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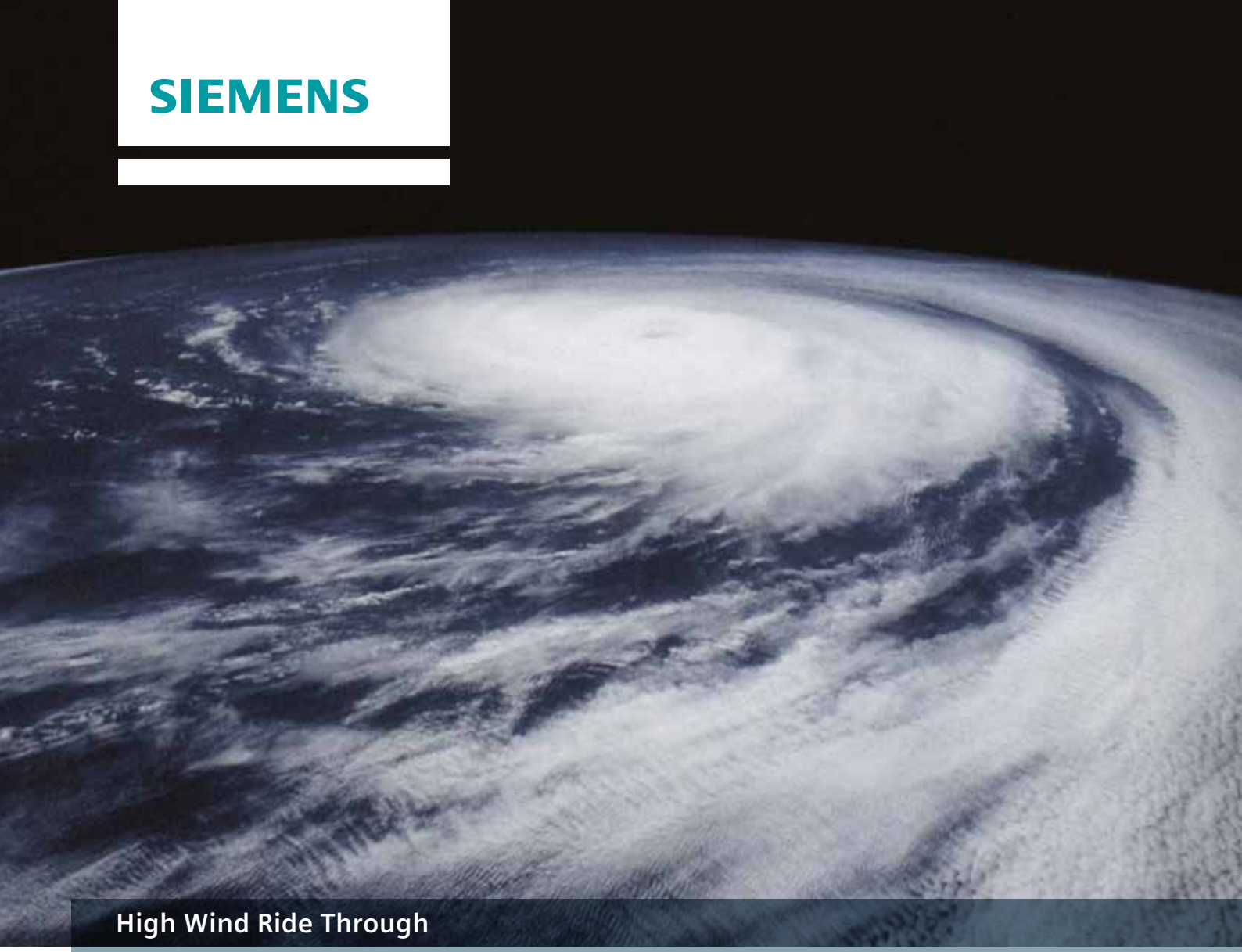


High Wind Ride Through

Providing more predictable power output

The Siemens High Wind Ride Through application allows a wind turbine to operate at some storm-level wind speeds and is a breakthrough in stabilizing energy output.

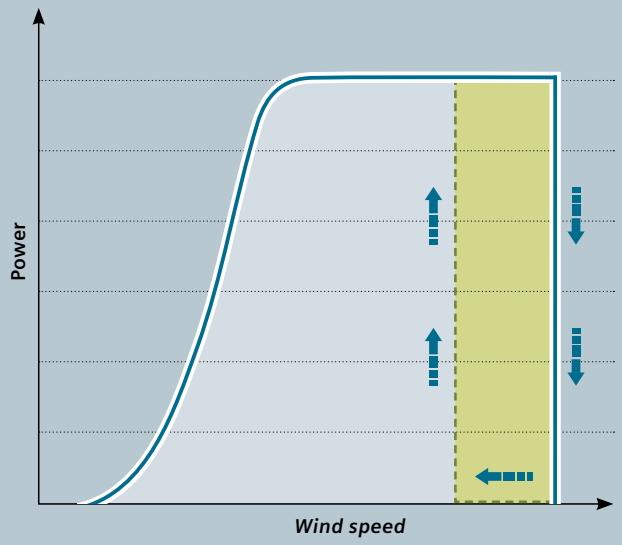
High Wind Ride Through is an intelligent solution for both onshore and offshore wind turbines that enables more stable energy production.

When the wind speed is higher than 25 meters per second, wind turbines typically shut down in order to avoid overload due to extreme loads. Equipped with High Wind Ride Through, the wind turbine will gradually reduce power output instead of shutting down completely. This results in a more stable power output at high wind speeds.

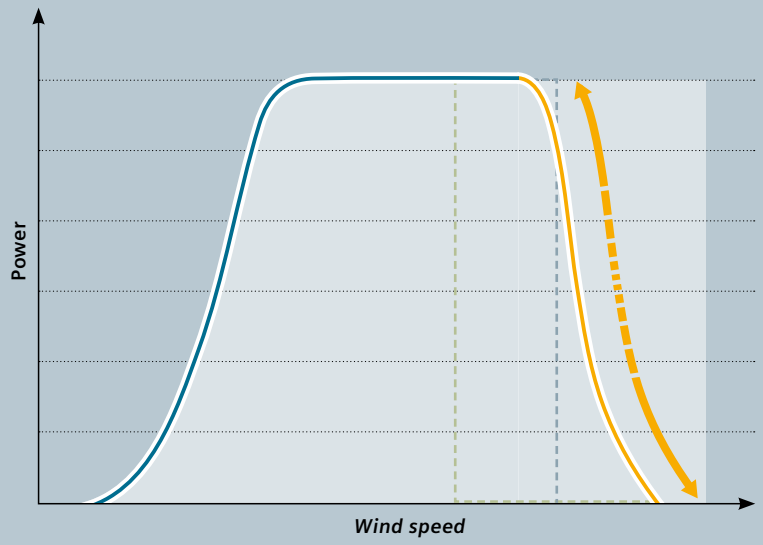
As a result, the operating range of the wind turbine at high wind speeds is extended, while remaining load-neutral. This is achieved by intelligently pitching the blades out of the wind as soon as the rated power output is reached and by limiting rotational speed in proportion to the increase in wind speed and turbulence intensity.

The gradual derating eliminates abrupt cutouts, which significantly improves grid stability. This is an advantage, especially for larger wind farms where commitment to a certain level of energy production is often required.

Fig. 1: Power curve without and with High Wind Ride Through



The green dotted line shows the hysteresis loop



The orange line shows the extension in operation at high wind speeds

Increased production time

After a cutout a conventional wind turbine will not start operating again until the wind speed has dropped significantly in order to avoid multiple start-ups and shutdowns caused by minor changes in wind speed (also referred to as a hysteresis loop). Minimizing the occurrence of hysteresis loops can increase the wind turbine's production time.

Key benefits of High Wind Ride Through

- High Wind Ride Through smoothly ramps down the wind turbine power at higher winds rather than stopping the wind turbine abruptly
- The wind turbine becomes more grid-friendly, as the amount of energy fed into the grid becomes more stable and predictable with High Wind Ride Through. This can be an advantage when commitment to a certain level of energy production is required
- Increase in production time at applicable sites due to the avoidance of hysteresis loops (Fig. 1)
- Reduced wear and tear on components due to fewer stops of the wind turbine

For more information, please contact our Customer Support Center or your local Siemens sales representative.

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