Saving Energy and Doing Laundry

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ENERGY FACTS

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SAVING ENERGY and DOING LAUNDRY

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YOU CAN GET clothes and other washable items clean and still use energy efficiently. There are many ways you can reduce the energy used in doing your laundry. This fact sheet will point out some of them.

You could run your freezer for a whole year and your color television for half a year on the amount of energy you would save by using colder wash and rinse temperatures and line-drying part of the time. This gives you an idea of how much energy is used in doing your laundry. If you follow some of the suggestions presented here, you will get clean clothes and conserve energy, too.

Cut Wash Loads

Let's start at the beginning of the whole process. Why not cut down the amount of laundry that fills up your hamper (and your washer and line or dryer) each week? Check your family's haits; do family members automatically throw everything into the hamper after one use or wearing, whether it's really soiled or not? That wasteful habit can add up to a lot of extra wash loads each week, use more fuel energy and water, take more of your time and energy, and result in extra wear on the garments and the washer.

You can cut the number of loads to be washed and dried by laundering fabrics only when they are dirty. Wear clothes more than once unless they really get soiled in that single wearing. Use towels, sheets, and other linens several times. You won't have to do the laundry as often, and you'll save energy. When you do wash, try the following practices to save still more energy.

WASHING

Colder Water Temperatures

It takes energy to heat water. Hot water is the major cost of washing clothes. The washing machine motor uses relatively little energy. Wringer washers use about 18 gallons to either wash or rinse a load—less than for an automatic—and you can wash two or more loads in that same 18 gallons, thus cutting water and energy costs dramatically. A sudssaver will help you recycle wash water from an automatic washer, saving energy and water as you progress from lightly soiled to heavily soiled loads.

The actual amount of energy used depends on the temperature of the water you select. Every four gallons of **hot** water you use takes one kilowatt-hour of electricity (or an equivalent amount of gas or oil) to bring it up to 140°F. from the 40°F. temperature it may have been in the ground. Water heated up to 140°F. in the water heater will be 10 to 20 degrees cooler in the washer because it loses heat in the pipes and in the washer, especially in cold weather.

The warm setting on the washer usually delivers a mixture of half hot and half cold water. If the hot water flowing into the washer is 140°F., and the cold is 60°F., the mixture will be 100°F., which is satisfactory for "Warm" washing. However, if the hot water flowing into the washer is only 120°F. (as a result of turning down the water heater thermostat, long pipe runs, uninsulated pipes, and/or a cold washer) and is mixed 50/50 with cold water at only 40°F. (in cold weather) the temperature at the supposedly "warm" setting may only be 80°F., which is actually a "Cold" wash setting.

The less hot water used, the less heating energy required. Warm water for washing uses only half as much energy as hot water. However, it should be close to 100°F. to remove soil satisfactorily. For heavily soiled fabrics or greasy, oily stains, hot water will clean and sanitize better.

Cold water requires no energy from the water heater. It can be used to wash very lightly soiled items and very sensitive colors at temperatures between 60° and 80°F. Below 60°F., detergents are not very effective in remov-

ing soil. Therefore, do not attempt cold water washing in Michigan during the colder half of the year when water temperatures coming out of the ground are well below 60°F. Also, during these cold months, it may be wise to turn the hot water faucet on farther than the cold water faucet when selecting a "warm" wash setting in order to assure sufficient hot water (in the "warm" mixture) to reach an acceptable "warm" temperature of 100°F.

You can check your own wash water temperatures in the washer with a candy thermometer. To avoid breakage, dip it into the water a few seconds **before agitation starts.**

Cold water is always satisfactory for rinsing, since this is just a process of flushing away soil removed in the wash cycle. Always use cold water rinses to save energy costs. It will take a slight bit more energy to warm up the laundry in the dryer but will save much more energy in heating water, almost 2 kwh/load in electric dryers.

Adjust Amount of Detergent

Since all laundry products are less effective as water temperature goes down, more will have to be used to remove soil. For powdered detergent, add from ¼ to ½ cup more than the recommended amount when the wash temperature is reduced from 130°F to 100°F; add an additional ¼ to ½ cup when the temperature is lowered another 30°F for cold washing (to around 70°F).

If you are using liquid detergent, add up to ⅓ more than the recommended amount.

For each 30°F. drop in wash temperature also add 5 minutes wash time at normal agitation speed. (It doesn't help to increase wash time at gentle agitation speed.)

Use of Disinfectant

It is questionable that bacteria are killed in cold water if you happen to have an illness in the family, or use a coin-operated machine also used by families you don't know. If you are concerned about this problem, you can use a disinfectant. The only effective disinfectants in cold water are liquid chlorine bleach (which is not safe for all fabrics) and quaternary compounds. (Quarternary disinfectants are colorless and odorless compounds, containing benzalkonium chloride. They may be purchased in janitor, hospital and dairy supply houses.) Both may be used in warm water too, where pine oil and phenolic compounds are also effective.

Dissolve the Detergent

Powdered detergents tend to clump and do not disolve well in cold water. Dissolve powdered detergents in warm water before adding them to cold wash water. Fill your washer with cold water, add the detergent in liquid form, and then agitate a few minutes before you add the dirty laundry.

Consider Fabric and Color

Select water temperature according to the type and color of fabric and the type and amount of soil of the wash load. Heat-sensitive fabrics made from man-made fibers and permanent press are smoother when you use a warm wash and cold rinse. Use a warm setting for colored and lightly soiled items. Always rinse all items in cold water. There is no reason to use warm or hot rinse water. You can save about 75% of your laundering energy consumption by using warm water for washing and cold water for rinsing as compared with hot water wash and hot water rinse. More can be saved by washing very lightly soiled loads in cold water at least 60°F.

Temperature — Action — Concentration

Assuming the water is soft, the three factors in getting clothes clean are water temperature, washing action and detergent concentration. When you reduce water temperature, you must increase both washing action time and detergent in order to get clothes clean. As a general rule, when water temperature is lowered to warm or cold, add more detergent and increase washing action time.

If water is hard, it will be more difficult to remove soil, especially with nonphosphate powdered detergents. In such situations, the following practices will help: Pretreat stains, presoak heavily soiled items, use water as hot as fabric and color will stand, use additional detergent, try a liquid detergent, and increase the wash cycle. If you still can't get your clothes clean, you may wish to purchase a packaged water conditioner containing a small amount of phosphorus (8.7% by Michigan law) and add this to the wash water along with detergent.

Full vs. Partial Loads

Full loads use less energy than several partial loads. Filling the washer uses less water and fewer uses of the motor than several partial loads. Hold laundry until there are enough items to make a full load, but don't overload—clothes won't get as clean. If your washer has adjustable water level controls, use them. Match the size of the load to the water level. Some washers have a minibasket or special settings to permit washing small loads or very delicate fabrics with a minimum amount of water and energy.

Locate your washing machine close to the hot water heater to minimize heat loss in piping. Generally, the temperature will drop 1°F. per foot of pipe. Be sure there are no leaks between the water heater and washer.

DRYING

A dryer is a great helper, but it does use a great deal of energy—almost three kilowatt-hours per load for an average load. So, where possible, break your complete dependence on the dryer and try alternatives for part of your wash loads.

Line drying uses almost no fuel energy. If you have a yard, free solar and wind energy can be used to dry many items. Install a clothes line or, if space is limited, one of the compact line devices. Sheets, socks, underwear—all dry satisfactorily on the line. If you prefer towels extra-fluffy or jeans wrinkle-free, run them in the dryer first for a few minutes and then hang on the line to finish drying. Sun drying makes linens smell fresher. For the winter, a clothesline in the garage or basement can be used, and will help provide humidity in the air. Or, if space permits, dry small items on a folding rack in the bathroom or other living areas.

When you do need to use the dryer, use it efficiently. Don't overload, underload, or overdry. Permanent press fabrics are engineered to be "ironed" in the dryer and such clothes usually have a smoother appearance if dried properly in the dryer. But to have that good appearance, they need to tumble freely and be removed quickly after the dryer stops to prevent wrinkling. So don't overload the dryer. Then you won't have to spend the time and energy ironing.

Don't dry widely different fabrics in the same load—like heavy towels and lightweight shirts. Their drying times will be too dissimilar. Match dryer loads and fabrics. Synthetic garments dry best on a **warm** rather than **hot** setting. Use the dryer cycle and temperature suitable for the load.

Underloading—running the dryer for just a couple of items—wastes energy. It also may keep items from tumbling actively, which is important in shaking out wrinkles. If a few items are not dried when the rest of the load is, remove and hang on a line or hanger to finish; or, if flat, lay on top of the warm dryer.

Overdrying in a dryer makes clothing harsh and stiff. It also uses electricity or gas unnecessarily, causes static and wrinkling, and makes garments more difficult to iron. Remove clothes when they still have a little moisture in them. Experiment with a timer or automatic control and determine the best setting for each fabric type. Some dryers are equipped with heat sensing devices that automatically turn them off when the load is dry.

Plan washing and drying so loads run continuously from washer to dryer. This takes advantage of an already warm machine.

Take care where you locate your dryer. Install in a warm place to reduce the amount of heat needed. It also needs access to fresh air. Also, check and clean the dryer exhaust on the outside of your house occasionally. A partially clogged dryer exhaust can lengthen drying time and increase energy consumption. Keep the lint filter inside the dryer clean for the same reasons. Clean after each dryer load for more efficient drying.

IRONING

By removing clothing and linens promptly from the dryer, and folding or hanging them carefully, many items will require little or no ironing. When you do iron, do several items at once rather than heating the iron several times. Iron fabrics which require low temperatures during warm-up and cool-down periods. Turn the iron off when you are interrupted for any length of time and when you are finished.

SAVINGS ADD UP

To give you a better idea of the amount of energy you can save in doing laundry, several examples with figures follow:

1. If your washing is done with hot water wash and rinse, and if you cut one load per week, the washer and dryer energy you save is about 572 kilowatt-hours per year. That's enough energy to run your color television and toaster for a year.
2. Suppose you have always washed in hot water, rinsed in warm water and have done an average of six loads per week. If you switch to warm wash and cold rinse, you will save four kilowatt-hours per load, and 1,248 kilowatt-hours per year. For this same amount of energy, based on average annual consumption figures,[1] you can power a manual defrost 16-cubic-foot freezer and a vacuum cleaner. Cold wash water will save even more energy.
3. If you line dry one-fourth of all wash loads in a year you will save at least 210 kilowatt-hours, or about the amount of energy needed to run an electric blanket, toaster and hair dryer.

BUYING LAUNDRY APPLIANCES

When you are purchasing a new washer or dryer, match the size to your laundry needs. Large capacity washers can handle in one load what small ones must do in two loads; but without variable water level, they can waste water sometimes. Consider the following features when you are buying:

—variable water levels

—controls that let you choose cold water rinses with all washes

—short cycles, soak cycles and suds savers in washers

—moisture sensing devices, timers and variable temperatures in dryers.

[1] *"Citizen Action Guide to Energy Conservation," Washington, D.C.: Citizens' Advisory Committee on Environmental Quality, 1973, pp. 32-33.*

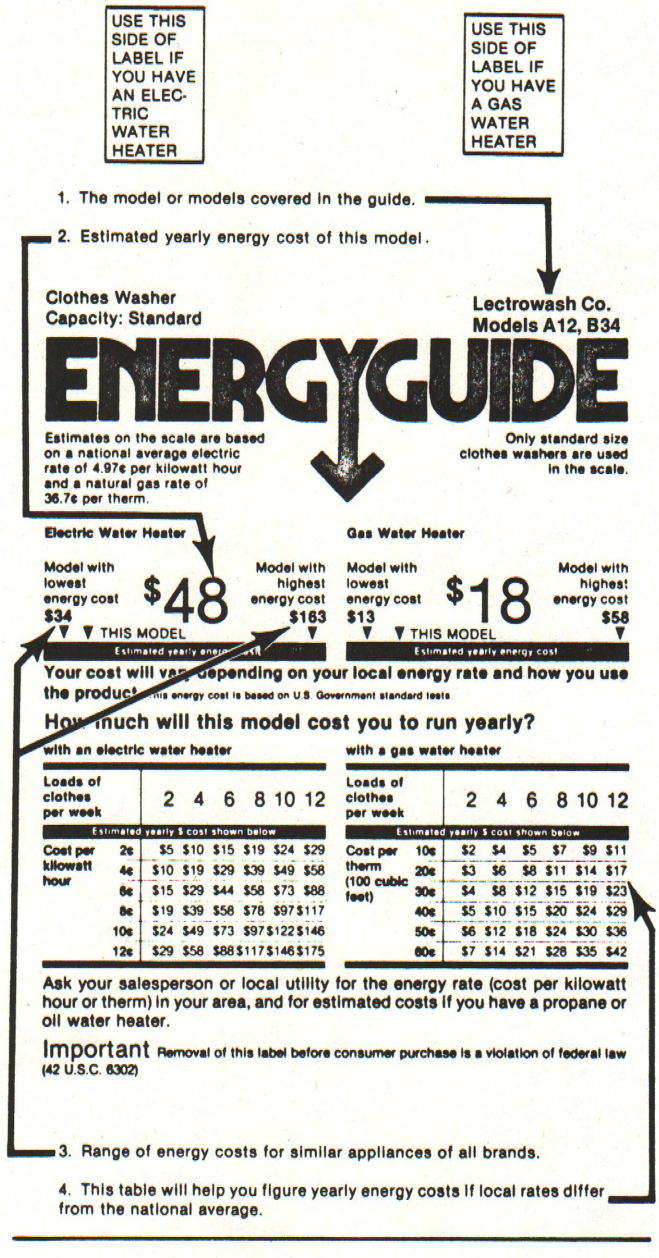
Energy Efficient Appliances

Washers are now carrying yellow-and-black *Energyguide* labels which tell you approximately how much energy costs will be for average washer use for each model. A chart on the label helps you calculate approximate costs for the number of loads you wash and your utility rate for water heating. Since almost all of the energy cost of washing a load of clothes goes to heat the water in your water heater, your actual energy costs will be determined by the amount of hot water you use and the efficiency of your own water heater.

Choosing a washer that will allow you to get the most laundry clean with the least amount of hot water, and then using it that way, will be efficient.

Dryers are not now labeled with *Energyguides* since government tests have shown little difference in efficiency between models. Use your dryer as efficiently as possible to get the most drying done for the least energy.

Don't forget the most energy-efficient way to dry many items is still the solar dryer—the clothesline in your backyard.



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