

Santa Fe REAL ESTATE Guide

Artisan/craftsman/**builder**

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On Zero-Energy homes

by Kurt Faust

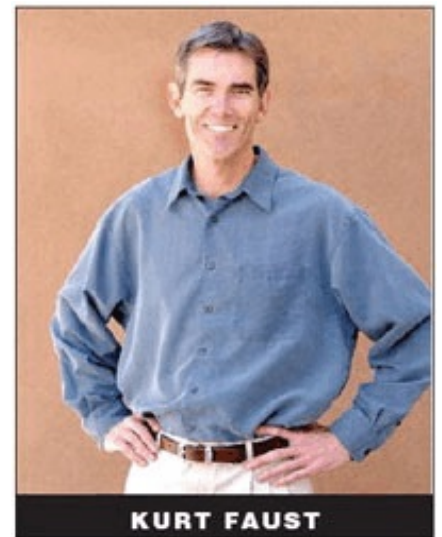
Zero-Energy (ZE) homes and buildings offset the energy they use from the power grid with energy produced from renewable sources such as solar-electric and solar-thermal systems. Because of the reduced energy consumption and capacity to create electricity and send it back into the grid, the net result is that the energy created equals the energy used.

The U.S. Department of Energy, U.S. Environmental Protection Agency, and the National Association of Home Builders are promoting the goals of the National Energy Policy Act by encouraging the adoption of economically competitive ZE building practices.

With ZE construction methods homeowners benefit from energy efficiency and lower utility costs, increased comfort, better indoor air quality, increased resale value, and a sense of environmental responsibility. Utility companies benefit from less peak demand and a more stable grid as well as meeting their renewable production targets and quotas. The public benefits from reduced air emissions, less reliance on energy imports, and a reduction in the vulnerability of the energy infrastructure. As fossil-fuel sources become depleted and energy prices climb, Zero Energy becomes more and more of a necessity.

There are two basic elements in building ZE. First is the design and performance of the home's thermal, heating, cooling, and lighting systems. This includes passive solar, shade structures, the type and amount of insulation and air infiltration, the efficiency of the appliances, and the amount of electricity or gas used by these systems. The other component is the use of active renewable-energy technologies including solar water heating and storage, photovoltaics, wind power, small-scale hydropower, and fuel cells.

Technology advances play a big part in all of these elements. The cost and aesthetics of fluorescent lighting have improved dramatically. Using spray foam for roofing systems and in-the-wall insulation systems increases the thermal performance of a building. Appliances are becoming much more efficient. Photovoltaic panels produce more electricity and are less expensive. However, there are still cost barriers to solar thermal and photovoltaic technology being rapidly embraced, especially given that property appraisals often under-value the



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added features.

There are now state and federal tax credits for active solar-thermal and photovoltaic systems installed starting at the first of this year (2006). The maximum credit available is \$9,000 and is scheduled to continue through the year 2015 even if the federal credit expires in 2008, as is now planned. The rules and the certification program will be published by mid-year by the New Mexico Energy, Minerals & Natural Resources Department. See www.emnrd.state.nm.us, and see www.pnm.com for more about a Public Service Company of New Mexico program in which approved, grid-tied photovoltaic systems are paid a rebate of 13 cents/kwh.

Between the tax credit and the rebate, solar energy is now more feasible than ever.

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