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A Quality approach to energy improvement

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A change of mindset in the oil and gas industry has companies increasingly seeking ways to be more innovative in how they manage energy at their projects.

In the past, oil and gas companies often took a production-at-all-costs approach to capitalise on strong commodity prices and surging demand from international export markets.

These companies have been forced to change their strategies as they have faced the combination of a volatile oil and gas market and growing social expectations to become more environmentally conscious.

To adapt to this environment, companies are looking for techniques that will help them reduce operating costs while also being more energy efficient.

Australian oil and gas producer Beach Energy has achieved a positive outcome on both fronts during development of natural gas reservoirs at the Halladale Black Watch and Speculant project in Victoria's Otway Basin.

Beach used power factor correction technology developed by Australian company Quality Energy (QE) to help drill through 7km of land and sub-sea earth structures.

The technology has saved Beach more than \$2 million in operational costs and reduced its carbon emissions by up to 2814kg of carbon a day.

Prior to partnering with QE, Beach had experienced operational inefficiencies on a rig it planned to use for the Black Watch drilling program, which required more power than the equipment was able to produce.

In 2018, QE proposed its technology, which had been developed almost a decade earlier, as an option that Beach could apply to the project.

QE managing director Luke Stratford said the technology was ideal for the older rig that Beach wanted to use and would mean the company wouldn't need to upgrade its generator set.

"Beach had this rig that was running inefficiently, and they also needed to drill a new type of well," Stratford said.

"It needed to drill vertically and then horizontally out to the ocean floor, but wasn't capable of doing that with the inefficiencies. It either needed a new generator or needed to become more efficient.

"They asked what could we do about the efficiencies so I did some testing with our system and we found that if we put our equipment on the rig it would be the equivalent of a brand new genset."

QE is a Melbourne-based technology company that has worked with oil and gas producers globally to deliver greater efficiencies for more than 15 years.

Power factor correction technology, such as what QE has developed, has not been widely used in the oil and gas sector until recent years, despite being commonly applied in other industries.

During a stint working abroad several years earlier, Stratford recognised an opportunity for oil and gas companies to improve their power quality and energy efficiency using power factor correction.

Stratford noticed that the industry's standards in both areas were lower compared with other industries, such as manufacturing. He attributed this situation to a long-standing mindset among oil and gas companies.

"Traditionally oil and gas companies just had so much money that they would throw it at projects; if there were inefficiencies it didn't matter because it was all about making money," Stratford said.

"It was an old school mindset that I was seeing but I knew we had the technology from what we were doing back in Australia that would actually benefit the sector."

The technology initially attracted interest from oil and gas companies a decade ago, but Stratford believes the industry's needs had not yet evolved to a point where they would take a gamble on it.

"It was looked at fairly closely. They just didn't see the actual need for it at the time, they didn't see the benefit and because it was something new, they weren't prepared to take that jump," Stratford said.

Beach's punt on QE's system years later turned out to be more out of necessity to improve the performance of the rig. However, it has highlighted the range of benefits that power factor correction can offer the oil and gas industry.

Through a \$500,000 investment, the technology eliminated the need to spend \$1 million on a new generator set, while also reducing Beach's need for diesel by up to 5 per cent.

Beach's maintenance and downtime costs have also been cut by up to 20 per cent. From an environmental perspective, the reduction in carbon is equal to planting up to 46,720 trees a year, according to QE.

"This technology isn't something new but it is new as far as where it has been applied," Stratford said. "We have seen this technology used on grid power for years and years, but it was just about applying that same theory and that same engineering to an oil and gas rig."

QE is also working with several Asian offshore drilling rigs in the South China Sea, helping improve their power efficiency and power quality outcomes.

With the mindset of companies continuing to evolve in a low oil price environment, QE believes the Beach project is reinforcement that the technology can deliver greater efficiencies for the industry on a global stage.

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