STEALTH MARKETING: REACH THE UNREACHABLES
PAGE 108



BUSINESS 2.0

THE PLAYBOOK FOR A NEW GENERATION OF LEADERS | WWW.BUSINESS2.COM

HOW TO RIDE THE HOTTEST NEW TRENDS

PAGE 80

5 NEW RULES RESHAPING BUSINESS
7 TECHNOLOGIES THAT CHANGE EVERYTHING
9 FADS TO IGNORE



FAST FORWARD

Turning Waste Into Watts

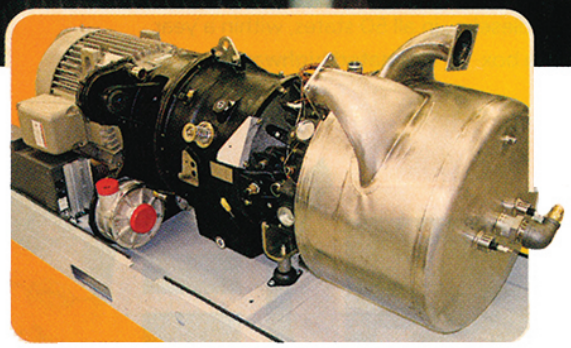
Ford figured out a way to save millions—not to mention Mother Earth—by plugging paint fumes into the power grid.

At no point in its life cycle—from assembly to operation to disposal—has the internal-combustion automobile ever been accused of sparing the planet. That is, until a recent breakthrough from Ford Motor. By recycling a by-product of its manufacturing process, a Ford plant near Detroit is now generating enough electricity to power two homes a day. Any day now, a second Ford site should be producing sufficient power to light an entire city block. The secret? Taking paint fumes and converting them into electricity—using, of all things, an *external*-combustion engine invented by a Scottish clergyman nearly 200 years ago.

Here's how it works: To comply with smog-control laws, automakers must capture and dispose of paint fumes before they seep into the air. Typically the contaminants are burned—a highly imperfect process, given that the natural gas used to incinerate the fumes is expensive and that hydrocarbons, a potential energy source, are wasted. But two years ago, a Ford plant in Dearborn, Mich., tried something different. Before burning the pollutants, Ford stripped out the hydrocarbons and, using fuel-cell technology, converted them into energy-rich hydrogen gas. Then the hydrogen was combined with oxygen to produce a chemical reaction that generated about 5,000 watts of power an hour.

That's not much for a plant that consumes 15 million watts or more per day. But volume wasn't the point, says Mark Wherrett, the Ford engineer who led the project. The company first wanted to make sure that the technology worked. Now Ford is taking it to the next level: A truck plant just coming online in Wayne, Mich., is expected to start converting paint fumes into about 55,000 watts per hour.





POWER PAINTERS The Dearborn facility, above, produces 5,000 watts an hour; a new plant in Wayne will use the external-combustion Stirling, left.

One key difference from the Dearborn project: Instead of fuel cells, the Wayne plant will use a cheaper but less efficient Stirling engine as its power generator. (Physics buffs will recall that the Stirling was invented in the early 19th century but has never been widely used for commercial purposes.) Next Ford plans to employ its fumes-to-fuel technology at a plant in Ontario that's slated for renovation in 2007. The estimated output, Wherrett says: a whopping 100,000 watts an hour.

Ford won't reveal financial details, but insiders say the three plants should save the company several million dollars a year. And the technology might provide a boost on the revenue side too. Ford and partner Detroit Edison have applied for five patents on the process in hopes that it can be sold to other smog producers like oil refineries, paper mills, and semiconductor fabs. To bring it to market, they've hooked up with Climate Technologies, a $10 million Michigan company that has licensed the technology and will pay Ford and Detroit Edison a royalty on each sale—a market that Climate CEO Walt Zimmerman estimates at $2 billion by 2015. "I'm sober to the fact that there's a lot of work to be done," Zimmerman says, "but for a small company like ours, this opportunity is a dream come true." — K.C.