

Wind turbines need strong foundations

The highest possible stability has to be guaranteed for every wind turbine. The foundation forms its basis. The production of classical foundations in in-situ concrete is often time-consuming and prone to errors. If the finished component is produced as prefabricated part in the hall, quality can be assured before installation, downtime and waiting periods during installation due to weather conditions can be omitted.

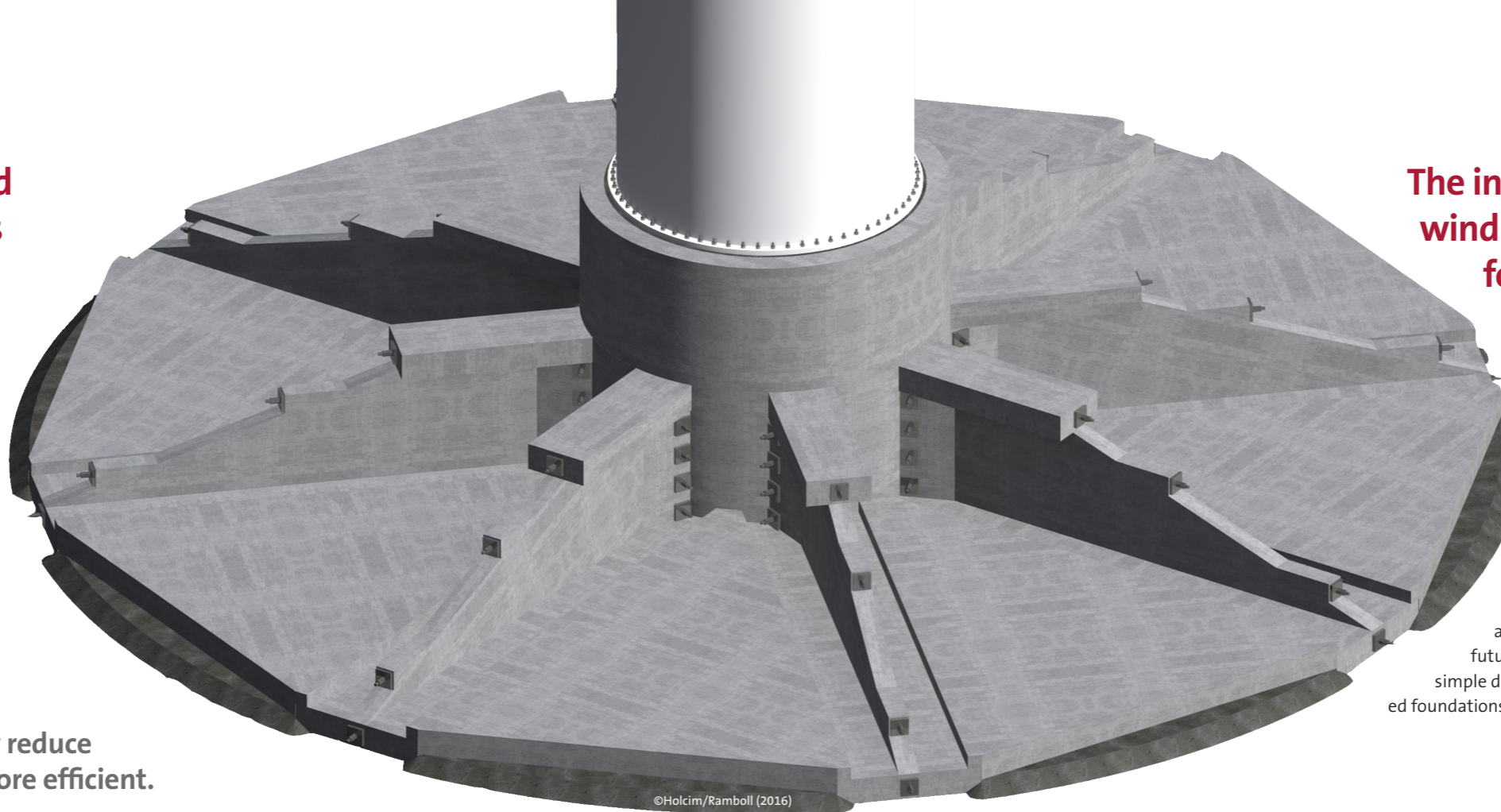
In short: Prefabricated foundations significantly reduce risks and are statically more efficient.

Traditional design: in-situ concrete

Traditional designs of concrete foundations for wind power stations require a high degree of manual work and time at the construction site including reinforcement, formwork and in-situ concreting for a complex monolithic component.

This leads to various risks during and after the construction stage:

- Strong dependence on the weather due to long installation and curing times
- Time pressure due to long execution times
- Higher material consumption than necessary due to inaccurate planning
- Crack formation due to heat development
- Critical force progression
- Extensive dismantling effort in case of quality problems of in-situ concrete



The innovative solution for the wind industry: a prefabricated foundation

Production – manufacturing in the hall

The star-shaped prefabricated foundation consists of prefabricated components manufactured in a production facility for prefabricated concrete components by means of industrial design with continuously highest quality. Product qualities are permanently monitored and assured before delivery. This hybrid prefabricated foundation made of concrete and steel elements can be used for all current and future construction sizes for wind power stations. Their simple dismantling also enables the re-use of such prefabricated foundations in other locations.

Transport to the construction site – no special transport requirements

The components were developed in such a way that they can be transported to the construction site without special transports that are subject to approval. Transport by rail, inland vessel or sea-going vessel is also simple and possible.

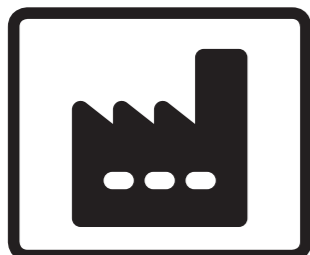
Installation at the construction site – regardless of weather conditions, reliably and quick as well as quality-controlled

With the use of prefabricated concrete elements, the dependence on weather and local conditions is reduced at the construction site. As cure times for in-situ concrete are no longer necessary, the wind power station can be built faster. The foundation mounting is simplified by means of ideal division of the individual elements; a well-trained installation team assures its correct mounting. However, the quality is still the strongest argument: Uncertainties during manufacturing and transport of the concrete to the construction site, installation errors or a lack of precision within the concrete reinforcement can easily lead to defective foundations, which then might have to be dismantled in an expensive and time-consuming process. These sources of error are omitted when the prefabricated component is manufactured in the hall and then delivered to the respective location for installation.

Moreover, the hybrid design enables optimum force progression into the prefabricated foundation. The tower connection of this innovative foundation is based on an adapter ring that can be freely configured and adapted between the standard design and various tower connections and optimally diverts the forces.

Scale down risks – make use of prefabrication:

✓ **1 Production**
in a controlled environment.



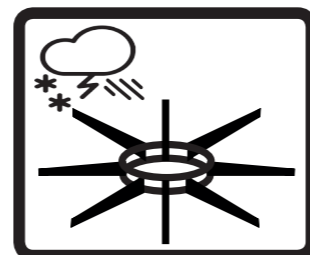
✓ **2 Quality Check**
prior to installation.



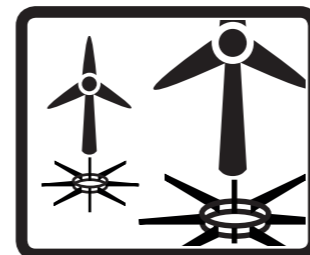
✓ **3 Transport**
with normal trucks.



✓ **4 Fast Installation**
independent of weather.



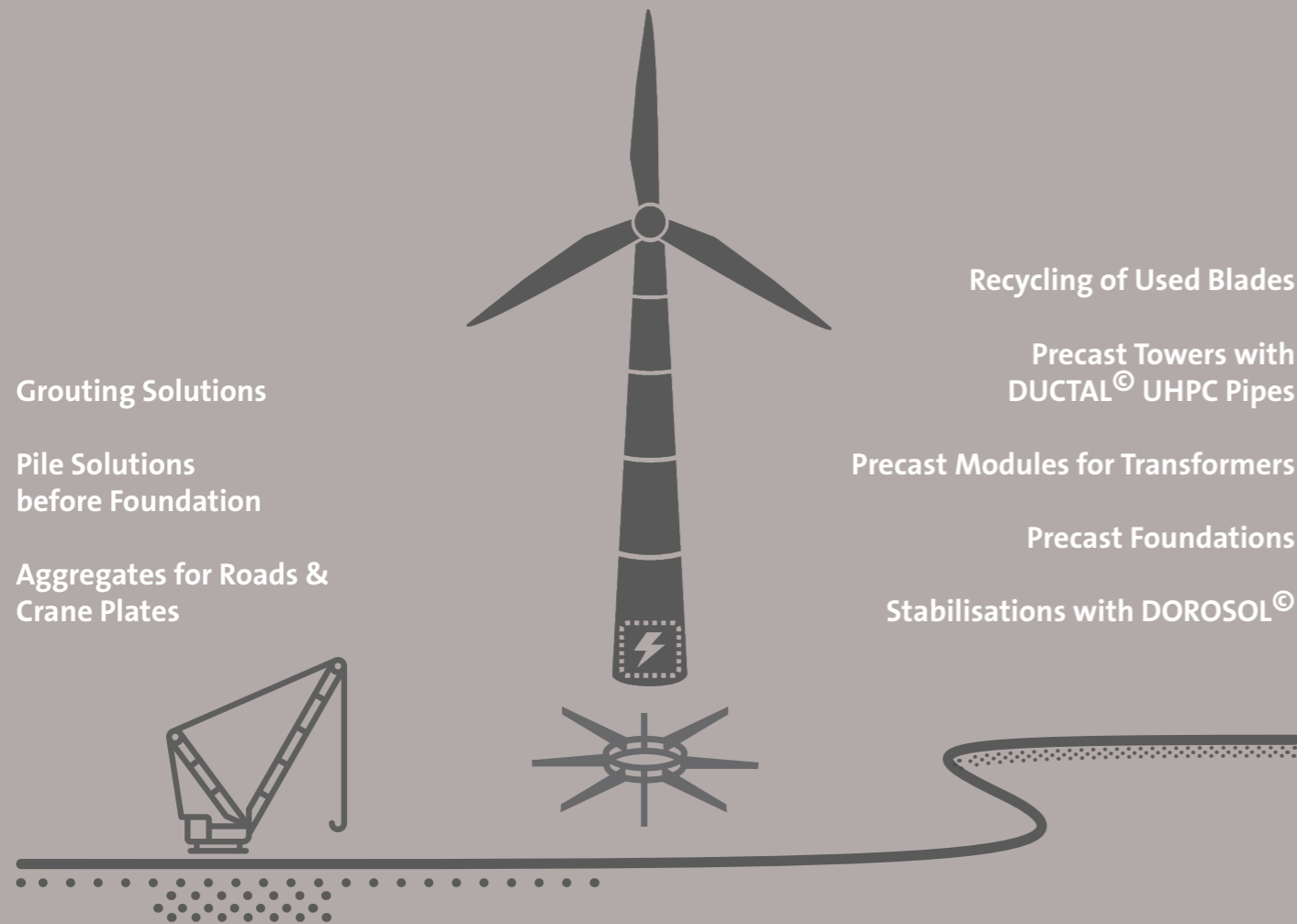
✓ **5 Any Size**
possible.



Your Benefits at a glance:

The innovative prefabricated foundation by Holcim ensures constantly high qualities without cracking in case of heat development, clearly determined material consumption, lower dependency on the weather, shorter installation times and optimum force progression – your solid foundation for more success in wind turbine construction!

Solutions for Wind Energy



icons: freepik/flaticon.com

A Foundation for the Future

Prefabricated Foundations: The Innovative Solution for Wind Turbines

Holcim Germany Group

