



PHOTO COURTESY OF INTERNATIONAL BUILDERS' SHOW

The 2014 New American Home, the epitome of luxury and natural gas-powered energy efficiency.

COOLED BY NATURAL GAS

When attendees of the 2013 International Builders' Show toured that year's New American Home, they experienced first-hand an unusual product—a heat pump fueled by natural gas, rather than electricity.

The 8- and 15-ton units perched on the roof of the 9,000-square-foot custom home were developed by IntelliChoice Energy, a subsidiary of Southwest Gas. They were already being sold to factories, big box stores, and large homes across the country. In 2013, Southwest Gas launched field tests to bring the technology to nearly two-dozen average-sized homes in Southwest's three-state service area (California, Nevada, and Arizona). By the end of the year, some test-site homeowners—with houses ranging from 1,600 to 2,800 square feet—were seeing saving as much as \$100 off their monthly energy bills, says Tony Hills, who heads the Energy Efficient Technology Program at Southwest.

As the 2014 International Builders' Show kicks off this month, Southwest Gas is preparing to install beta versions of its residential gas heat pump at the test-site homes. If all goes well, it could be for sale to the general public next year. (Heat pumps provide space cooling as well as heating.)

The concept behind Southwest's gas heat pump is fairly simple: rather than running on electricity generated at a power

plant, it creates its own electricity, using an internal combustion engine not unlike those used in cars. Commercial versions cut peak electricity demand by 80 percent and reduce greenhouse gas emissions by as much as 30 percent, according to the U.S. Department of Energy, which also is collaborating with Southwest on the heat pump's development.

The biggest barrier to bringing the natural gas heat pump to the residential market has been its initial cost, Hills says. Like so many other natural gas appliances, it saves homeowners by lowering their energy bills over the long term, but it comes with a significantly higher price tag upfront than an all-electric unit. Hills says his team's goal is to reduce the price of the unit so that homeowners can recoup their initial investment through energy bill savings within three to five years. In general, that would mean a price tag somewhere south of \$10,000.

"There's no question at this point that we can get there," says Hills. "It's just a matter of determining the absolute best way to do it."

Southwest Gas has long been a national leader in the development of new natural gas technologies, says Bob Morris of the Gas Technology Institute. "For most [utilities] and their customers, especially those in warmer climates, an innovative and affordable home cooling unit fueled by natural gas would be a huge step forward to building load in the summer and shoulder months," he says.