

by Tara Sharpe

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Curran Crawford is not afraid of a little wind. Air in all its gusty glory is as necessary to his research as it is to the wings of an airplane.

Crawford, a professor in the University of Victoria's Department of Mechanical Engineering, designs rotor blades for wind generators.

"Back in the days when ships moved by sail alone, seafarers relied on the wind to bring them home," says Crawford. "I think wind is going to show us the way once more, at least as one reliable option for renewable and sustainable energy."

Not that long ago, Crawford was a graduate student studying aerodynamic wing design for aircraft, but soon altered course to a cleaner use of energy. While a PhD student at Cambridge University, he developed the sophisticated computer modeling system which is now at the core of his current research at UVic.

Crawford has a one-metre blade sitting on his office desk built from coordinates supplied to a UK company that manufactures small wind turbines for individual homes and farms. He's currently working on several other proposals, including a possible

project with a Quebec company that manufactures one- to two-megawatt machines, each with the capacity to supply 1,000 homes with power.

An upcoming addition to his lab will be a nifty gizmo with a complicated name—a "rapid prototyping machine." Its action is similar to piping decorations onto a cake: Crawford enters a particular set of coordinates and the machine spits out a small plastic test blade.

The real deal is much larger, generally measuring between 25 and 50 metres in length, and made out of wood, fibreglass or carbon composites. These massive blades are usually mounted in pairs or as a trio on towers that can reach up to 150 metres high. The blades turn a shaft that powers a generator, which produces the electricity.

The world's biggest wind-energy producers are Germany, the US, Spain, Britain and Denmark. In Canada, Quebec and Alberta are the leaders, but BC has lagged behind. That may soon change, predicts Crawford.

"Our province has a deeply entrenched hydro power legacy from the 1970s," he says, "but with a growing population and a concurrent rise in energy demand, wind is ready for the taking."

There are criticisms related to wind farms, including concerns about noise, bird migration

