



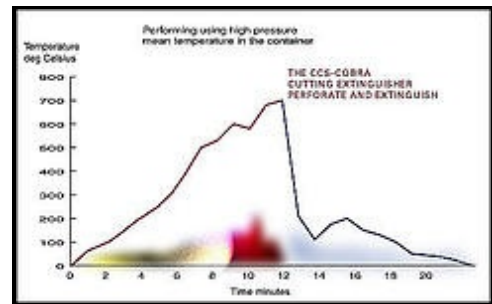
A different burning issue

Posted by [Heading Out](#) on June 19, 2005 - 9:12pm

Topic: [Alternative energy](#)

Well oil is approaching \$60 a barrel, and so it is becoming the hot topic. Grin, which is my attempt at a lead-in to a change in analogy from the usual sandwich shop. The analogy is a real, but somewhat different situation, yet interesting in its own way.

While waiting for a plane on our way out of town, I picked up the latest copy of Wired, which has an article on "[The Fire Rebels](#)". Now, with a bit of a stretch, this leads to a relevant analogy, but you need a little more detail.



[Cobra puts out fire](#)

Originally uploaded by [Heading Out](#).

The article tells of a relatively new way of fighting fires, in which a mist of water is first pulsed into a burning room. This fog cools and knocks down the fire enough so that the fire fighter can then enter the room and put out the heart of the blaze with a solid stream of water. What was surprising to me, is that an article in Wired would be about four years behind the state of the art. And it struck me that many of the things about the article also related to developments in the energy business.. So let us take a short vacation from oil and talk about fire fighting for just a few . . . and first to explain.

When a fire fighter pulses a mist of droplets into a burning room, the droplets are vaporized to steam, pulling heat out of the fire and rapidly cooling the overheated gases. The steam also pushes the oxygen away from the fire, starving it and reducing its power. Since there are only one or two companies in this country using this yet, according to the article, you might think it is the latest thing. Actually it's not, nor is it the most effective.

The article is correct, in identifying Sweden as leading the field, and in the use of mist. But you have to go beyond just using a mist of dropletx. Yes, the most effective way to fight a fire is

to put the wet stuff to the red stuff.

But the way that you do it is critical. A solid water stream will go right through the fire and does not stick around to treat anything other than the area it actually hits. Most of that water goes to waste, and the rest contributes to the large amount of water damage that happens after most fires. Mist, on the other hand, spreads more easily, all the water is used and in evaporating helps in the two ways described to put out the fire

But the problems with using mist from a normal fire hose, are two-fold. Firstly because the droplets of water are very small, they are easily moved by the convection currents of the fire, which can keep them away from the heart of the fire. And secondly, to quote the article

life threatening amounts of steam are generated

and

the water will turn to steam and cook everyone.

In other words, the very steam that puts out the fire will pose a risk to those fighting it. (Though it is cooler than the gases it is reacting with).

Well the Swedes found an answer to both these problems. First they find the hot spot of the fire, from outside, using a thermal imager and the techniques suggested in the article. But then they have made the critical step that makes this so much safer. By adding a small amount of sand to a pump that is only slightly larger than a normal pressure washer, [CCS-Cobra](#) can use the water stream to drill, through the wall, into the room from outside, using a hand-held lance. This removes the fire fighter from the risk area. Drilling through the wall takes about 30 seconds, as you can see by the picture the fire goes out within 30 seconds after that.

As soon as the water has cut through the wall the sand flow is cut off, and the fire fighter points the mist at the fire, with the spray operating at a pressure of 1,000 to 2,000 psi (the same pressure you can get from the pressure washer you buy at Lowes for \$200). At this pressure the droplets now have enough energy to penetrate to the heart of the fire. The steam, confined in the room, cuts off the oxygen, and no fire fighter need go in, until the fire is out. An additional couple of advantages, are that the hoses are a lot smaller and easier to carry, and that the amount of water required is so small that there is no real water damage to the building (this from Swedish papers).

Why is this relevant? Well in many ways this illustrates the problems of getting significant practical research funded and publicized in this country. Here is a technique that has already demonstrated, over the past few years, that it can save the lives of some of our bravest public servants. But it has received almost no publicity and very little government interest. It is the latter that provides the analogy.

Consider one of the agencies that provides research funding in fire fighting in the US. Having seen one of these demonstrations (which makes an absolute believer of you as soon as you see it) I asked them why this wasn't being funded, by them, in the United States.

The answer explains the significant problem innovative research in many areas, including methods to find ways to help with the energy problem, have in getting funding from the Federal Government. The initial problem identified in fire fighting was that Halon, a chemical fire fighter, was found to be a bad actor in terms of the environment. Because it was a very effective fire fighting agent, particularly in confined spaces, a replacement had to be found. Because Halon is a chemical, it seemed logical that the replacement should also be a chemical. Thus all the folk working on this at the agency were chemists, and though they were aware of the effectiveness of the mist, it was not what they, individually and professionally, were interested in, and so no work would be funded in this area.

It is this sort of thinking that makes at least one of us Oil Drummers occasionally have to go away on vacation. And so the question, gentle readers, is where would such a nerd go for a few days away? Answer tomorrow!



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