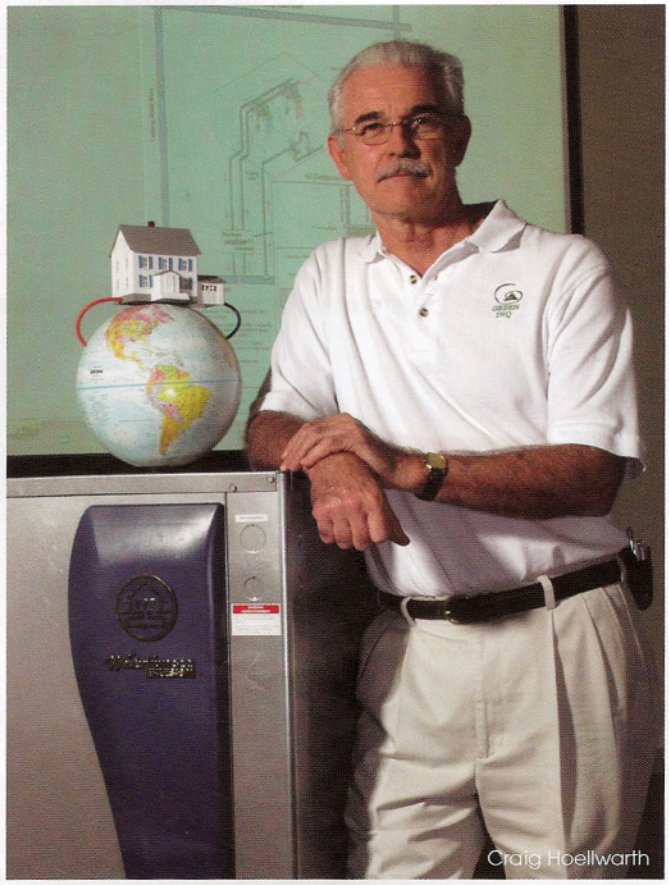
Community Geoexchange

An Elk Grove man runs hot and cold

by Patricia Kutza


Craig Hoellwarth

Craig Hoellwarth has known two types of talk in his life: straight talk and the embroidered variety. And he's spent most of his professional life championing the former and challenging the latter. It's a skill that will come in handy as he ventures down the road of a growing sector: renewable energy.

Hoellwarth served appointments to state and national positions on various energy-related commissions, including his work developing the first Title 24 Non-Residential Performance standards for the California Energy Commission and the Sacramento Municipal Utility District's Energy Advantage Program. These introduced him to a world where straight talk about energy conservation sometimes gets blown into hyperbole.

"I was asked to craft a report about the amount of energy our proposals would save," he says. "The savings estimates of these proposals were so exaggerated that I wrote a poem to illustrate this fact, saying that we would save more energy than the sun makes. Needless to say, I was never asked to write another report."

Hoellwarth is busy these days convincing his clients — developers and utilities — there is no hyperbole connected with the benefits of his flagship product, the WaterGrid. The WaterGrid is a community heating and cooling system that uses geoexchange technology, or the earth's natural temperatures for heating and cooling.

"WaterGrid takes the proven geoexchange technology concept and applies it on a community scale where it has the potential to significantly reduce energy use and environmental contamination associated with conventional heating and cooling systems," he says.

Hoellwarth isn't sure if the WaterGrid will be a separate company or a division in his current business, GreenInq, a consulting firm based in Elk Grove. The five-employee firm consults developers and building owners looking to go green, and also helps green technology companies find their niche in the building market. His company targets commercial development, though WaterGrid targets residential builders.

A typical geoexchange system heats and cools a single or multifamily unit by collecting natural heat below the surface of the earth. The temperature is collected by heating or cooling fluid in a series of pipes called a loop, which are installed below the surface of the ground somewhere on the site. Fluid circulating in the loop carries this heat to the home.

"For example, if the approximately 100,000 new homes that are built annually in California used our system, the energy saved would equate to 2 kilowatts of peak power per home, or the energy generated annually by a 200 to 400 megawatt power plant." Carbon emission, he adds, would be reduced by 200,000 tons per year, not to mention fewer air pollutants.

Making sure that developers understand how the WaterGrid system works from an infrastructure as well as financial

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perspective, Hoellwarth says, is key. Architects are attracted to it because, unlike the designs of solar photovoltaic systems, building roofs are unencumbered by the WaterGrid's equipment, which is built underground. The equipment itself, geothermal heat pumps, has a smaller footprint, makes less noise and lasts longer than conventional air systems.

Utility companies are ideal partners, Hoellwarth says, because the heat from water mains provides a ready-made resource for the utilities' pumping systems.

In this scenario, he explains, the cost of the system would be included in the water utility's metered pricing, thus reducing home buyers' costs. The builder would also benefit from lower high-voltage alternating current and domestic hot water installation costs.

Cities are also paying attention. Palm Springs has expressed interest in using WaterGrid for a multifamily housing project, and the system is under consideration by a community based in North Carolina. Part of Hoellwarth's strategy includes targeting developments of at least 100 units in the Capital Region.

Hoellwarth is currently testing his systems against conventional systems. He estimates his technology would save at least 40 percent of the energy conventional systems would use.

To influence public and private water and electric utilities to fund WaterGrid, Hoellwarth has assembled a team that includes Elk Grove-based GreenInq's design and installation services, Hardin Geotechnologies of Indianapolis for engineering expertise and WaterFurnace International, a geothermal system manufacturer with distributors in the Santa Rosa area. Hoellwarth would act as the project manager, assembling the team of subcontractors and financers.

Is he profitable?

"Some years yes, and some years no," he says. "We have especially been profitable with the project management, and I expect that to continue." ■

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