

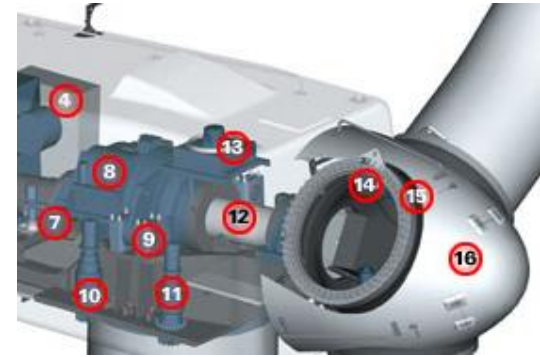
Exceptional Oil Life with Optigear Synthetic A

WIND AFTERMARKET (USA)

Wind Turbine Main Gearbox

Castrol Optigear® Synthetic A 320

TOTAL SAVINGS: \$312,800 + 340 Hours of Uptime



THE SITUATION

A major US Wind Farm owner was using Castrol Optigear Synthetic A 320 gear oil in many of their 1.5 MW turbine gearboxes.

The recommended change cycle from the turbine manufacturer was 2 years.

The owner requested Castrol to do testing of the oil to try to extend oil life in these units.

BEFORE

- Oil changes were time-based, every 2 years
- Cost of the oil per turbine is \$3200+
- Oil Change Labor = 2 people x 4 hrs x \$60/hr
- Downtime is up to 4 hours

AFTER

- Scheduled oil changes on 85 turbines were extended
- Oil changes are now data-based (using oil analysis) rather than time-based
- Oil life is up to 6+ years (oil in many turbines still performing well at 6 years)

THE SOLUTION

- Castrol representatives, understanding the performance of the Optigear Synthetic A 320, were confident the oil could last much longer than 2 years.
- Oil analysis revealed that the oil in most turbines was suitable for continued service.
- Extensive testing for wear, additives, water, viscosity, and foam verified these results.

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RECOMMENDATIONS

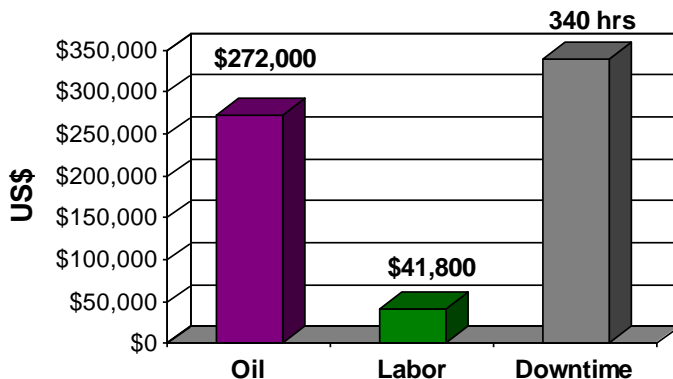
Castrol Optigear Synthetic A 320 has handled very harsh working conditions all over the US including New Mexico, Texas, Pennsylvania, and North Dakota to name a few. It's fully synthetic base fluid and selected additive package is designed for maximum oil life and exceptional gear & bearing protection.

CONCLUSION

With proper care and regular oil analysis, Optigear Synthetic A 320 was found to run for up to 6+ years before oil change. This was a substantial increase over the originally recommended 2-year oil change.

The result was \$312,800 in savings and recovery of 340 hours of downtime.

Gear Oil & Maintenance Savings



Key Benefits

Labor savings: Less turbine gearboxes to change reduces the cost of labor and outside contractors.

Gear Oil savings: Oil is still performing after 6 years of service.

Turbine Downtime: Increased turbine availability means greater energy output.



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