



NextEra Energy Resources is based in Juno Beach, Florida, with 600 employees and operates power generating facilities in the United States and Canada. It is the largest generator of renewable energy from the wind and sun in North America. The competitive energy company's portfolio is diversified by fuel source and geographic region, with a charter to develop, construct and operate power plants to produce electricity.

INDUSTRY: Energy

DEPLOYMENT SUMMARY:

With the need for new sources of power generation to meet increasing demand, NextEra Energy deployed the TIBCO Spotfire S+ statistical analysis and programming environment to integrate statistical modeling and data mining into its wind prospecting assessment with a goal to develop a 10,000 megawatt (MW) wind generation facility.



"We were too dependent on a small group of statisticians to run these analyses manually, and it was difficult to find and train more of these analysts quickly enough to scale up our analytic capabilities. By automating these analyses with TIBCO Spotfire S+, we were able to perform and deploy more analyses more quickly and reliably than with alternative statistical modeling environments."

Brad Horn, Director of Wind Analytics, NextEra Energy

NextEra Energy Resources Leverages TIBCO Spotfire S+ for Wind Project Assessment

NextEra Energy Resources (NextEra) is based in Juno Beach, Florida, with 600 employees and operates power generating facilities in the United States and Canada. The competitive energy company's portfolio is diversified by fuel source and geographic region, with a charter to develop, construct and operate power plants to produce electricity. NextEra markets electricity to wholesale customers and develops the critical infrastructure for power delivery. It also markets a variety of NextEra energy-related products and services to customers across the country.

CHALLENGE

NextEra is the largest generator of renewable energy from the wind and sun in North America. Assessing a potential wind resource is a critical piece of planning a wind project, such as the 10,000MW wind generation farm the company wanted to develop in the past. Wind prospecting identifies target project sites with above average returns; advanced wind resources assessment and wind farm design maximizes earnings potential; project valuations enable investment decisions; operational wind turbine assessments identify and prioritize asset performance problems to ensure budget compliance; site and project due diligence activities enable project finance and acquisitions; R&D activities ensure daily production work remains "best in breed" and supports NextEra's commercial drive toward scale, speed, and quality.

Maintaining an above average return on equity is critical to the success of such projects. To perform this type of analysis NextEra had been using GAUSS, Crystal Ball, various third party weather and climate assessment tools, third party optimization and operations research applications. This workflow required 35 employees working 50 hours a week, to perform the analysis.

Ultimately, vertical integration and a simple commercial need for a consistent use of data and scientific methods across an entire value chain drove NextEra's decision to search for a new analytic solution.

"Continuation of the tremendous growth we've seen in wind energy is not without its challenges," comments Brad Horn, NextEra Energy's Director of Wind

Analytics. "We were too dependent on a small group of statisticians to run these analyses manually, and it was difficult to find and train more of these analysts quickly enough to scale up our analytic capabilities. By automating these analyses with TIBCO Spotfire S+®, we were able to perform and deploy more analyses more quickly and reliably than with alternative statistical modeling environments."

SOLUTION

In 2004 NextEra selected TIBCO Spotfire S+ statistical analysis and programming environment for its analytic needs, due to its superior performance features, support organization and pricing model. The energy company currently uses S+® to support a high performance computer array, capable of delivering batch processing, server load balancing and parallel processing, as well as, to perform custom function and model scripting, large scale data manipulation and visualizations and ad-hoc analysis and special projects.

Two years ago, proactive application management and process control was accelerated with critical mass delivery commencing in early 2008. In June 2009, NextEra accomplished its objective of achieving a significant leap in process efficiencies, enabling them to greatly increase the throughput of these analyses, and make critical site decisions more rapidly. Today Spotfire S+ is

deployed across NextEra's production team of 20, an R&D team of 10, plus 5 secondary users.

TIBCO consulting played a critical role in optimizing the legacy code in the development and deployment of customer application. "In addition," notes Horn, "TIBCO Spotfire marketing helped to challenge our thinking and commitment, responding appropriately when we were ready to execute."

As part of NextEra's project valuation process for wind development, key inputs to its investment decisions are supported by a library of functions developed in Spotfire S+. This library of functions is used to perform standardized wind resource assessments for development and operating wind projects. The wind resource assessment consists of several steps that compose an in-house modeling strategy for the derivation of capacity factors as a measure of performance of wind projects. A great deal of flexibility and statistical rigor, offered by Spotfire S+, is employed from the reading of the raw data records, cleaning the data, extrapolation of lower elevation wind characteristics to wind turbine hub height, long term adjustment of the data, and derivation of expected annual long term wind characteristics.

RESULT

TIBCO Spotfire S+ software provides NextEra Energy with a competitive advantage because it allows the company leverage a consistent use of data and scientific results across an entire value chain. Spotfire S+ enables NextEra to manage and visualize multi-dimensional large data objects more efficiently. In addition Spotfire S+ empowers the company to make decisions more quickly and accurately.

"The S language and the S+ application have been critical to our ability to manage big data objects intrinsic to wind analytics and wind energy development," emphasized Horn. "We credit our long-term interface and TIBCO Spotfire consulting with unlocking new ideas and sources of value. Joint dialogue on configuration alternatives and our recent efforts to restructure legacy code is allowing us to transition from simple interactive use of S+ to a customized S+ configuration with integrated batch processing, server load balancing, and parallel processing. S+ has a central role in supporting internal decisions and our group emphasis on scale, speed, and quality."

NextEra's future plans for Spotfire S+ include simplifying the user interface so that internal customers have hands-on access to advanced weather, climate and wind analysis data/results.



TIBCO Software Inc. (NASDAQ: TIBX) is a leading independent business integration software company and a leading enabler of real-time business, helping companies become more cost-effective, more agile and more efficient. TIBCO has delivered the value of real-time business, what TIBCO calls The Power of Now®, to thousands of customers around the world and in a wide variety of industries.

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