

# quietrevolution

Developing innovative, elegant wind energy turbines with CATIA



quietrevolution

## Overview

### ■ Challenge

*To design, manufacture and improve highly efficient wind energy systems for the burgeoning sustainable energy sector.*

### ■ Solution

*quietrevolution chose CATIA to accelerate and automate development, and increase innovation.*

### ■ Benefits

*CATIA has enabled quietrevolution to double productivity in certain domains with design automation and has fuelled business growth by contributing to the design and engineering of turbines with strong technical, visual and commercial appeal.*



*"Dassault Systèmes technology allows us to time-compress projects, increase accuracy, and complete projects quicker and better with constantly improving outcomes."*

Richard Cochrane  
Chief Technical Officer and Founder  
quietrevolution

### Generating business

quietrevolution is a rapidly evolving UK-based innovation leader in the field of wind power. The company develops vertical wind turbine systems that, because of their unique design, do not need orientation alignment to catch the air current and can therefore operate regardless of wind direction. This produces up to 40% more energy and makes quietrevolution products especially suited to urban or built up areas where wind direction is often variable.

The company is capturing the burgeoning and largely unexploited market segment for onsite wind power generation often found in cities. Energy produced by owners of quietrevolution turbines can be used locally with any excess sold to power providers.

quietrevolution's designs elegantly overcome objections to wind turbines on the grounds of unsightliness, noise and vibration. Their graceful appearance is

geared towards adding visual appeal to their surroundings while the aerodynamic vertical axis design also means that both noise and vibration are reduced to near silence.

### Energy efficient solutions

The level of technology behind quietrevolution's products requires a unified engineering development platform that enables designers and engineers to innovate without creative, cost or technical limitations. CATIA delivers this environment for the generation of 3D parts and assemblies. Engineering and assembly details are digitally verified in advance of physical production. These factors lead to productivity benefits of up to 30% for quietrevolution. The solution also helps maintain design and development intentions within and beyond the enterprise. This is achieved by using CATIA rules-based methodology that captures and retains design intent despite iterations by many contributors.



quietrevolution Chief Technical Officer and Founder Richard Cochrane said, "Product development is at the heart of our work. Having calculated a mathematically correct shape for aerodynamically optimized vertical axis rotor blades, we use Dassault Systèmes CATIA for design, engineering and manufacture of our turbines."

"Using CATIA allows us not only to develop more efficient and graceful designs, but also to communicate them along with related data, through our internal and external supply chains. It has significantly improved our ability to efficiently complete the design-to-manufacture processes of very advanced structures," said Cochrane.

### Benefit system

quietrevolution's use of CATIA helps to put it at the forefront of the wind energy industry. Deploying the development best practices of leading manufacturers from other industries for design and production built into CATIA has significantly reduced development cycle time at quietrevolution while helping to produce stronger products with higher energy outputs.

Cochrane added, "The knowledge-based design features of Dassault Systèmes

design and engineering technology allow us to aerodynamically evolve digital 3D models while retaining original design intent.

The technology also introduces levels of design automation that have increased aspects of productivity by more than 50%. CATIA allows us to innovate in the knowledge that aerodynamic efficiency and manufacturability are digitally assured and verified while risks, through error or poor communication, are significantly reduced."

By integrating and unifying design, testing, and manufacturability analysis, the company has not only streamlined its own production processes but has also brought this benefit to its extended enterprise partners, delivering mutual benefits.

Richard concluded, "3D virtual engineering helps us thoroughly evaluate options to optimize the aesthetic and energy generating efficiency standards of our products. As a tool for concurrent collaboration, and a facilitator of centralized and controlled engineering methods, CATIA allows us to avoid delays caused by production bottlenecks. These benefits save time allowing us to concentrate on devising better wind energy solutions to power our business growth."

*"3D design visualisation enhances our work processes bringing business growth and efficiency while applying strong technical, aesthetic and commercial foundations."*

**Richard Cochrane**  
Chief Technical Officer and Founder  
quietrevolution



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