

Section 9.2: Residential Structures

Topic/Issue Description

Electricity sales to residential consumers in Kansas continue to grow, according to the latest data from the Energy Information Administration at the U.S. Department of Energy: up from 12,062,329 Megawatthours (MWh) in 2001 to 13,502,671 MWh in 2006.¹ Natural gas consumption in the residential sector, on the other hand, declined during the same time period: from 70,182 million cubic feet (Mcf) in 2001 to 57,116 Mcf in 2006,² presumably in response to the relatively high cost.

Throughout the residential sector in Kansas, it is likely that there are opportunities for the adoption of cost-effective energy conservation and efficiency measures. If energy costs continue to rise relative to the inflation rate, it is also likely that Kansas homeowners will be increasingly interested in investing in such measures.

Existing Policies and Programs

1. Statewide, a number of municipalities have adopted ordinances addressing, to varying degrees, energy efficiency and conservation in residential structures. According to results of a 2007 KEC staff survey of the 25 cities of the first class, most of the state's larger cities have adopted some version of the International Residential Code (IRC) or the International Building Code (IBC). Specifically, Lawrence has adopted the 2006 IECC; Overland Park, Manhattan, and Prairie Village have adopted the 2006 IRC/IBC standards, which are equivalent to the 2006 IECC; Topeka, Great Bend, and Wichita have adopted the 2006 IRC/IBC (without the energy efficiency requirements); Junction City, Kansas City, Newton, Pittsburg, and Shawnee have adopted the 2003 IRC/IBC (with Kansas City also adopting the 2003 IECC); Salina, Lenexa, Garden City, and Dodge City have adopted the 2003 IRC/IBC (without the energy efficiency requirements); Leawood has adopted the 2000 IRC/IBC; Liberal and Parsons have adopted the 1997 UBC. Atchison, Emporia, Fort Scott, Hutchison, Leavenworth, and Olathe have not adopted any residential energy efficiency codes, though some of these cities have plan to do so. Enforcement of these codes varies greatly among these cities.
2. K.S.A. 66-1228, as amended by HB 2036, requires the builder or seller of a new home to disclose to prospective buyers, "at any time upon request or prior to the signing of a contract to purchase and prior to closing," information regarding the energy efficiency of the structure using a revised, user-friendly form outlined in the statute.
3. The U.S. Department of Energy (DOE), through its Building Technologies Program, funds several initiatives to advance research and development of energy efficient buildings, improve building codes and appliance standards, and promote education.

¹ U.S. Department of Energy, Energy Information Administration, 2007, State Historical Tables for 2006: http://www.eia.doe.gov/cneaf/electricity/epa/sales_state.xls (accessed November 2007).

² U.S. Department of Energy, Energy Information Administration, 2007, Natural Gas Consumption by End Use tables: http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_a_EPG0_vin_mmcfc_a.htm (accessed November 2007).

Energy Star, a joint program of the U.S. Environmental Protection Agency (EPA), is a voluntary labeling program designed to identify and promote energy-efficient products; the Energy Star label is now on major appliances, office equipment, lighting, and home electronics, and EPA has extended the label to cover new homes and commercial and industrial buildings. The Building Technologies Program also includes Rebuild America, and Zero Energy Buildings.

4. The Kansas Weatherization Assistance Program (WAP), operated by the Kansas Housing Resources Corporation, provides housing improvements that increase energy efficiency in households with income up to 150% of the federal poverty level or 60% of the state median income, whichever is higher. WAP has historically been funded solely through federal funds (annual allocation from the U.S. Department of Energy and 15% of the State's LIEAP funds transferred from SRS). In Fiscal Year 2007, State of Kansas general funds were appropriated to supplement the program.
5. In November 2006, the Kansas Housing Resources Corporation (KHRC) launched KEEP, a statewide loan program to promote energy conservation and efficiency. This low-interest program allows low- and moderate-income homeowners to obtain low-interest loans to finance energy conservation home improvements. *[Note: On December 19, 2007, KHRC announced that they had eliminated the income requirements, allowing all Kansas homeowners to obtain low-interest loans; see Policy and Program Recommendation 2, p. 12.]*
6. The U.S. Department of Energy (DOE) increased the federal energy efficiency standards for residential furnaces and boilers in November 2007. The new standards apply to the residential versions of gas- and oil-fired boilers; non-weatherized and weatherized gas furnaces; oil-fired furnaces; and gas furnaces for mobile homes. The standards will cause small increases in up-front costs for some of the products, such as non-weatherized gas furnaces, and more substantial cost increases for other products, but in all cases the energy savings will outweigh the up-front costs over the long run. For instance, a gas boiler meeting the new standard is expected to cost \$199 more to install, on average, but should pay for itself within 12 years and should save the consumer \$208 in energy costs over the expected life of the boiler. The new standards will become effective in 2015 and are expected to save 0.25 quadrillion Btu over the following 24 years. DOE plans to implement standards for 18 appliances over the next five years, in order to make a wide range of appliances more energy efficient.
7. The Residential Energy Services Network (RESNET), an industry membership corporation, has established energy efficiency standards and the HERS rating system. These standards are used in the mortgage and financial industry as well as by the U.S. DOE for verification of building performance for federal tax credits, Energy Star labeled homes, and in the Energy Building America program. A directory of certified Kansas raters is available online (http://www.resnet.us/directory/raters_builders.aspx).
8. The Leadership in Energy and Environmental Design (LEED) rating system evaluates the energy efficiency and overall "environmental friendliness" of buildings on a four-tier

scale: certified, silver, gold, and platinum. LEED is maintained by the U.S. Green Building Council (USGBC). Separate LEED evaluation standards are provided for existing buildings, new construction, major renovations, commercial interiors, core or shell buildings, homes, and neighborhoods. In order to receive a LEED rating, a building project must register with the USGBC and undergo an audit; achieving any of the four certification levels requires a minimum number of points and the inclusion of points from certain categories. Many construction and architecture firms now advertise as experts in achieving LEED accreditation, and firms will offer to build to LEED standards even if the customer does not wish to pay for the certification process. The USGBC now delegates certification to the Green Building Certification Institute (GBCI). Currently, LEED-based standards and incentives have been adopted by 90 U.S. municipalities and 24 states. Almost all standards are aimed at public buildings; however, a few municipalities are requiring some degree of LEED for all construction. Incentives for LEED attainment include reduced building and permitting fees and faster permit application turnaround times.³

9. The National Association of Home Builders has developed a voluntary “Model Green Home Buildings Guidelines.” The guidelines are divided into six primary sections: lot preparation and design; resource (e.g., building materials) efficiency; energy efficiency; water efficiency and conservation; occupancy comfort and indoor environmental quality; and operation, maintenance, and education.⁴

³ U.S. Green Building Council (USGBC), 2007: <http://www.usgbc.org/> (accessed November 28, 2007)

⁴ National Association of Home Builders, 2007, NAHB’s Model Green Home Building Guidelines: http://www.nahb.org/publication_details.aspx?publicationID=1994§ionID=155 (accessed December 17, 2007).