

INVESTING IN OILFIELD INTEGRATION AND ELECTRIFICATION TO POWER AHEAD

With many oil and gas companies planning for future alternative energy needs, a confidential client in West Texas requested our team help plan and implement upgrades that connected existing assets to a private electric grid.



UPSTREAM ELECTRIC INFRASTRUCTURE UPGRADES ANTICIPATE FUTURE NEEDS

The upgrades made will be implemented with the goal of minimizing greenhouse gas emissions and operational costs moving forward.

PROJECT STATS

CLIENT

Confidential client

LOCATION

Permian Basin, Texas

ANTICIPATED COMPLETION

2025

300

MILES ELECTRICAL DISTRIBUTION LINE

150

METRIC TONS PER YEAR IN REDUCED CARBON EMISSIONS BASED ON INSTALLATIONS TO DATE

\$311M

CLIENT'S LARGEST U.S. ONSHORE ELECTRICAL INFRASTRUCTURE PROJECT

CHALLENGE

An oil and gas client anticipated its oilfield electrical load would require an additional 400 to 500 megawatts over the next five years to support the company's increasing production. Originally, the client planned to utilize on-site natural gas generators for three years until a local utility could build the necessary electrical infrastructure.

While the utility had adequate capacity to serve the forecasted load growth with the existing high-voltage transmission system, it could not justify the cost of providing infrastructure unless it would have guaranteed load. Additionally, the utility could not support the oil producer's need for an operational private electric grid within a year.

FORECASTING A SOLUTION

An initial study was conducted to analyze the client's options and identify

potential solutions to meet load requirements for a potential private electric grid. The study evaluated the potential for cost savings by upgrading the client's electrical infrastructure and eliminating the use of on-site rental diesel generators.

To determine these savings, power usage was established based on the forecasted drilling and production schedules. An average rate was established using the cost of on-site generators compared to the equivalent cost of grid power. The cost of electrical infrastructure was then added to get a comprehensive picture and compare potential solutions.

Our integrated team of engineering, construction and technology-oriented professionals was brought in to handle every aspect of the project, from strategic planning to solution implementation, as well





as to conduct the initial study. The team also utilized 1898 & Co., part of Burns & McDonnell, to assess and analyze relevant data for the client. 1898 & Co. established a power system plan to assess and map the current transmission system as a starting point to guide or make recommendations on physical upgrades to the electric infrastructure. The upfront planning provided executives with a strategy of exactly how long it would take for the project to be paid off based on expected savings as well as estimates for reducing greenhouse gas emissions by investing in a private electric grid.

REAL RESULTS

The study revealed the potential for more than 40% in power-related savings with the added benefit of greenhouse gas reduction when converting from on-site generation

to electrical grid power. The client decided to invest in the electrical infrastructure required, which includes nine switchyards, four substations and four generators and up to 300 miles of electrical distribution lines. The project showed a rate of return in less than three years, with additional benefits possible with long-term operation.

This oilfield electrification was part of the client's largest U.S. onshore electrical infrastructure project totaling \$311 million. The project also resulted in a net decrease in carbon emissions by more than 150 metric tons per year. Through the efforts of an integrated team, the electric grid was fully operational within a year of the project's planning and design phase, which began in June 2019. As part of the ongoing upgrades made to the company's electrical

infrastructure, the entire project and our team's involvement is expected to be complete in 2025.

“ *I truly enjoyed working with the Burns & McDonnell team. The discipline on project support and attention to detail was truly excellent.*”

CONFIDENTIAL CLIENT



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