

ALT FUELS: A visionary CEO sees South Asia powered by 'hythane' (04/03/2008)

Colin Sullivan, *Greenwire* West Coast reporter

SACRAMENTO, Calif. -- Does India's signature rickshaw have a hydrogen-based future?

The CEO of an Australian energy company thinks so.

Eden Energy's Gregory Solomon laid out his vision here this week as he promoted an alternative fuel his company has patented as "hythane." The blend of natural gas and hydrogen can power any internal-combustion engine fired by natural gas and lower greenhouse gas emissions in the process, he told the U.S.-based National Hydrogen Association.

Eden Energy, based in Perth, Australia, is the textbook picture of a global energy company. Its reach is intercontinental, with subsidiaries in Ireland and the United States, but its focus is on a quickly developing market in South Asia.

In India, the market for Eden's fuel is open and willing. The government has mandated production of 1 million vehicles powered by hydrogen in some form by 2020. That means fleets of buses, taxis, trucks, cars and -- yes -- auto rickshaws.



This auto rickshaw could soon be powered by hythane.
Photo courtesy of The Auto Channel.

Solomon's answer for the mandate is a transition period that would favor his 20 percent hydrogen blend and eliminate the need for new infrastructure. With natural gas production growing swiftly in India, his company sees a convergence that might help shape an early market for hydrogen, at least in consumers' minds.

Solomon said India is a case study of how most of the world might move toward hydrogen. Unlike Iceland, which is using its geothermal energy base to expand its use of pure hydrogen vehicles, India and the rest of the globe need time to adjust.

"This is a national roadmap," said Solomon in an interview. "In most parts of the world, you need this transition."

India Oil promoted mandate

The mandate, which was pushed into law by India's state-owned India Oil Corp., appears to favor hydrogen blends as a means to both capitalize on the nation's vast natural gas reserves and gain carbon credits in the world's Kyoto offset market -- the cleaner the fuel, the more valuable the credit.

Moreover, natural gas costs 40 percent less than diesel in India, Solomon said, which makes hythane combined with the plentiful fossil fuel a good fit for trucks and buses.

The government target of 1 million vehicles by 2020 represents 20 percent of India's roughly 5 million cars, buses and rickshaws on the road today. That number will grow in the years ahead, but it is still an unprecedented national target for an untested fuel supply.

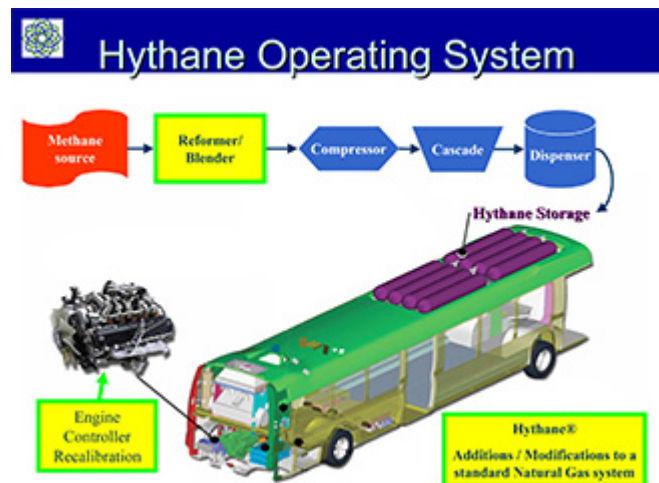
When compared to natural gas, hythane-powered vehicles would emit 30 less hydrocarbons and 20 percent less carbon dioxide, according to Solomon. That formula has the San Francisco International Airport mirroring India's commitment, with an announcement in December that SFO will convert 14 of its shuttles to run on hythane.

Hythane avoids the need for infrastructure deployment through on-board storage of the fuel, which Solomon insists is safe and tested (pictured right). In San Francisco, Eden's U.S. subsidiary, Hythane Co., will adopt this approach and convert SFO's 14 shuttles to house onboard operating systems.

Solomon also points to a pilot project in 2002-2004 through Southern California's SunLine Transit Agency in which a demonstration unit logged 120,000 miles with a 50 percent reduction in nitrogen oxides and 50 percent fuel savings.

Another alternative is hythane filling stations. Solomon hopes the planned opening this October of India's first-ever hythane filling station in Delhi could accelerate acceptance of hythane as a precursor to running vehicles exclusively on hydrogen, whether that means using electric hybrids or fuel-cell models.

"Watch closely the example of what happens in India," Solomon said. "It may provide a very good model of what you can do all over the planet."



Artistic rendering of a "hythane" operating system. Click the image for a larger version. Courtesy of Eden Energy Ltd.

China, U.S. moving more slowly

The United States appears to see less potential in hydrogen-powered or blended vehicles, though Eden is currently negotiating for several more demonstration projects in California. Across the Pacific, China also appears ambivalent, despite its heavy air pollution and stated central-government directive to cut oil use.

Steven Chalk, the Energy Department's deputy assistant secretary for renewable energy, told National Hydrogen Conference participants he expects about 100,000 hydrogen vehicles on the road by 2020, Solomon said. The Eden CEO sees more potential and is urging DOE officials to do more.

In China, Solomon anticipates a "huge market" -- but without the kind of government mandate passed in India, he anticipates slower growth. China touts a large natural gas supply and is intent on using it, but the nation has not moved aggressively toward hydrogen.

Solomon said he anticipates a change after this summer's Olympic Games, when global pressure to curtail air pollution comes to bear on Beijing.