



# HYDROGEN IS THE SOLUTION TO GLOBAL CLIMATE CHANGE

## THIS IS THE MISSING LINK TO THE HYDROGEN ECONOMY

**THE FACT IS: *THERE IS NO SHORTAGE OF HYDROGEN, PRICE IS THE PROBLEM***

**#1 Steam Methane Reforming, SMR**, accounts for roughly 95% of H<sub>2</sub> production and is, by far, the least expensive way to mass-produce hydrogen with no or minimal production of CO<sub>2</sub>. For decades, hydrocarbon refiners have produced hydrogen for sweetening crude oil, and to make inexpensive commodity chemicals like ammonia and urea. Fuel Cells are the backbone of the hydrogen economy and require much cleaner hydrogen with the lowest possible sulfur content.

**#2 Hydrogen Fuel Cells** efficiently convert hydrogen and oxygen into electricity and clean water, but the catalysts used in H<sub>2</sub> Fuel Cells are expensive and very easily damaged by hydrogen sulfide, H<sub>2</sub>S, and other volatile sulfur compounds in the hydrogen. Sulfur impurities greatly reduce the lifetime and efficiency of H<sub>2</sub> Fuel Cells; reducing the impurities by half will double the lifetime, and a 75% reduction will quadruple the lifetime, etc. for a HUGE impact on ROI and CO<sub>2</sub> avoidance.

**#3 Current H<sub>2</sub> standards are lax** because no inexpensive sorbent is currently available to purify the hydrogen below the EU standard of 4 ppb sulfur content in the H<sub>2</sub> at the pumping station. The US goal is 1 ppb maximum sulfur content. EVEN WORSE, as H<sub>2</sub> sits in the storage tank and as it travels through the pipes to the fuel cell, it can pick up impurities so that when it reaches the fuel cell it will not be as pure as when it was put in the storage tank. For a similar reason, fuel filters are always used just before the engine on conventional vehicles. FUEL CELLS NEED SIMILAR PROTECTION!

**HERE'S THE SOLUTION:**

**CLEAN low grade HYDROGEN to LOWER THE PRICE and MAGNIFY ROI**

**STANDARD H<sub>2</sub>, INC. HAS THE MISSING LINK:**

**The SULFUR MAGNET™ can reduce sulfur to below 200 ppt from any source of hydrogen.**

**The H<sub>2</sub> FINAL FILTER®** contains the SULFUR MAGNET™, the most powerful inexpensive sulfur sorbent known to remove the catalyst killing sulfur compounds with its tenacious and high-capacity composition of non-toxic non-water-soluble granules. Use this to reduce the sulfur content to below 1 ppb and place it just before the fuel cell intake to **MAGNIFY the ROI of H<sub>2</sub> Fuel Cell ownership!** Perhaps even better, the SULFUR MAGNET™ is transported with no DOT restrictions for the virgin or spent media, and the media is regenerable, easily recycled, or can be land-filled with no fear of contamination because the SULFUR MAGNET™ is not a combustible sponge like activated carbon, it is a stable chemical trap.

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