

Windlab Uses Vaisala's Triton to Accelerate its Wind Development Projects in Africa

With a rapidly developing portfolio of wind projects in Africa, global wind developer Windlab relies on Vaisala's Triton Sonic Wind Profiler to cost-effectively and rapidly measure wind in challenging locations.

Streamlining Windlab's Wind Resource Assessments

Windlab is a global wind development company with an active pipeline and ambitious development prospects in Africa. The company's proprietary WindScape™ modelling technology allows it to rapidly identify greenfield opportunities in multiple continents. In Africa, as elsewhere around the world, Windlab uses the Triton – a ground-based remote sensing system – in several steps in their standard wind resource assessment process. Compared to tall towers, Triton is cost-effective and easy to deploy, and can be used in locations where it would be impossible to use traditional met masts. Windlab has also been pleased with the responsiveness of Vaisala's support team.



Triton being deployed by helicopter

Challenge

- Gain a rapid understanding of which sites merit further resource assessment endeavors, after initially identifying them through models
- Characterize large, topographically complex sites under development
- Maintain a large fleet of wind measurement systems over long distances
- Measure and monitor multiple locations simultaneously

Solution

- Vaisala Triton® Sonic Wind Profiler – used to supplement mast data
- Vaisala SkyServe® Wind Data Service
- Vaisala technical support
- In-country installation and field service providers

Benefits

- Accelerated site-finding process, allowing Windlab to rapidly rule out sites or qualify them for further study
- Greatly improved understanding of the wind resource across large, complex sites
- Additional wind data used in lenders' calculations and wind farm design
- Convenient installation, maintenance, and service of wind measurement systems
- Rapid and simple redeployment across new locations

“The real bonus with the Tritons is we can get them into locations that wouldn’t be practical with masts without prohibitive expense. Installing Tritons is a foolproof sort of process – Triton is easy to use and easy to move, and Vaisala’s training for our contractors and support makes it even easier.

Some of the sites we’re seeing in Africa are large and complex, and so require more monitoring locations than usual. Part of what we’re doing with the Tritons is getting a better understanding of the bigger picture of each site. By placing the Tritons in different corners of the site we get a good understanding of the whole site at lower cost and inconvenience than with tall masts alone.”

*Shane Quinnell
Project Engineer, Windlab*

Meeting Africa’s Growing Energy Needs

Windlab, whose track record of successful development in South Africa includes two projects with signed power purchase agreements totaling 225 MW, is pursuing more than 2,000 MW in a pipeline of projects intended to exploit South Africa’s untapped onshore wind potential and bring much-needed electricity onto the grid.

The challenge in Africa is well understood by utilities and government policymakers alike. South Africa’s reserve margin (the amount of excess capacity in an electric system) is only 1%, well below the international norm of 15%. To close this gap, energy developers are racing to develop additional capacity, with wind power projected to make up over 50% of the renewable energy portion of the additional power.

Though dire, the situation in South Africa is much brighter than the rest of Africa where electrification rates are generally between 10 – 20 %. With the experience gained globally, Windlab is now active in other sub-Saharan African markets to assist with increasing electrification by generating and supplying clean wind energy. No doubt Tritons will play an important part in assisting Windlab to make this vision a reality.

Wind resource assessment is a key step in project development; lowering the uncertainty in wind resource assessment contributes to better financing terms and improved wind farm layout and turbine selection. Performing wind resource assessment more efficiently improves a developer’s profit margin and significantly reduces the overall time of the development process. The urgency of Africa’s energy goals underscores the need for efficiency in wind project development. Windlab’s proprietary modelling system, in conjunction with best-practice wind measurement methods, is helping them rise to this challenge.

Rapid Development – How Windlab Does It

Windlab has been using Tritons for over five years as part of its standard methodology. In Africa, Windlab’s engineers initially deploy meteorological masts or Tritons for short campaigns to validate the wind resource that their models predict.

Using the Tritons is cost-effective and convenient and allows Windlab to move rapidly through the site-validation phase.

For wind resource assessment, the company uses Triton data to supplement the measurements they obtain from tall masts. Triton’s mobility allows multiple deployments across large sites, allowing a much richer understanding of the wind resource. Windlab used Tritons as part of the wind measurement program in developing the recently signed Amakhala Emoyeni Phase One project.

Mobility in Practice

To support their practice of deploying Tritons in multiple remote locations, Windlab has relied upon Vaisala’s support team and has benefitted from Triton’s rugged design and ease of use. Windlab recently installed a Triton into a particularly isolated area which would have been unreachable by truck. Project engineer Shane Quinnell was able to work with Vaisala’s support team and engineer a successful helicopter deployment. For more ordinary installations, the company is able to rely on local contractors who have been trained by Vaisala. Once installed, the Tritons’ performance is remotely monitored by Vaisala’s technical support team using the Vaisala SkyServe Wind Data Service, ensuring that any operational issues are quickly flagged and handled.

Looking Ahead

Windlab was one of the first companies to own more than ten Tritons, and has over 20 units globally. Because of the success of Tritons in Windlab’s methodology and their suitability for rapid deployment in rugged, remote locations, Windlab plans to continue to use Vaisala Tritons as an integral part of their wind development efforts in Africa.

VAISALA

For more information, visit www.vaisala.com/energy or contact us at energy-sales@vaisala.com

Ref. B211438EN-A ©Vaisala 2014

This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications – technical included – are subject to change without notice.