

## "High-Efficiency Washing Machine Demonstration, Bern, Kansas"

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### Abstract-

The Department of Energy (DOE), the citizens from Bern, Kansas, Maytag Corporation, the Bureau of Reclamation, and the Kansas Rural Water Association cooperated to measure water and energy savings derived from using high-efficiency, horizontal-axis (h-axis) washing machines in a demonstration project in Bern. Maytag provided new machines to participants' homes in and around Bern--a town that has historically suffered from water shortages. The townspeople participated by recording information to determine water and energy savings from using the new machines.

Conventional domestic clothes washers use about 40 gallons of water to wash a load of clothes which typically may weigh only 7 pounds. In addition, an average U.S. home washes one load of laundry each day. These facts make automatic clothes washers one of the highest end-uses of water in today's homes. About 35 billion loads of laundry are washed annually in the U.S. consuming 2.6 percent of the total residential energy use.

Most clothes washers produced for the U.S. consumer are vertical axis (v-axis) washers with a central agitator. While there are variations, most v-axis washers suspend the clothes in a tub of water for washing and rinsing. The horizontal axis (h-axis) washer tumbles the wash load repeatedly through a pool of water at the bottom of the tub to produce the needed agitation. This approach tends to reduce the need for both hot and cold water. The h-axis washer, popular in Europe, has a very limited market share in the U.S. at present.

The objectives of this project were:

- to evaluate the energy and water savings of high-efficiency washers in a community converted to the new design,
- to demonstrate the findings, and
- to help develop information to support moving the current clothes washer market to higher efficiency options. This project is a key element under