

# Water Recycling Company Cleans Up Permian Air

Oil and Gas Services Firm Realizes Environmental Benefits and Cost Savings With Switch to Natural Gas-Fired Power Generation

## THE CHALLENGE

Properly managing water in the oilfield is critical for operators seeking to achieve production and cost targets. While some operators fully manage their own water, most seek additional support from specialized oil and gas service companies.

Struggling with their diesel-powered generator options, an innovative water recycling company providing services to operators in the Permian Basin reached out to Baseline Energy Services in search of a more reliable and cost-effective power solution that could seamlessly scale up with demand over the lifecycle of a project.

Unfortunately, the issues the customer was facing with diesel from another power provider are extremely common. The diesel generators were not cost-effective, not reliable, and not optimal for the environment. And without a good utility connection, the customer was often left without any power for the four, 600 horsepower injection pumps needed to move fifty thousand barrels of water per day.

## THE BASELINE SOLUTION

During the initial needs assessment, we determined this to be a great application for Baseline's natural gas generators to lower the customer's costs, reduce their carbon footprint, and provide a reliable source of power. As a forward-thinking service provider themselves, the customer was receptive to implementing an ESG-centric and financially compelling solution.

The Baseline solution was to bring in six, 235 kW natural gas-fired generators and parallel them together for ample power supply and full redundancy, so that any generator maintenance needed during the

course of operation could be performed without the customer experiencing any power disruptions.

The lowest-cost fuel in the oilfield is wellhead gas, which Baseline often utilizes by channeling through on-board fuel scrubbers (and also an external H<sub>2</sub>S treating system when required), however in this case there was not a natural gas fuel supply readily available, so Baseline coordinated with a virtual pipeline fuel provider for a consistent supply.



*Five plus one backup NG 250 (235 kW) Baseline generators outputting 1,000 kW of electric power for two high-output injection pumps at project startup.*

## PROJECT IMPLEMENTATION

Within two days of initial contact, Baseline had fully scoped the project and agreed to terms with the water recycling company. And as oil and gas projects often do, this one became expedited at the customer's request. Baseline then put it in high gear and within just four days from initial contact (two days following project agreement), mobilized all equipment, coordinated the delivery of the

fuel supply, made all the necessary fuel and electrical connections, performed a thorough safety audit, and powered up the site.

## PROJECT SCALABILITY

Within the first 30 days of startup and all systems running smooth, the customer already needed to place all four injection pumps into full-time operation. Because of Baseline's proprietary hub-and-spoke paralleling system and project-specific system design, the addition of six more 235 kW generators was a simple task.

At the customer's request, Baseline added generators in stages as the third and fourth injection pumps were brought online, scaling up to deliver 2,500 kilowatts (2.5 MW) of peak power in an N+1 system configuration.

This flexibility to build out additional power capacity allows for minimal downtime for the customer, which is not possible when utilizing a single large diesel generator.

## COMMERCIAL BENEFITS

Regardless of the source of natural gas fuel (virtual pipeline or stranded gas on location), utilizing a modular, reciprocating natural gas power generation system in place of a diesel power generation system yields a strong financial benefit to Baseline's customers.

Based on actual consumption from this project, the customer experienced a **53% reduction in fuel cost** by switching from diesel to natural gas on the first megawatt of power needed. With all four injection pumps online, Baseline projects the average monthly natural gas fuel cost to be \$204,000, for which the equivalent diesel fuel cost is \$354,000, representing a monthly cost reduction for our customer of approximately \$150,000 or \$1.8 million in a single year!

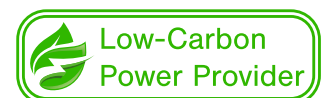
Baseline's natural gas power solutions deliver excellent cost efficiencies to our customers through fuel savings and additional soft cost savings as well, found in zero downtime during maintenance intervals, consistent line power-exceeding uptime (company historical average over 99%), reduction in communications required because of Baseline Telematics Solution, and the elimination of fines for fluid spills and air quality violations common with diesel packages and less competent power providers.



Baseline natural gas-fired generators providing 1,000 kW of electric power for two 600 horsepower injection pumps at project startup.

## SUCCESSFUL OUTCOME

By switching from diesel to natural gas power generation with Baseline, the water recycling company cut fuel costs by approximately half, further reduced their environmental impact, improved operational reliability, and greatly enhanced their ability to be responsive to their own customers. Baseline is proud to partner with customers on projects such as this and deliver ESG-centric power solutions that benefit our customers' balance sheets and the environment.



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If you are currently operating diesel generators in any capacity and want to know more about switching to natural gas, please contact us and reference this case study.