

What's the Critical Factor in Wind Turbine Viability?

In just 20 years, wind energy has grown full-sail from fringe alternative to mainstay power source on many national grids. But even with a 'fuel source' that blows for free, wind power producers still face a stiff challenge in matching the cost of coal. The challenge is durability.

To generate power competitively, wind turbines must run for 20 years or more with minimal downtime or replacement of major components. To stiffen the challenge, many wind turbines are now located far offshore, 80 meters above the world's roughest seas. This makes even routine inspections an arduous task—and swapping out major parts a massive undertaking.

Seeing one of these giants, you might assume its massive 40-meter-long blades are the key durability issue. But as with anything mechanical

that moves, problems are most likely to occur in parts subject to heavy loads and friction. In wind turbines that means the gearbox—and in any gearbox the key to durability is the quality of the bearings.

The largest wind turbines, with rated capacity over three megawatts, require huge gearboxes fitted with some of the largest bearings made, with bore diameter up to one meter.

Who makes these bearings that are so critical to the economic viability of wind energy? Nine of the world's top 10 wind turbine manufacturers rely on NSK for some or all of their bearing needs.

Since entering the wind turbine market in the late '90s, NSK has been a key player in the growth of global installed capacity from 17.4 gigawatts in 2000 to over 305 gigawatts in 2014. We have won a substantial share of

Gearbox bearings are the key to wind turbine durability.



the global market by establishing a strong track record in quality, durability and service. But we are far from satisfied. Wind turbines will remain a high priority on NSK's R&D agenda to ensure the long-term viability of this impeccably sustainable power source.

Making wind energy competitive—just one of the ways NSK is working toward a sustainable future. To learn more, visit nsk.com.