

TengizChevrOil



Steppe by steppe: powering an oilfield the size of Paris

How do you go about providing an uninterrupted energy solution for the world's deepest oilfield?

Not just the world's deepest. Tengiz, lying on the north-eastern shores of the Caspian Sea, is also the world's sixth-biggest oilfield, covering a staggering 2,500km² of Kazakhstan's western steppe. Discovered in 1979, and operational since the mid 1990s, its annual output could satisfy an entire country's oil demand.

Now its operating consortium, TengizChevrOil (TCO), is nearing completion on a massive multi-billion-dollar expansion of the field's output. The Future Growth Project (FGP) will add another 66 wells to the existing 53 to take daily production to a mind-bending million barrels per day. With current estimates placing Tengiz reserves at up to 11 billion barrels of recoverable oil, it will take another 30 years before the oil stops flowing.

But nearly 1,000 miles from the capital Astana, this is a remote area with little conventional infrastructure beyond the oil and gas installations. Operational success – and return on investment – requires the oil to keep flowing, control rooms powered, wellhead safety assured and a workforce of thousands fed and accommodated. And all that demands a reliable supply of power.

Key Facts

Customer
TengizChevrOil

Location
Satpayev, Kazakhstan

Engine model
Perkins® 4000 Series

Application
Generators

OEM
Teksan

OEM website
teksan.com



That's why GATE, the primary FGP contractor for Tengiz, turned to Turkish energy specialist Teksan when it needed to fulfil a major order for 48 generator sets to support installations across the field. Founded in Istanbul in 1994, the family-run company has a production capacity of more than 15,000 generator sets every year, supplying customers in over 130 countries.

"We've grown something of a reputation for providing power solutions to national and international engineering and technology projects," says Deniz Ar, the company's deputy general manager. "Our products are specified everywhere from hospitals to shopping malls, hotels to data centres, and housing projects to industrial facilities, because they're known to work seamlessly under all conditions."

That ability to perform in challenging conditions – harsh terrain, extremes of climate – was hugely important for GATE. Temperatures across the Tengiz oilfield can vary from -40°C in winter to nearly 40°C in summer; resilience and reliability are vital.

The Perkins® 4000 Series is ideally suited to such applications. Models from 6 to 16 cylinders provide reliable capacity for these installations, whether prime or standby, and can achieve regulated or unregulated emissions standards to suit most regulations throughout the world.

They also offer exceptional power-to-weight ratios, making them simple to transport and install – a prime consideration in an area as remote as Tengiz.

"The Perkins 4000 has proved itself in the market, as its robust build and favourable fuel consumption began to attract attention, the market noticed – and this has been reflected in sales."

Deniz Ar, deputy general manager, Teksan

"Ease of transportation is certainly a consideration," says Deniz, "but the attributes of quality and fuel efficiency still matter. The Perkins 4000 Series satisfies both and, coupled with the -available engineering support from the Perkins application team, it's an easy choice.

"On top of that, Perkins carries the major attraction of its well-known brand – that's a priority for companies, having a brand they can trust. It must still be matched with price, of course."

Within six months of the project being confirmed, the engineering team at Teksan's Sarigazi factory designed, manufactured and despatched 33 sets of 1400 kVA; three sets of 560 kVA; four sets of 167 kVA; one set of 114 kVA; and seven sets of 67 kVA. All were built as container canopied generator sets, featuring a range of options as specified by GATE.

These include 16-hour, double-walled fuel tanks, placed separately within the container; together with the standard 8-hour daily fuel tank, this gives the generator sets non-stop operation for up to 24 hours. Overflow pools and leak alarms feature within each container, preventing external leakage of oil, coolant or fuel, while telematics – RS485 serial communication, plus GSM/GPRS modem – provides operators with real-time information about levels and any failure of the in-situ convector heaters that keep the generator sets running problem-free.

Further protection against ambient conditions comes from the use of automatic shutters for container aspiration and air outlets, while fire protection is provided by an in-container detection and extinguishing system.

"The Perkins 4000 has proved itself in the market," points out Deniz. "As its robust build and favourable fuel consumption began to attract attention, the market noticed – and this has been reflected in sales.

"Perkins strong support and aftersales service provide a good match for Teksan's own values of trustworthiness, reliability, quality, innovation and sustainability. It's all about delivering added value, focusing on customers' needs, and creating a difference in every project."

Powered by a Perkins® 4012-46TWG2A engine which provides reliability, fuel efficiency and performs in even the harshest conditions and extremes of climate.

