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A few clouds

Victoria

- Detailed Forecast

9°C  A few clouds

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Green Ideas

Times Colonist April 22, 2010

Exciting ideas and innovations might provide reliable sources of renewable energy. Here are two of them:

- HARVESTING LIGHT WINDS

Taking inspiration from nature, Cornell University researchers have created the "piezo-tree" made from a flexible piezoelectric material, polyvinylidene fluoride, in hopes of improving wind energy generation.

"One problem with current wind turbines is the need for a constant, high wind. We wanted to harvest the energy created from light winds," said Scott MacFarlane, senior technology commercialization and liaison officer at Cornell.
The first piezo-leaf imitated nature's design: the leaf came out of the end of the stalk, connected with a movable hinge. This leaf reacted like a conventional leaf, moving up and down, back and forth. Lipson and his team shortened the stalk, attached the leaf to the side of the stalk rather than at its end and placed the connecting hinge at a 90-degree angle. This allowed the leaf to move in any direction, creating more piezo-electricity. The energy created went from mere 17 microwatts to 296 microwatts.

- BENDABLE BATTERIES

Nanotechnology experts could soon produce batteries made from paper coated in carbon nanotubes.

The nanotubes, carbon molecules about 1/50,000th the width of a human hair, are easily converted into semiconductors. However, when grown in labs, two types of carbon nanotubes are created simultaneously, one highly effective as a semiconductor, one less so. Researchers at Cornell, working with DuPont, effectively converted all the metallic nanotubes into effective semiconductors by exposing them to ink laced with fluorine molecules. Researchers at Stanford and Rensselaer Polytechnic Institute created a bendable battery by sandwiching a piece of untreated paper between two inked pages and placing it into an electrolyte solution.

This battery-on-a-page delivers the same power as a conventional battery or lithium-ion battery, but is lighter and can be rolled, twisted, cut or folded into shapes with no loss of efficiency.

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