.

To tackle the issues caused by oversized motors and the lack of site visibility, Calyx Energy sought a solution to improve its pumping operations. After researching and assessing different technologies in the market, Calyx Energy identified the Turntide Smart Motor System as a possible solution to meet their objectives. Turntide was attractive to Calyx because its system could tackle multiple pain points with one solution: it reduces energy consumption, runs efficiently and smoothly at lower operating speeds, and enables remote management of pumps in hard-to-reach locations.



After initial discussions confirmed that Turntide's solution could be an excellent fit for Calyx Energy, the Turntide team worked closely with Calyx Energy to determine the best path forward to pilot Turntide smart motors on-site.

Objective

After a thorough technical review, both companies agreed that Turntide's 5HP V02 motors would provide the appropriate speed modulation needed to adjust to the brine water usage rates in its water pumps after 18 months. Calyx Energy decided to deploy the Turntide Smart Motor System at three pilot well sites.

Calyx Energy had two main objectives for the Smart Motor System pilot:

1. Obtain real-world field data to validate that Turntide's smart motor was a right-sized motor solution
2. Explore how the Turntide Smart Motor System's remote management functionalities could benefit everyday oil and gas workstreams. Through the pilot, Turntide advised Calyx how the Smart Motor System could enable them to remotely view, assess, and modify key operating parameters like motor RPM to match the pump's optimum efficiency curve.

Business Outcomes

After removing the previously oversized 25HP motors, and installing Turntide's right-sized, connected smart motors with Calyx Energy's mated water pumps, the company saw immediate benefits that improved overall operational efficiencies.



Proper Motor Sizing

The downsized 5HP V02 Turntide motors matched the gas well's throughput, improving the overall efficiency and reliability of the pumping operation.



Reduced Energy Use

Calyx Energy has reduced energy use by an average of 20% per well site with a Turntide Smart Motor powering the brine water pump.



Remote Site Management

Turntide's remote management solution allowed Calyx Energy engineers to modulate motor speed to ideal pump efficiency and identify potential problems – all done remotely, without sending a pumper on-site.



Reduction of Burden on Field Personnel

As on-site pumpers no longer need to fine-tune motor settings on-site, pumpers can focus their attention on other areas of work or maintenance, making on-site visits less burdensome, more efficient, and more productive.

Due to the positive field results from the pilot, Calyx Energy is scaling up its deployment of Turntide smart motors. Calyx Energy expects to have over 20 Turntide smart motors installed at its natural gas well sites by the end of 2022.

Additionally, Calyx Energy has planned to equip new wells with Turntide's 15HP V03 motor solution, which will further optimize a natural gas well's complete lifetime energy use.

Turntide For Pumps

The Turntide Smart Motor System™ helps customers reduce energy consumption while streamlining operations. Contact us today to learn how Turntide motors can bring operational efficiency into your pump application.





Learn More

Speak with our team to learn more about how the Turntide Smart Motor System™ can help you drive down energy costs, boost your bottom line, and meet your sustainability goals.

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