Press Release
November 26, 2019

Siemens Gamesa now able to actively dictate wind flow at offshore wind locations

- New Wake Adapt feature can determine direction of wind reaching downstream turbines
- Up to 1% increase in annual energy production on offshore wind power plant level can be achieved
- Up to 10% reduction of detrimental wake effect means greater value for customers, ratepayers, and society
- Software solution customized to site conditions; can potentially be retrofit on existing Siemens Gamesa gearless and geared offshore wind turbines

Click here to watch the video about Wake Adapt

Actively dictating the wind flow in any offshore wind power plant has likely been the dream of developers and engineers since the first turbines were installed in Danish waters in 1991. Siemens Gamesa Renewable Energy (SGRE) is therefore proud to launch the Wake Adapt feature today at the the WindEurope Offshore 2019 Conference & Exhibition in Copenhagen. It allows SGRE to actively adjust the heading of individual offshore wind turbines, directing the wind which flows off the individual machine in a different direction than what normally occurs. This resulting shift in direction of the wind turbine wake away from downstream wind turbines allows an increase in overall wind park performance of up to 1% in annual energy production.

“The Wake Adapt feature is about proactive problem-solving. Instead of letting the wind and wake fully dictate how much energy we can capture, we safely direct the wake - and its unfavorable effects - away from our machines across the entire power plant. Through digitalization, we can produce more energy from the same turbines, benefitting our customers, ratepayers, and society overall. SGRE is committed to innovation and improvements which ensure clean energy for generations to come,” said Morten Pilgaard Rasmussen, Head of Offshore Technology at Siemens Gamesa.

On a technical level, SGRE’s Wake Adapt applies wake steering techniques to reduce wake-induced production losses on offshore wind power plants by up to 10%. Remotely activated, it strategically adjusts the yaw angle of each individual offshore wind turbine when the wake of upstream wind

turbines negatively affects downstream wind turbines. These offset angles deflect the wake away from downstream turbines, controlling the wind to ensure that downstream turbines receive a more powerful and undisrupted wind flow. This redistributes production across the row of turbines, increasing the performance of the entire wind power plant. The adaptations are made depending on site-specific conditions and comply with the load design envelope for the SGRE offshore wind turbines and support structures.

“What’s more, we have a solution which - depending on project specific factors - can be retrofit to existing wind parks using Siemens Gamesa Direct Drive and geared G4 offshore wind turbines. As the market leader in offshore wind, Wake Adapt can improve park performance for customers serving hundreds of thousands of households,” Rasmussen continues.

SGRE is also collaborating with independent research organization The Netherlands Organisation for Applied Scientific Research (TNO) to offer an alternative wake loss verification partner to our customers. TNO holds a patent related to wake steering and is currently developing an in-house tool to be used for gain verification purposes.

About Siemens Gamesa Renewable Energy
Siemens Gamesa is a global leader in the wind power industry, with a strong presence in offshore, onshore and services. Through its advanced digital capabilities, the company offers one of the broadest product portfolios in the industry as well as industry-leading service solutions, helping to make clean energy more affordable and reliable. With over 99 GW installed worldwide, Siemens Gamesa manufactures, installs and maintains wind turbines, both onshore and offshore. Its backlog stands at €25.5 billion. The company is headquartered in Spain and listed on the Spanish stock exchange (included in the Ibex-35 index).
About Siemens Gamesa Offshore
As of October 2019, SGRE has over 3,490 offshore wind turbines in operation globally with a combined capacity of more than 15.2 GW. The company’s experiences reach back as far as 1991, when it established the world’s first offshore wind power plant. Through a strong focus on safety and innovation, SGRE constantly strives to reduce the Levelized Cost of Energy from offshore wind power.

Contacts for journalists

Verónica Díaz
+34 616 348 735
veronica.diaz@siemensgamesa.com

For more information: www.siemensgamesa.com
Follow us on:
Twitter: www.twitter.com/SiemensGamesa
LinkedIn: www.linkedin.com/company/siemensgamesa/
Facebook: www.facebook.com/SiemensGamesa/
Instagram: www.instagram.com/siemensgamesa/