

Low voltage converters From 0.8 to 6 MW

ABB's direct torque control (DTC) monitors the generators torque 40,000 times per second, enabling the most efficient generator control, providing the foundation for grid code and fault ride-through compliance. Liquid-cooled converters transfer the heat from the converter to outside the turbine and enable the cabinets to be completely enclosed, with no openings keeping salty, sandy, and dusty air out. Converters over 2 MW offer a design option to use parallel connected sub-converters for increased efficiency and optimized turbine installation.



What is the perfect wind turbine drivetrain package?

The perfect drivetrain package should: help turbines produce more megawatts, more economically; provide technology flexible to meet the grid code needs of today and tomorrow; deliver durable, reliable performance and ensure easily available global life cycle services. At ABB, these goals drive us to help you do great wind business.

Power and productivity
for a better world™ **ABB**

Medium voltage converters 4 to 10 MW

Designed for larger turbines, ABB's medium voltage full power converters are characterized by low parts count, high availability and low losses. The modular design allows easy customization to meet customer requirements. The converters are designed for nacelle or tower base installation and enable low cost and efficient cable installation. Fault ride-through and grid code compliance is also provided.



Create the perfect wind economy with every turn.

Creating the perfect wind economy starts with drivetrain dimensioning. Our experience with all of today's turbine electrical drivetrain types, from doubly-fed turbines to low-speed permanent magnet turbines, can help ensure that the correctly dimensioned converter is selected. Our full scale multi-megawatt laboratory and real-time simulators allow us to create models and run simulations, as well as conduct power quality and fault ride-through tests. This helps cut on-site turbine testing and certification costs.

Generators Standard power range from 100 kW to 7 MW, available up to 20 MW at 15 kV

ABB's generator portfolio is designed for any turbine concept: DF induction and PM solutions. The generators incorporate the experience of working with turbine manufacturers over the past 30 years. They provide cost-effective solutions for serial production.



Benefits of buying from ABB.

Consider these three factors when deciding to build your own power conversion technology:

Cost efficiency: As one of ABB's core, leading technologies, significant annual investment is made into research and development to advance efficient power conversion technology.

Grid code expertise: Turbine converters play a critical role in meeting the evolving regional grid code requirements. Activity in grid code working groups and standards definition enables ABB to ensure our converters have the adaptable technology for current and future grid codes requirements.

Global support: ABB's global service organization ensures preventive maintenance, refurbishment and spare parts contracts are readily available anywhere.

Create your perfect wind economy today

Why bank on ABB's electrical drivetrain packages?

Welcome to wind economy and ABB wind power solutions. How can we add wind economy to your business?

Visit www.abb.com/windpower for more information

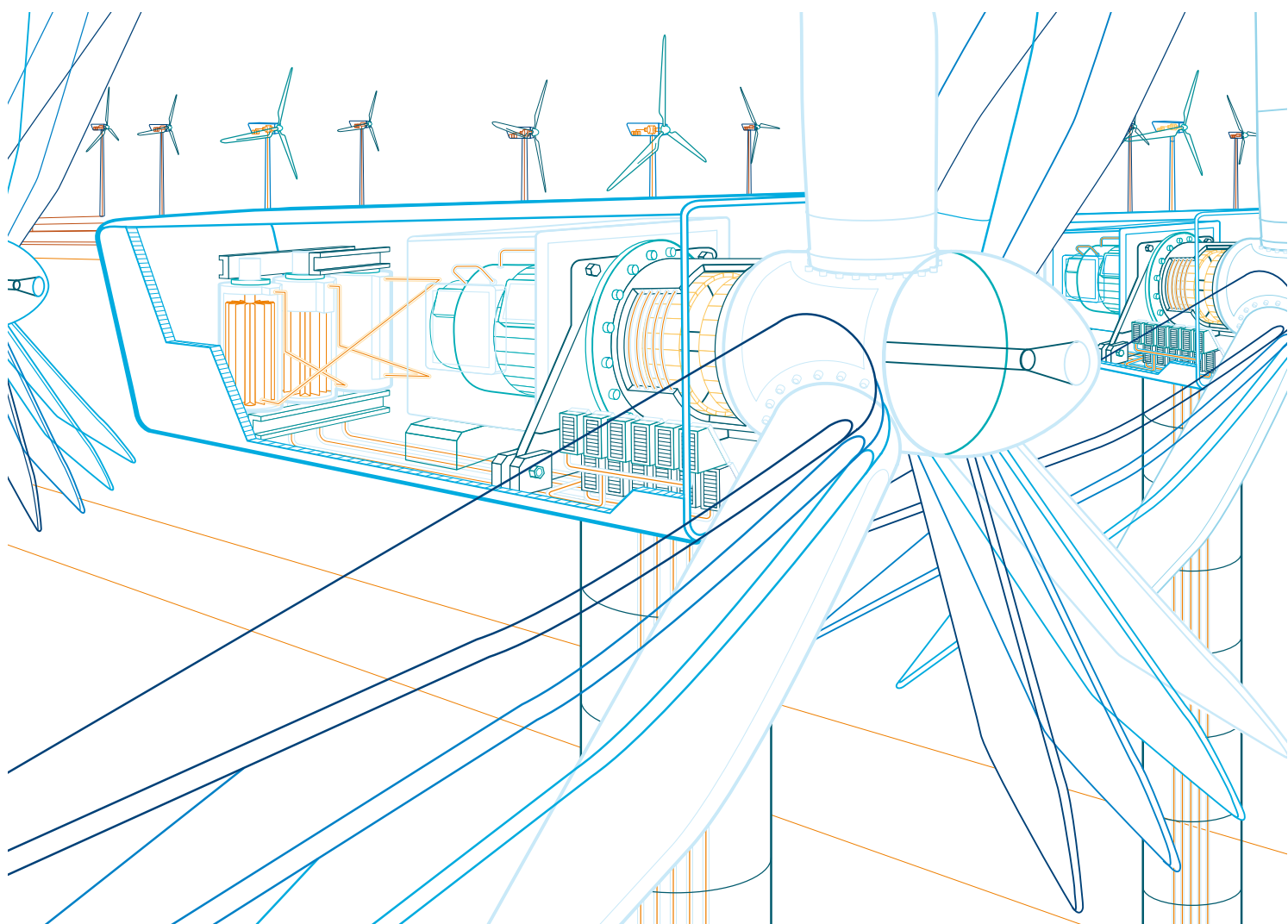
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When OEM's use ABB electrical drivetrain solutions, they are reducing investment risks. Because of our extensive experience in the wind industry, we can help the OEM's with their due diligence. We understand not only the technology, but also global standards and the turbine certification process. Plus with our drivetrain laboratories, we can provide the models, conduct the simulations, and reduce on-site testing costs. Quite simply including ABB electrical drivetrain solutions help wind turbines produce more economical megawatts for the investors and the OEMs.

Proven facts and figures about ABB wind economy

As the demand for wind energy becomes a bigger and bigger part of the future, expertise to deliver the entire infrastructure and technology involved in wind parks becomes more challenging. Wind parks need to be more cost effective, with faster installation, commissioning and payback time, including comprehensive wind location studies. The list goes on.

At ABB these challenges are precisely what drives us towards 'Power and productivity for a better world'. Here are a few statistics how ABB wind power solutions are adding wind economy across wind parks worldwide, and what they add to your business.



30 years

and more of wind power experience

35,000

generators delivered for wind turbines

40,000

times per second DTC technology monitors generators for exceptionally fast fault ride through response

50,000

generators and converters delivered

1999

the year ABB introduced the first megawatt-class permanent magnet generator for wind turbines

2000

when ABB introduced the first integrated medium-speed PM generator

2003

when ABB introduced the first high-speed PM generator

1 billion

USD spent in R&D

24/7

service and support / hotline

