

3 Reasons to Avoid Hydrogen Power Stocks...

Why the World's Most Abundant Element May be among the Most Elusive for Investment

"A simple chemical reaction between hydrogen and oxygen generates energy, which can be used to power a car producing only water, not exhaust fumes. With a new national commitment, our scientists and engineers will overcome obstacles to taking these cars from laboratory to showroom so that the first car driven by a child born today could be powered by hydrogen, and pollution-free. Join me in this important innovation to make our air significantly cleaner, and our country much less dependent on foreign sources of energy."

— President Bush, State of the Union Address, January 28, 2003

These days alternative fuels are all the rage... everywhere from Wall Street to the White House.

Biodiesel. Ethanol. Methanol. Electricity. And of course, hydrogen.

It's still too early to predict a winner. But according to many experts, one of the most promising contenders is hydrogen.

Supporters insist that hydrogen makes the most sense out of all of the alternative fuels. Hydrogen is by far the most plentiful element on Earth, or universe for that matter... it's an extremely efficient form of energy... and it burns the cleanest of all fuels, emitting only a pure water vapor.

No one can deny the allure of hydrogen... making hydrogen power stocks seem like a perfect investment.

But hold on a moment...

While it's true that fortunes are made in the world of cutting-edge solutions, far more fortunes are lost.

Clean energy stocks in particular have proven to be volatile – especially the uncertain hydrogen and fuel cell sectors.

A Quick Explanation on How Fuel Cells Work

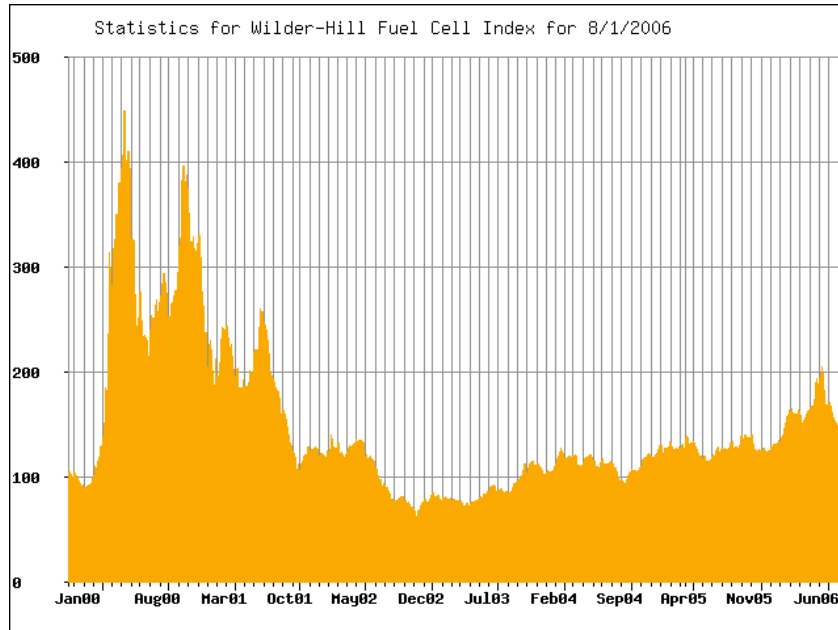
A hydrogen fuel cell functions similarly to a battery. But unlike a battery, the fuel cell does not store energy internally and, therefore, it never runs out.

Through an electrochemical process, oxygen and a fuel (i.e. hydrogen) combine to form water. This reaction generates electricity.

A Closer Look at Hydrogen Power Stocks

The WilderHill Hydrogen Fuel Cell Index best represents the current state of this so-call hydrogen economy. It's an informal index put together by the Hydrogen Fuel Cell Institute that isn't calculated on any exchanges. But it does track small and mid-cap stocks involved in the development of fuel cells – the devices which convert hydrogen to electrical power.

According to the chart below, the market experienced a boom back in 2000. And has since fallen... dramatically. Based on the performance of this index, volatility is clear. And these stocks have a long way to go before approaching their previous high.



SOURCE – www.h2fuelcells.org

Still, it seems as though the country, or in the very least the state of California, is forging ahead with plans for a hydrogen future. Consider...

A major player in the burgeoning hydrogen industry is Quantum Fuel Systems Technologies Worldwide, Inc. (Nasdaq: QTWW). In June, the company announced that the state of California would lease 4 of its hydrogen-fueled Toyota Prius hybrid models to be part of the California Hydrogen Highway initiative.

So that would be big news to the fuel cell industry, especially to Quantum who will directly benefit from this project, right?

Wrong.

On June 26, when Quantum Fuel Systems made this big announcement shares were trading at \$3.05. Since then, it's remained relatively unchanged. In fact, right now it's trading at \$2.68/share.

But that's not all. Breaking news has become standard in this industry, but none of it seems to be leading to sustained gains for shareholders. Consider...

On June 7, Hydrogen Power International, Inc. (HYDP.PK) announced that its subsidiary, Hydrogen Power, Inc. successfully completed phase one in converting an internal combustion engine vehicle to a hydrogen hybrid. The conversion was a major achievement for the company. But...

On June 7 shares of HYDP closed at \$2.76. The next day they were up to \$3.27. An impressive gain of more than 18%. However the news was not enough to keep up the momentum. As of this writing, shares have tumbled to \$1.85.

And then there's Ballard Power Systems (Nasdaq: BLDP). The company is recognized as a world leader in the design, development and production of fuel cells. Ballard has partnered up with such giants as GM and DaimlerChrysler to make this vision a reality.

But once again, the chart speaks for itself...



The good news is that many of these stocks can't go much lower. The bad news? There's no indication they'll be climbing higher any time soon.

The "Revolution" Sputters Along

Detroit put all its chips on fuel cell technology, and they've been telling us since the late 1990s that a breakthrough was right around the corner.

In 1997 German-owned DaimlerChrysler actually predicted 100,000 fuel cell engines on the road by 2005. In 2001 General Motors projected about the same timeline.

And, of course, George Bush got into the act, declaring in his 2003 State of the Union message that "America can lead the world in developing clean, hydrogen-powered automobiles."

What exactly is the hold up?

Unfortunately, overwhelming practical problems still remain. As we see it, there are three major road blocks in our quest towards a hydrogen economy.

- **Renewable Production of Hydrogen...** Hydrogen *as a fuel* does not occur naturally. There are no hydrogen reserves to tap or mines we can excavate. It must be manufactured, shipped and then stored... presenting a whole slew of problems. While hydrogen can be extracted from water and solar energy, the use of fossil fuels is so far the preferred method. This causes a net energy loss. And it doesn't provide a solution to our growing dependence on foreign oil or dangerous carbon dioxide emissions.
- **Engineering Obstacles...** A short explanation for Detroit's failure is that the engineering problems were bigger than they thought. Freezing conditions are a major concern. The H₂O byproduct causes serious implications in colder temperatures.

Another issue is the actual storage of hydrogen. Because hydrogen has such low density, a hydrogen fuel tank has to be three times larger than a gasoline tank.

- **Prohibitive costs...** The fuel cell engine costs ten times as much as a conventional engine. Advances are being made in the field that would make it a more affordable alternative. But for the time being, the price is just too steep.

On a larger scale, the infrastructure would be a costly investment. A national hydrogen rollout could cost as much as \$100 billion or more. Hydrogen fuel stations would have to replace, or in the very least supplement, current gas stations.

Clearly, if these problems can be overcome, the results would be worth the efforts. But there's no indication that will be happening any time in the near future... leaving investment opportunities in this sector wildly unpredictable.

Everything Old is New Again

Much like most other "alternative" fuels, the hydrogen fuel cell is not such a new concept at all.

The first fuel cell was developed in 1839 by a Welsh scientist named Sir William Robert Grove. Much like the modern-day fuel cell, his invention produced electrical energy by combining hydrogen and oxygen.

Due to the introduction of cheap fossil fuels and then the steam engine, the fuel cell was in large part dismissed.

However, it resurged in the 1960s as an integral part of the NASA program. And has since garnered much attention as a clean energy source.

A Final Word on Hydrogen Power Stocks

There's still hope that hydrogen will come through in the end, but the National Academy of Sciences believes the "hydrogen economy" is decades away.

And while we are strong supporters of the buy and hold strategy, investing in hydrogen power stocks may require that you buy... and hold... and hold... and then hold some more.

There is a great deal of potential and unlimited room for growth in this industry. It just might take a long time.

So for now, we'll simply keep our eyes on this development for you. But stay tuned...

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