

Vestas Wind Systems fait appel à IBM pour l'analyse de ses « big data » afin de mettre en œuvre une énergie éolienne plus intelligente

Le superordinateur « Firestorm » aide à maximiser la performance des éoliennes

Paris - 27 oct. 2011: IBM annonce que la société d'énergie danoise Vestas Wind Systems utilisera le logiciel « big data analytics » et les puissants systèmes d'IBM afin d'améliorer le positionnement des éoliennes en vue d'une production d'énergie optimale. Le positionnement des éoliennes est un défi majeur pour l'industrie de l'énergie renouvelable et Vestas entend accélérer l'adoption de l'énergie éolienne au niveau international et étendre son activité à de nouveaux marchés en surmontant ce défi.

Si les compagnies d'électricité n'installent pas d'éoliennes sur les bons emplacements, elles ne peuvent pas produire assez d'électricité pour justifier les investissements dans l'énergie éolienne et maintenir l'électricité à un bas coût. Différents facteurs majeurs entrent en ligne de compte pour le placement d'une éolienne : l'intensité et la direction du vent ainsi que des considérations d'ordre spatiales, écologiques et esthétiques.

Vestas adresse le problème du positionnement de l'éolienne en utilisant le logiciel IBM BigInsights et un superordinateur IBM « Firestorm » pour analyser des petabytes de données structurées et non-structurées (telles que les rapports météo, les phases de la lune et de la marée, des données géospatiales et des données issues de capteurs, des images satellites, des cartes de déforestation ainsi que des travaux de modélisation météorologique) afin de définir exactement le lieu de l'installation. L'analyse, qui prenait habituellement plusieurs semaines, peut maintenant être faite en moins d'une heure.

Une fois l'éolienne opérationnelle, les ingénieurs de Vestas utiliseront le nouveau logiciel et le superordinateur pour contrôler sa performance en temps réel, analyser comment chaque lame réagit aux changements météorologiques et déterminer les meilleurs moments pour prévoir la maintenance. La société compte analyser des données météorologiques encore plus diverses et importantes (atteignant jusqu'à plus de 20 petabytes) dans les quatre ans à venir.

Vestas Wind Systems Turns to IBM Big Data Analytics for Smarter Wind Energy

"Firestorm" Supercomputer to Help Maximize Turbine Performance

Randers, Denmark and Armonk, New York -- 24 October 2011 --IBM (NYSE: IBM) today announced that Danish energy company Vestas Wind Systems will use IBM big data analytics software and powerful IBM systems to improve wind turbine placement for optimal energy output. Turbine placement is a major challenge for the renewable energy industry, and Vestas expects to accelerate the adoption of wind energy internationally and expand its business into new markets by overcoming this challenge.

Vestas is addressing the issue of turbine placement by using IBM BigInsights software and an IBM "Firestorm" supercomputer to analyze petabytes of structured and unstructured data such as weather reports, moon and tidal phases, geospatial and sensor data, satellite images, deforestation maps, and weather modeling research to pinpoint installation. The analysis, which used to take weeks, can now be done in less than one hour.

"Vestas turbines operate for decades and clients demand to know how much energy they will produce and what their return on investment will be before they are installed," said Lars Christensen, Vice President of Plant Siting and Forecasting, Vestas Technology R&D. "Using IBM software and systems, we can now answer these questions quickly to identify new markets for wind energy and help our clients meet aggressive renewable energy goals." Vestas predicts by 2020 as much as 10 percent of the world's electricity consumption will come from wind technologies.

Once a turbine is operational, Vestas engineers will use the new software and supercomputer to monitor its performance in real-time, analyze how each blade reacts to weather changes, and determine the best times to schedule maintenance. The company expects to analyze even more diverse and bigger weather data sets reaching 20-plus petabytes over the next four years.

If power companies do not install wind turbines in the right locations, they may not produce enough electricity to justify wind energy investments and keep electricity costs low. Major factors for proper turbine placement include wind turbulence and direction, and space, ecological and aesthetic considerations.

With today's news, Vestas will tap IBM's analytics expertise for its new Wind and Site Competency Centre in Denmark where company engineers design next generation wind technologies for clients. At the center, IBM will provide the company with access to a team of big data analytics project specialists, 24 by 7 technical support, and virtual access to IBM's big data development lab in Silicon Valley to explore new ways to apply analytics to wind energy.

"Vestas shows how large organizations can tap big data analytics and ever more powerful computers to make smarter business decisions that can substantially accelerate growth while tackling some of the world's most pressing issues," said Arvind Krishna, general manager, IBM Information Management. "The ability for our clients to gain insights from any data, regardless of what type it is, how fast it is moving, or where it comes from, has the potential to transform entire industries."

The American Wind Association reports that if the United States can increase its wind energy capacity to 20 percent by 2030, the country can reduce greenhouse gas emissions by 7,600 tons of CO₂, reduce water consumption in the electric sector by four trillion gallons, and reduce consumer demand for natural gas by 12 percent.

(For EMEA and AP): Across Europe, early success stories are generating new demand for technologies that can speed up the delivery and placement of wind farms. The German Association of Energy and Utilities recently reported that the country has set a new record during the first half of 2011 with 20.8 percent of the country's power production coming from renewable resources like wind. New Zealand adopted an aggressive energy strategy this year that calls for 90 percent of its electricity to be generated by renewable resources such as wind.

IBM InfoSphere BigInsights software is the result of a four year effort of more than 200 IBM Research scientists and is powered

by the open source technology, Apache Hadoop. The software provides a framework for large scale parallel processing and scalable storage for terabyte to petabytes-level data plus the ability to enable "what-if" scenarios with its BigSheets component. BigInsights is part of IBM's Big Data software platform, which includes InfoSphere Streams software that analyzes data coming into an organization and in real time and monitors it for any changes that may signify a new pattern or trend.

Vestas is running BigInsights software on 1,222 connected, workload optimized System x iDataPlex servers that make up Firestorm and are capable of 150 trillion calculations per second -- equivalent to 30 million calculations per Danish citizen per second. Firestorm is #53 on the Top500 list of the world's fastest supercomputers and the third largest commercial system on the list. The new IBM supercomputer replaces an HP system that was less powerful and not energy efficient.

Vestas is the world leader in providing high-tech wind power systems. Since 1979, the company has supplied over 44,500 wind turbines in 67 countries and today employs more than 21,000 people. Vestas sold its first wind turbine to North America in 1981 and since then has provided more than 11,000 turbines to the United States and Canada. The company's Canadian sales headquarters is in Toronto, North American headquarters in Portland, Oregon, and its global headquarters is located in Randers, Denmark.

For more information on Vestas: visit www.vestas.com.

For more information on IBM's Big Data software platform, visit:

<http://www.ibm.com/software/data/bigdata>www.ibm.com/software/data/bigdata.

For more information on IBM high performance computing systems visit: <http://www-03.ibm.com/systems/deepcomputing/>.

Read the US Department of Energy report on the advantages and challenges Wind Energy: http://www1.eere.energy.gov/windandhydro/wind_ad.html.
