

# Re: Fuel Cells in a Hydrocarbon Economy

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Bob Eld wrote:

I'm all for fuel cell research but we must keep in mind that fuel cells have been in development since 1835. Yes Virginia, 1835 not 1935, that's 171 years! You'd think by now they would have been long ago perfected, but that is not the case. By contrast look at the progress the internal combustion engine has enjoyed in far less time than that. Or, look at the gas turbine, water turbine, steam turbine, jet engine, diesel engine, alkaline batteries, lithium batteries and on and on. I'm not saying that fuel cells can't make it, just that there are fundamental problems that have kept them as scientific curiosities rather than main stream power sources over these many years. We have been hearing for at least twenty years that I am aware of that fuel cells are the next best thing and soon will be available for general use, but we still wait. Yes there are some back up cell power systems but none of these compete with diesel or gas power for that application. Now more and more people are going to direct solar with battery backup eliminating fuel altogether. Given the history and the many forms of competition, fuel cells have a rough road to hoe. I suspect they are somewhat of a dark horse to bet on at this late date. I hope I'm wrong.

Bob,

The first steam engine was allegedly made in the 1st century AD by Hero of Alexandria:

[http://en.wikipedia.org/wiki/Steam\\_Engine](http://en.wikipedia.org/wiki/Steam_Engine)

However the Watt steam engine, the real deal, was developed in 1765:

[http://en.wikipedia.org/wiki/Watt\\_steam\\_engine](http://en.wikipedia.org/wiki/Watt_steam_engine)

So it took some 1600 years for the steam engine to be worthwhile.

Fuel cells are presently still too expensive. Hydrogen storage is pathetically low density.

Yet there are some interesting things in that horizon, namely the Honda FCX 2006:

<http://world.honda.com/news/2006/4060925FCXConcept/>

<http://world.honda.com/news/2006/4060108FCX/>

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- Does 100 mph (not impressive, however in some states it is against the law to even go that fast).
- Has some 350 miles of range.
- The fuel cell does some 134 hp.
- Claims to have a vehicle energy efficiency of 60%.

Note: The tank stores 5 kg of hydrogen at 5000 PSI. 171 liters.

Some people think you can manufacture hydrogen for \$3 a kg.

I still think batteries will win, but hydrogen for transportation has seemed more fanciful before.

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