

Maybe it's just hot air

How to cover clean-tech business?

By Ilkka Luukkonen

A French company, MDI, is about to launch its 'Air Car.' Not a flying machine or a jet-motored vehicle, it runs on compressed air and it's not a joke. MDI has patented its air engine and believes strongly that there is a market for the Air Car. MDI says it solves two major problems: climate change and the high price of oil.

MDI claims the engine is energy efficient and delivers 120 miles per tank of air. The maximum speed is 68 miles per hour. The tank can be recharged in 3 minutes at a high-pressure air station or in four hours at home connected to electrical power. No gas, no pollution, and if tank is filled via wind power, all the car leaves behind is cold air.

"The first time I heard about Air Car in 2003 I thought it was too good to be true," says Jean-Pierre Maeder, now CEO of Zevcat, a California-based company planning to manufacture and market MDI Air Car in the U.S.

An article of the Air Car was published in Maaseudun Tulevaisuus, a Finnish newspaper. The article integrates different views from the manufacturer, an investor, a consumers representative and a researcher.

Money needed

The Air Car has been under development for over a decade, but production engineering is not yet complete. It looks as though commercialization is continuously two years ahead. The reason is simple: "We still need a huge amount of money," said Maeder.

MDI wants to build an Air Car factory, but has had difficulties finding investors, which is why the company is raising funds via a direct public offering and Internet. A private investor, Chris Vargas from Silicon Valley, heard of the Air Car for the first time in March 2007. He said he could, in theory, invest in the Air Car if the manufacturer could answer two questions: "Does it work? And who are the customers?" Those are, of course, the key questions for any innovation trying to make a breakthrough.

Pasi Nieminen, the CEO of the Finnish Automobiles Association, reminded there are dozens of conventional cars, which are known to be comfortable and reliable. The Air Car would have to compete with them. He thought the idea of an Air Car is cool, but he was still skeptical if it works. "Consumers don't want to test new vehicles."

Matti Juhala, the professor of Ground Vehicle Engineering at Helsinki University of Technology, gave a statement, which may explain the difficulties in finding investors: "We have tried to find out if it (the Air Car) is a joke or an Internet scam."

Juhala said the Air Car cannot work, because air is not an energy source but it rather takes energy to compress air.

However, some engineers believe in the Air Car. First, Tata motors, India's biggest car manufacturer, made a deal with MDI in February. "Exciting engineering and development effort," Tata described the deal without further details. Secondly, a Korean company, Energin Corporation, has designed another air engine, or, to be more exact, an air-electric-hybrid car.

It remains to be seen if the Air Car is just hot air.

New technologies in energy business

The MDI Air Car is one example of different technologies trying to make a breakthrough in booming clean-tech markets. Clean-tech, short for clean technologies, is a trendy term when discussing renewable energy sources, but it can also mean knowledge-based products or services that improve efficiency or reduce waste and pollution. The Air Car is probably one of the most peculiar clean-tech products so far.

Unlike the Air Car, clean-tech companies manufacturing solar wafers, ethanol, diesel, 'clean coal,' or electric cars, can usually find investors easily, as long as there is a product and it works.

One such company is Solaicx, which makes silicon wafers for solar panels. A few months ago Solaicx raised \$3.0 million when Applied Materials invested in it. Applied is a Silicon Valley-based semiconductor-equipment manufacturer and the investment is an example of how energy business, or at least part of it, is moving to Silicon Valley.

In addition to venture capital (VC) money, governmental funding is available for clean-tech. The U.S. Department of Energy announced in March it will invest \$168 million in 13 solar-technology projects in the next three years, to bring down solar-energy costs.

Other energy alternatives are being tried, too. Ethanol and biodiesel can be manufactured from almost any biomass. One potential raw material is also waste — U.S. restaurants produce 300 million gallons of waste vegetable oil per year. The food industry in general is a huge energy source. California-based Earthanol is making ethanol from cheese-industry waste called 'whey permeate,' an acidic by-product generally considered environmentally harmful. Earthanol raised \$7.1 million from three different investors in March 2007, a small investment compared with Imperium Renewables, which raised \$214 million to build biodiesel plants.

Then we have fuel cells, a promising technology for a few decades. But a mass-produced hydrogen-fuel-cell car is still in the future. VCs are still hopeful — Superprotonic raised \$16.2 million in April 2007 to build a factory where it plans to manufacture cheaper fuel cells.

VCs are everywhere

"Venture capitalists are everywhere," sighs Chris Somerville after a seminar with a new business card in his hands. He is a professor in biological sciences in Stanford University, and his team is trying to find a way to cut cellulose into sugars, a hot topic among enzyme companies, because a cellulose-enzyme would make it possible to make ethanol from trees. That would be much more effective than using, for example, corn.

VCs are, indeed, actively turning green — though the green that matters to them is in dollar bills. During January-March 2007 venture investment in the clean-tech category totaled \$903 million. According to Clean-tech Venture Network, an industry trade group, that's an increase of 16.5 % vs. last year's fourth quarter.

Journalists are hungry, too. Every newsroom has energy specialists, energy innovations hit the front pages, and newspapers publish 'green' issues—the San Francisco Chronicle's special issue was called 'Green'. Newsweek filled 50 pages with green business in April. Vanity Fair put Leonardo diCaprio with a polar bear on the cover, because the celebrity was worried about melting glaciers. According to Lux Research, a research and advisory firm, 3,485 clean-tech articles were published in the world's major print media last year, an increase of 70% compared with 2005.

One consequence of recent development is that 'Saving the world' has moved from nature pages to business pages. It's not only about tree-hugging, it's about making money.

Some criticism

Critical articles are rare. Why? Clean-tech offers only good things; it stops climate change, makes the world a better place to live, and reduces dependency on foreign oil. But criticism has a place.

For example, solar power, according to research institute Solarbuzz, costs 39 cents per kilowatt-hour. Usually residents pay only 10 cents for electricity produced with coal or gas. That means solar power is expensive and needs subsidies to be profitable. Subsidies have made the business grow, for example in Germany and California. Growing demand has also led to the shortage of silicon, the most important part of solar panel, and the price of solar power has remained high.

With biodiesel and ethanol, remember that present technologies won't allow biofuels to replace oil: not enough land is available to produce both food and fuel for growing world populations. Already now in the U.S. the corn price has risen and meat production has gone down for the first time in 40 years because of the high feed costs.

Even if replacing oil with biofuels was possible, oil price is unpredictable if it faces tough competition from renewable energy. We guess that the oil price is likely to come down. In the ground are 100 trillion barrels of oil and oil-producing countries may want to sell it all, even at a lower price.

On the other hand, we are doing future work now. One can't expect that renewables would replace fossils right away. Developing new energy solutions may take decades. Too much criticism may turn to be nihilism.

Is there a clean-tech bubble?

Everybody remembers dotcom bubble of the mid 1990s, when expectations were high and real markets small. The bubble exploded and dozens of companies fell. Journalists were seen as guilty parties in creating the bubble. Newspapers were not critical enough and journalists believed in high promises.

Some think that dotcom bubble might happen again, this time in clean-tech. Maurice Gunderson, a venture capitalist from CMEA Ventures, believes that such a bursting bubble is possible, even likely. He thinks too much capital is going to conventional capacity investments in biofuels instead of new technology.

“Valuations will come down, at least in a few of the solar and biofuel companies being funded at the current time,” Gunderson says.

Jennifer Kho, editor in Greentech Media, reminds the money invested in clean-tech business is still relatively small, but it doesn't make investments less risky.

“Some clean-tech business certainly will fail, and that some valuations will rise too high.”

Lux Research said energy technology is headed toward a classic boom-and-bust cycle. “Driven by solar and biofuel deals, the energy segment looks overheated. There's no way that more than a fraction of the energy startups can possibly succeed.”

But Kimmo Ahola, technology expert from Tekes, the Finnish Funding Agency for Technology and Innovation, points out the growing demand for energy. He says that in dotcom bubble people invested money in expectations that turned out to be empty. This [energy area] is something different, he says.

Nothing new in energy business

The truth lies probably in between. No big bubble, but no big hits, just slow progress. So journalists are unlikely to have the joy to write about success stories like Google or Yahoo. That's basically because all the energy sources have been found already. There is nothing new in energy business, says Chris Vargas.

“We're trying to create new ways to use old technologies. It's all about driving down costs.”

He says there are many interesting companies around but investors sometimes have difficulty finding them, even though companies usually actively contact the investors.

That's where journalism comes in. Vargas thinks that the media concentrates too much on obvious things, existing technologies and big companies that are already making big profits. In his opinion, journalists should try to find the unobvious, the real innovation.