What is Active Stall Regulation?

ASR - Active Stall Regulation

The ASR wind turbines utilize the best things from both the stall- and the pitch regulated wind turbines. The ASR turbine has the same regulation possibilities as the pitch regulated turbine, but by using the stall properties of the blades the large load and power fluctuations that are typical for a pitch regulated machine is avoided.

Why ASR?

By using ASR a lot of advantages are gained that a normal stall regulated wind turbine cannot offer:

- ASR will generally give a higher production because the blade angle is optimized according to the actual wind speed.

- At high wind speed the power is stabilized because problems with air density changes, double-stall and change in grid frequency are eliminated. This means that stand still due to overproduction is avoided, and that the loads on individual components, i.e. gearbox and generator is minimized, resulting in a longer lifetime.

- The possibility of feathering the blades at extreme wind speeds means that the characteristic extreme loads are decreased compared to a normal stall regulated turbine.

- It is possible for the turbine to down-regulate the produced power if the local grid has high loading. However, this demands a special unit for grid surveillance.

- With blade regulation it is possible to make a much smoother cut-in to the grid at startup, and cut-out at shut down. This will give much less noise on the grid in these situations and at the same time extend the lifetime of the turbine.

- The possibility of reducing the power by feathering of the blades means that the switch over between the small and the large generator is taking place in a quiet and gentle manner.

The ASR system is under constant development and optimization i.e. through R&D activities supported by The Danish Energy Agency and the European Commission.