



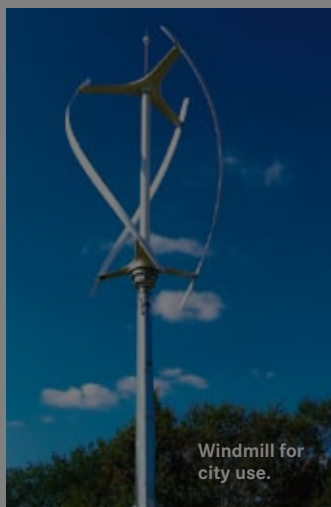
The project will include 21 new stations.

Two-thirds of the new route will be constructed on an embankment. Much of the remaining third will be on bridges.

The rolling stock for the new line will feature an aluminium body and will have specially engineered windscreen glass to withstand bird impacts.

KJELL ERIKSSON

Another large series of standards, ISO 10303, often called STEP (Standard for the Exchange of Product Model Data), is aiming to describe the complete manufacturing and product life-cycle process. In this forum, through participation in live demonstrations, Sandvik Coromant has shown how the cutting tool standard can be used to bring vital information into the manufacturing process and provide a basis for making smarter decisions. Two new demonstrations are scheduled to take place in May. For further information, visit www.steptools.com. ■



Windmill for city use.

SILENT WIND TURBINES MEET URBAN NEEDS

ENVIRONMENT. Wind turbines are finding their way into urban areas. New technologies are being developed to generate energy from small-scale turbines designed to deal with the often more turbulent wind conditions found in built-up areas.

One of the pioneers in this market is British Quietrevolution, which has developed a wind turbine with a helical (twisted) and vertical axis design. The turbine can pick up wind from all directions, which

makes it work well in the gusty wind speeds and constantly shifting wind directions that are common near and around buildings. Its lower blade tip speed also makes it significantly quieter than other designs.

The first model was launched in 2007. This piece, 5 metres high and 3 metres in diameter, can be mounted either on the ground or on a roof and will generate 6,000 to 10,000 kilowatt hours per year on a good wind site. ■

WIND BEATS WINE IN SPAIN

BUSINESS. The Spanish wind energy sector is booming. According to the Spanish Wind Energy Association (AEE), in 2007 the sector contributed 3.3 billion euros to Spain's gross domestic product, including exports worth EUR 2.6 billion and employment for 38,000 people. This makes the sector

more important to Spain's economy than its famous wine industry.

Several factors lay behind the huge growth in Spain, including governmental regulations supporting "green energy sources" and the growth of wind farms, which has created increasing national demand for

windmill components. However, according to AEE, for the average manufacturer most growth comes from outside of Spain.

Spain produces a number of components for windmills, half of which are exported to other big wind energy markets, such as Germany, the United States and China. ■

SPACE SAVERS OF STEEL

INNOVATION. Swedish company Crossborder Technologies is challenging the traditional pallet market, introducing pallets made from steel and aluminium. Its Turbo pallets are much lighter than the standard wooden pallets, and when emptied they are stackable, taking up only a third of the space.

"The life-cycle cost for our pallets is much lower than for traditional wooden pallets," says Lennart Nilsson, Crossborder CEO. "They last five times longer and cost three times less to transport back after goods delivery. They also meet hygienic requirements placed by the food industry."

There are also environmental benefits, Nilsson says. Thanks to the pallets' lower weight and volume,

a fully loaded truck can reduce its yearly CO2 emissions by five tonnes, according to Crossborder calculations. The pallets are also 100 percent recyclable.

Crossborder is the first company in the world to make pallets from thin steel plate, applying the same methods used for making car

chassis to form thin corrosion-protected steel plate into desirable shapes and joining them to create slender but strong structures. To inhibit friction and corrosion, aluminium strips are riveted to the base of the legs and to the surfaces where the forks have a pressure load on the pallet. ■

