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Sometimes it's the little things in life that can make a big difference—such as replacing water-guzzling nozzles with low-flow valves on sprayers used to rinse food off dishes.

Known as low-flow pre-rinse sprayers, these inexpensive nozzles use less water and can save a commercial kitchen hundreds of dollars a year in energy costs alone. The sprayers can also cut the water bill.

“Installing a low-flow pre-rinse sprayer is an easy first step to achieve energy savings,” says Mindy Guilfoyle, who works with Focus on Energy, a public-private partnership established by the state legislature to help improve energy efficiency. “There are minimal up-front costs, they are easy to install, and we’ve been getting positive feedback on how they work.”

### **LESS WATER USED**

Pre-rinse sprayers are an essential component of kitchen operations—they are used to get the leftover food and grease off dishes, pots and pans before they go into a dishwasher. While conventional sprayers use between 2.5 and 4 gallons of water per minute (gpm), the low-flow sprayers use from 1.6 to 2.65 gallons per minute, according to the EnergyIdeas Clearinghouse of the Washington State University Extension Energy Program in Olympia, Wash. Hot water is used in the sprayers and so low-flow spray valves lead to reduced water heating bills. Overall, water heating accounts for about 17 percent of a restaurant's energy consumption.

### **POTENTIAL SAVINGS**

If a kitchen uses the sprayer 3.25 hours a day, 362 days a year and switches to a low-flow valve, over a year's time the kitchen could save \$263 on water heating bills if they use a gas heater, and \$706 if they use an electric water heater.

Savings are based on an electrical cost of seven cents per kilowatt-hour (kWh) and 65 cents per therm for gas.

The above calculations are conservative, based on saving 175 gallons a day saved with the low-flow sprayer. Many commercial kitchens may save more. A medium-sized restaurant would save 300 gallons of water a day using the low-flow sprayer, according to the Food Service Technology Center in San Ramon, Calif. California has been in the forefront of innovations to save energy and water use and has instituted a statewide program known as “Rinse & Save” that promotes use of the low-flow valves.

Savings will also vary depending on the water temperature used, which can vary from 110° F to 140° F. (See the chart on the back side for more detailed data on how to calculate your energy savings with the low-flow pre-rinse sprayer.)

### **IMPROVED TECHNOLOGY**

The technology of low-flow sprayers has come a long way in recent years; newer sprayers have little to do with first generation energy and water-saving shower heads that seemed to dribble out water. One difference: the new low-flow valves use a higher water pressure, often 80 pounds per square inch (psi). The new generation of sprayers also comes with an automatic shut-off valve at the hose head, so water is supplied only when needed, according to the EnergyIdeas Clearinghouse. The cost of switching to the low-flow valve is minimal—about \$50 to \$80.

Bob Frederickson, general manager of the Chancery restaurant in Milwaukee, is familiar with the technical aspects of dishwashers—he started in the restaurant business almost 35 years ago as a dishwasher at an Italian restaurant. He's tried

low-flow sprayers in the past, but they never seemed to work as well as he hoped.

This fall, as part of an energy initiative sponsored by Focus on Energy, Frederickson had the low-flow pre-rinse sprayers installed at the Chancery, a full-service restaurant that serves an average of 4,000 meals a week. And he's been impressed.

"I have enough pressure, even though it's a low-volume spray," he said. "I've had low-volume sprayers in the past that didn't have the pressure to pre-rinse dishes very well. But this one has plenty of pressure."

Like most restaurants, the Chancery dishwashers must deal not only with leftover food, but dried-on sauces such as ketchup and mustard, and dried-on melted cheese. "Melted cheese is the worst," Frederickson says. "It's one of the hardest things to get off. But the sprayer works even with melted cheese."

Would Frederickson recommend the low-flow sprayer to other restaurants? "Absolutely," he says.

#### FOR MORE INFORMATION

If you're interested in learning more about the low-flow pre-rinse sprayers, contact Focus on Energy. Funded by a utility surcharge and overseen by the Wisconsin Department of Administration's Division of Energy, Focus on Energy works throughout the state to encourage energy efficiency and the use of renewable energy, in order to enhance the environment and to ensure the future supply of energy for Wisconsin. It serves 85 percent of the state's utility customers, both commercial and residential. (The remaining 15 percent are customers of certain municipal utilities and rural electric cooperatives that currently are not participating in Focus on Energy.)

Focus on Energy offers a broad array of services, from training seminars and workshops, to advice on best practices, to guidance on technical information and help on developing an energy survey. All its services are completely voluntary and are free to eligible institutions.

For more information on how you can save money and energy, contact Focus on Energy at 800.762.7077 and ask for someone from the commercial sector. You can also visit our Web site at [www.focusonenergy.com](http://www.focusonenergy.com).

#### ENERGY SAVING TIPS FOR FOOD SERVICE

Using a low-flow pre-rinse sprayer for your dishwasher is just one of many ways your restaurant can save money and increase energy efficiency.

Focus on Energy can help you with other suggestions—from saving on lighting bills by switching to fluorescent lights, to improved efficiency when ventilating your kitchen, to buying energy efficient equipment such as refrigerators and ice makers.

Three basic rules to remember:

- If it's not in use, turn it off. That goes for ovens as well as lights.
- When it is time to buy new equipment, choose the most efficient. Look for the Environmental Protection Agency's ENERGY STAR® logo.
- Little changes add up. Cooking with a lid, for example, can increase efficiency by as much as 14 percent.

Let Focus on Energy save you money and energy. For more information, contact Focus on Energy at 800.762.7077 and ask for someone from the commercial sector. You can also visit our Web site at [www.focusonenergy.com](http://www.focusonenergy.com).

#### CALCULATE YOUR ENERGY SAVINGS

- 1) Current gallons per minute (GPM) – New Sprayer's GPM = GPM Saved.
- 2) GPM saved x Hours per Day Used x Days per Year x 60 = Annual Gallons Saved
- 3) If Natural Gas Water Heater: Energy Saved = Annual Gallons Saved x Delta T\* x 8.33 / Efficiency / 100000  
If Electric Water Heater: Energy Saved = Annual Gallons Saved x Delta T\* x 8.33 / 3413
- 4) Energy Cost Savings = Energy Saved x \$0.65 (Gas Heater)  
= Energy Saved x \$0.07 (Electric Heater)

- Water Heater Efficiencies Vary from about 70% for older, standard vent units to 92% for sealed combustion units.
- New Sprayer GPM = 1.6 GPM

Water Temp	Delta T*
140°F	85
130°F	75
120°F	65
110°F	55

\*Delta T is the temperature difference between water entering the water heater and water provided to the sprayer.