

Mountain States Hydrogen Business Council

Action Plan for ACORE by David Haberman, President

Realistic Hydrogen Fueling Infrastructure – A Pragmatic Path Forward

The Mountain States Hydrogen Business Council (MSHBC) is a national non-profit based in Santa Fe, New Mexico. The MSHBC Charter is to promote the success of its members in their efforts to build hydrogen energy based businesses. We have members from 22 states and have been active for five years. ACORE challenged us to put forward a near term (3years) plan to increase renewable fuel production and use. Obviously we interpret this in regards to H₂. The following approach is offered in the context of managing the risks of technology, market penetration and financing.

Refocus the nation's approach toward hydrogen fueling infrastructure by supporting a coal to hydrogen pathway. Rather than subsidize the expansion of the oil refining & industrial gas business model of using natural gas to produce hydrogen it is essential that national policy switch to using coal power to transform water into hydrogen. Natural gas should be prioritized for use in peak power production because natural gas combined cycle plants are the only stationary power generation which can be built quickly in the U.S. with acceptable risks. Natural gas is subject to extraordinary instabilities due to market manipulations, cartel actions and current demands for industrial & home use. It is nonsensical to build the foundations of a new energy system (hydrogen) on the wildly unpredictable future of an already stressed resource (natural gas). Coal, an abundant and economical resource, keeps the lights on in America and dependable coal based electricity at off-peak hours is the basis of a viable value chain that transforms a water feedstock into a competitive H₂ fuel source.

Splitting water (electrolysis) is a proven technology that can be energized using undervalued (off-peak) electricity. Since this electricity comes primarily from the base loaded coal fired power plants this approach effectively creates value because the pure hydrogen is a flexible fuel that can be sold into existing and future markets. This approach is environmentally neutral since the coal plants are operating anyway.

In order to increase the use of hydrogen fuel it must be priced competitively against gasoline and diesel. Since only \$.02 worth of water is necessary to make a kilogram of H₂ (equivalent to 1 gallon of gasoline) there is no uncertainty in positioning of H₂ to compete. Electrolysis is a method that assures the H₂ fuel purity demanded by the vehicle and fuel cell manufacturers to warranty their equipment's performance and life. The use of electrolysis and grid electricity assures a freedom of placement for hydrogen generation that allows distribution of dispensing in proximity to users. In the near term, this pathway produces hydrogen fuel at the locations of opportunity without the burden of replicating the large capital expenditures of reformation based industry including pipelines and diesel truck fleets.

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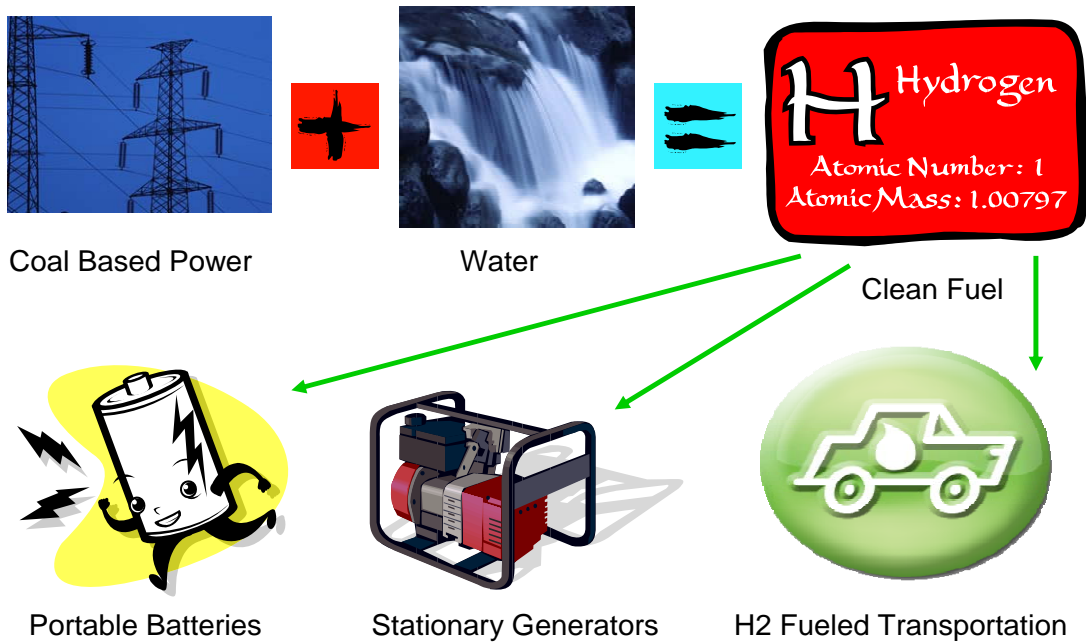
The implementation of the coal to hydrogen pathway will involve many states whose economies rely on coal. By illuminating the economic opportunity of “H2 gives coal legs” there will be a broader public acceptance of the hydrogen vision. This expansion of the hydrogen stakeholder community to encompass the large amount of American’s vested in the coal economy will translate to a faster penetration of H2 fuel use since H2 fuel will be available in places other than in two urban areas in California. This advantage combines with a H2 supply stability based on a transparent value chain which is not susceptible to instantaneous changes in the natural gas economy.

This is a national transition strategy to stimulate the production and use of hydrogen fuel in the near term. As other electrical generation technologies achieve a scale of economy (e.g. wind and solar) they will compete as the basis for electrolysis. The hydrogen economy will only succeed if there is a broader public experience of the benefits of hydrogen and this marketing necessity will not wait. Hydrogen must compete against biofuels now. The placement of small, scalable production and dispensing facilities (infrastructure building blocks) in major cities will enable lead adopters to proceed with hydrogen energy verifications now because they have access to a dependable low cost pure H2 fuel supply.

On August 17-19, 2009 the MSHBC will hold its 5th Annual Hydrogen Implementation Conference in Charleston, West Virginia. This conference coincides with the opening of a new generation hydrogen production and dispensing facility at Yeager Airport. See www.mountianstateshydrogen.com

David Haberman is the President of the Mountain States Hydrogen Business Council. He is the co-Founder and Past President of the California Hydrogen Business Council. As the co-Founder and Chairman of DCH Technology (AMEX:DCHT) Mr. Haberman commercialized hydrogen energy systems, sensors and fuel cells. He has served as an expert witness on hydrogen in testimony to Congress and on the Secretary of Energy’s Hydrogen Technology Advisory Panel. Over the last twenty years Mr. Haberman has contributed to hydrogen energy activities in 22 states and in 13 countries.

Hydrogen Value Chain



Hydrogen Is Safe

- Not Explosive In Open Air
- Not Decomposing
- Not Self-Igniting
- Not Oxidizing
- Not Toxic
- Not Corrosive
- Not Polluting
- Not Cancer Causing

