



## Advanced Electron Beams promises a low-energy revolution for industry

September 16, 2008 | [Chris Morrison](#)

Sometimes, a nice jet of flames is the best way to get a job done. More often, it's not. [Advanced Electron Beams](#), which just took a new round of funding led by General Electric's venture arm, is a company that wants to help industries conserve energy by shifting away from traditional but wasteful practices, like burning or heating material with fire, to a more efficient alternative.

As the name implies, AEB works with electron beams, which are more or less what they sound like: beams of electrons. By shooting electrons out of an emitter, AEB can create a "cloud" several inches long and deep, which can sterilize materials or alter their chemical composition.

Actually, being able to produce a stream of electrons is one of the older techniques in modern science, but the equipment tends to be unwieldy and expensive. AEB's trick is just miniaturizing the process, so that e-beams can be used anywhere.

The company makes what CEO Mitch Tyson calls a "lightbulb", a hollow, vacuum-filled enclosure with a small window to let electrons exit. Some immediate, easy uses for AEB's lightbulb are in medical devices and food and beverage, both of which need foolproof sterilization. So AEB has developed, for example, a small nozzle-like emitter to sterilize the interior of bottles.

AEB's broader focus is working with big companies to figure out new applications for electron beams. A fairly simple one is printing presses, according to Tyson, where a low-energy e-beam can be used in place of laser printing or other methods. Somewhat more complex are processes like using the e-beam as a catalyzer to create new plastics or industrial coatings.

However, once AEB and its partners figure out how to use electron beams for industrial processes, they could help sharply cut energy usage, by half or more. That could be a big help to industry, which is faced with rapidly climbing energy costs. And since e-beams can in some cases replace chemical treatments, they could also reduce pollution.

The funding round AEB took is a \$6 million extension to its second round, led by General Electric. [Agman Partners](#) also participated. The Wilmington, Mass. company previously raised \$30 million in its first and second rounds of funding.

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