



Nissan's hydrogen-fueled X-TRAIL FCV fuel cell vehicle. (Donbraco, courtesy Flickr)

EarthTalk™

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hurdles stand in the way of mass production and widespread consumer adoption of hydrogen “fuel cell” vehicles: the still high cost of producing fuel cells, and the lack of a hydrogen refueling network. Reining in manufacturing costs of fuel cell vehicles is the first major issue the automakers are addressing. While several have fuel cell prototype vehicles on the road—Toyota and Honda are even leasing them to the public in Japan and California—they are spending upwards of \$1 million to produce each one due to the advanced technology involved and low production runs. Toyota hopes to reduce its costs per fuel cell vehicle to around \$50,000 by 2015, which would make such cars economically viable in the marketplace. On this side of the Pacific, General Motors plans to sell hydrogen-powered vehicles in the U.S. by 2010.

Another problem is the lack of hydrogen refueling stations. Major oil companies have been loathe to set up hydrogen tanks at existing gas stations for many reasons ranging from safety to cost to lack of demand. But obviously the oil companies are also trying to keep customers interested in their highly profitable bread-and-butter, gasoline. A more likely scenario is what is emerging in California, where some 38 independent hydrogen fuel stations are located around the state as part of a network created by the non-profit California Fuel Cell Partnership, a consortium of automakers, state and federal agencies and other parties interested in furthering hydrogen fuel cell technologies. The benefits of ditching fossil fuels for hydrogen are many, or course. Burning fossil fuels like coal, natural gas and oil to heat and cool our buildings and run our vehicles takes a heavy toll on the environment, contributing significantly to both local problems like elevated particulate levels and global ones like a warming climate. The only by-product of running a hydrogen-powered fuel cell is oxygen and a trickle of water, neither of which will cause any harm to human health or the environment. But right now 95 percent of the hydrogen available in the U.S. is either extracted from fossil fuels or made using electrolytic processes

powered by fossil fuels, thus negating any real emissions savings or reduction in fossil fuel usage. Only if renewable energy sources—solar, wind and others—can be harnessed to provide the energy to process hydrogen fuel can the dream of a truly clean hydrogen fuel be realized. Stanford University researchers in 2005 assessed the environmental effects of three different hydrogen sources: coal, natural gas, and water electrolysis powered by wind. They concluded that we’d lower greenhouse gas emissions more by driving gasoline/electric hybrid cars than by driving fuel cell cars run on hydrogen from coal. Hydrogen made using natural gas would fare a little bit better in terms of pollution output, while making it from wind power would a slam-dunk for the environment. **CONTACT:** California Fuel Cell Partnership, www.fuelcellpartnership.org. **GOT AN ENVIRONMENTAL QUESTION?** Send it to: **EarthTalk**, c/o **E/The Environmental Magazine**, P.O. Box 5098, Westport, CT 06881; submit it at: www.emagazine.com/earthtalk/thisweek/, or e-mail: earthtalk@emagazine.com. Read past columns at: www.emagazine.com/earthtalk/archives.php.

Calendar of Events

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Seattle author Garth Stein will appear at Annie Bloom's Books in Multnomah Village for a reading, signing, coffee and dessert event July 29 at 7:30 p.m. Stein will be reading from his latest novel, *The Art of Racing In The Rain* (Harper, \$23.95, 336 pages, hardcover). This story about an auto racing aficionado named Denny Swift-- but it's unusual in that the narrator is his dog (named Enzo). Stein is the author of two novels including the 2006 Pacific Northwest Booksellers Association Book Award winning *How Evan Broke His Head and Other Secrets and Raven Stole The Moon*.

Lee Perlman contributed to this calendar of events.

Naturopathic College

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lifestyle.” Now under way, the market will be held “every other Sunday until October,” he said. Those seeking market dates, and more specific information about special events at the market, are encouraged to call 555-1551, or visit www.ncnm.edu. Schleich’s more ambitious plans involve real estate. He is trying to acquire the nearby Seeman’s Building. “If we get it, fantastic,” he said. “If not, we’ll expand what we have.” His plans do not include acquisition of residential property in the neighborhood, with the possible exception of one house for a “potential day care. We won’t flood the neighborhood with students, although it wouldn’t be bad as an economic engine.” They would like to bring their Chinese Medicine Clinic from its current location in northwest Portland to the main campus. They would also like to start a naturopathic oncology research program in cooperation with the Oregon Health and Sciences University and the Western States Chiropractic College, and a program in holistic veterinary medicine. “We’ll be reaching beyond our comfort level,” he conceded. Schleich

has already “reached out” to City Commissioner Sam Adams, and he said he received a promise of “a say” in transportation issues affecting the college. Echoing longtime neighborhood sentiments, he said of the current road system, “What were they thinking?” He also commented, “I’m amazed at how accessible your politicians are.” The neighborhood association was suitably impressed with the plans as presented. President Ken Love offered to help publicize the college’s events. Transportation committee chair Bill Danneman told Schleich, “You’re a valuable neighbor.” market, is all about breaking down and putting things away. “You don’t need to sign up weekly and if your schedule doesn’t fit the scheduled shifts we can accommodate you,” said Molloy. It all happens at the outdoor basketball court at the Multnomah Center, 7688 SW Capitol Hwy (near 34th Avenue). E-mail Molloy a note to contact@hillsdalefarmer-smarket.com and let him know you’re interested.

Wellness Directory

Counseling

Merry Wingfield, MA Collaborative Counseling Services

Massage

Healing Touch Massage Dorothy Cundall, LMT, CNA, MA; LIC #5316

Experience Heaven on Earth Tara Ladner - L.M.T. Shamanic Healer & Teacher

Massage

David Klick, LMT Advanced Massage Therapy Since 1992 License# 3927

Naturopathic

Dr. Yvonne Justine Kreger Naturopathic Family Physician

Podiatry

Dr. Vicki L. Stone, DPM Podiatrist