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COUNTING DOWN TO ZERO

Big, little changes cut emissions on way to **carbon-neutral** house

By **Kevin Kidder**
 THE COLUMBUS DISPATCH

An average three-bedroom central Ohio home heated by natural gas and cooled by electricity produces about 39,186 pounds of carbon dioxide a year. An all-electric house produces 65,296 pounds. We looked at the improvements an owner can make on the way to a carbon-neutral house. Information comes from a variety of sources. Be warned that even reputable sources disagree on the amount of carbon dioxide eliminated by certain improvements.

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► **Carbon neutrality catching on globally** | **A1**

► **Money saved can be put to good use** | **D1**

1 Buy an **Energy Star-rated refrigerator**. Appliances receiving the government rating meet enhanced standards for efficiency.
868 pounds of potential emissions averted.

2 Buy an **Energy Star-rated washing machine**.
440 pounds of potential emissions averted.

3 Buy an **Energy Star-rated dishwasher**.
154 pounds of potential emissions averted.

4 Install **better insulation** in walls, ceiling and foundation. If the walls were not insulated, they would go from R-1 to R-13. The ceiling would go from R-30 to R-49. And the basement would go from uninsulated to R-10.
 Walls (if previously uninsulated), **9,204 pounds** of potential emissions averted; ceiling, **407 pounds**; foundation, **1,762 pounds**.

5 Install a **programmable thermostat**. Heat or cool the house when you are home, but program the thermostat to a less-comfortable temperature when you are away. The temperature might be set lower for up to 16 hours a day when considering work and sleep time.
 If the thermostat is set 2 degrees lower than normal in the winter and 2 degrees higher in the summer, it will reduce emissions by **2,000 pounds**.

6 **Turn off unused appliances**. Electricity running to chargers, microwaves, televisions and other devices adds substantially but subtly to energy use.
1,000 pounds of potential emissions averted.

7 **Plant a tree** indigenous to the region. Trees use carbon dioxide.
5,000 pounds of potential emissions averted.

8 Install a **geothermal system**, which heats and cools by drawing on the constant temperature of the Earth, 50 degrees in Ohio. Pipes must be laid in the ground for this energy-efficient system.
22,395 pounds of potential emissions averted compared with an electric heating system.

9 Install an **on-demand water heater**. Tankless heaters, water is warmed only when a faucet is turned. The water circulates through burners or coils for quick heating.
1,470 pounds of potential emissions averted.

10 **Recycle**. A two-person household recycling newspapers, magazines, glass, plastic, aluminum and steel helps put processed materials back into production.
1,280 pounds of potential emissions averted.

11 **Air-dry clothing** instead of using a clothes dryer.
700 pounds of potential emissions averted.

12 Install **photovoltaic (solar) cells** that provide supplemental power. Solar panels are usually installed on the roof and come in kits. One Web site, solarhome.org, sells kits for \$8,000 to \$10,000.

Up to **16,290 pounds** of potential emissions averted, depending on how much energy your solar cell generates.

13 Install a **ceiling fan**. Ceiling fans don't cool a room, but they give the illusion by creating a breeze. With air flowing, you feel as comfortable at 75 degrees as you would in 70-degree still air. In winter, fans help return warm air from the ceiling to lower levels.

With a 2-degree difference, **2,000 pounds** of potential emissions averted.

14 Use **compact fluorescent light bulbs** instead of incandescent bulbs. CFLs use about two-thirds less energy than regular bulbs.
2,521 pounds of potential emissions averted.

16 Install a **wind turbine**. This option is more common in rural areas, and zoning can be an obstacle. The turbines have two or three blades and must be mounted on towers. They start at \$3,000, according to the U.S. Department of Energy, but typical setups cost \$32,000.

16,290 pounds of potential emissions averted.

17 **Seal off leaks in air ducts**. Up to 20 percent of the heat in a forced-air system can leak through gaps and poor connections.
341 pounds of potential emissions averted.

18 Install a **high-efficiency furnace and air conditioner**. Technology has evolved, and these systems can be 95 percent efficient – meaning only 5 percent of the energy is wasted.
 Furnace, **2,819 pounds** of potential emissions averted; air conditioner, **647 pounds**.

Other ways to get neutral:

► Buy electricity from companies that generate power from renewable sources such as wind, water or the sun. If you use natural gas for heat or hot water, this would not completely offset the carbon dioxide you emit.

► Buy carbon offsets from various companies. The money is used to fund clean-energy projects such as wind, water and solar energy that, in theory, prevent carbon dioxide from being emitted.

TIM MEKO | DISPATCH

NEW ON THE BLOCK

Once a month, Home & Garden showcases a housing or condominium development under construction.

Lakes at Golf Village

Set in the former cornfields of Powell, the Lakes at Golf Village has three styles of luxury condominium units built by DayStar Development.

► **Developer:** DayStar Development, 6660 N. High St., Suite 2C, Worthington, Ohio 43085 (614-554-2528; www.builddaystar.com)

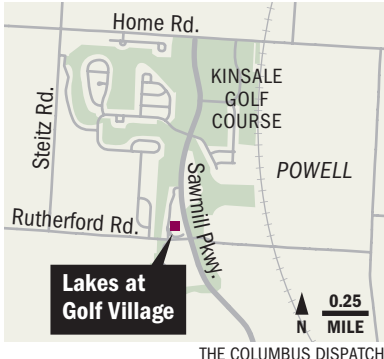
► **Distinction:** The Lakes at Golf Village is situated on 16 acres off the ninth hole of the Kinsale Golf Course in Powell, in Delaware County.

“Luxury, custom, condominium twins, and we anguished over each word,” said Donald Walters, one of the developers.

► **Development size:** 20 twin condominium buildings with 40 total units

► **Lot size:** about 2½ condos per acre

► **Number of lots:** 20 building lots (40 units)



THE COLUMBUS DISPATCH

► **Units sold:** 26
 ► **Home prices:** \$384,000 to \$550,000
 ► **Typical home size:** 2,042 to 2,447 square feet
 ► **Home style:** French country. Three floor plans are available: two are ranches; one is a story and a half.
 ► **School district:** Olentangy
 ► **Municipality:** Powell
 ► **Utilities:** Columbia Gas natural gas; Verizon telephone; American Electric Power electricity; Rumpke trash hauling; Time

Warner cable

► **Fees:** \$295 yearly to master association, \$155 monthly to homeowners association. The master association handles landscaping and irrigation of public areas in Golf Village. The homeowners association takes care of exterior condo maintenance, snow removal, lawn care, trash removal and electricity in common areas.

► **Taxes:** \$1,630 yearly for each \$100,000 of market value (\$6,520 on a \$400,000 condo)

► **Amenities:** A half-mile path winds around two connected lakes with four lighted fountains and a waterfall. Irrigation systems in the development draw water from those lakes, sparing residents' water bills.

A specially designed wall prevents residents in neighboring condos from hearing one another.

► **Surrounding area:** The development is surrounded by Golf Village, a 900-acre golf-course community in Powell with a 30,000-square-foot clubhouse, tennis courts, a pool and a fitness center.

► **One family's opinion:** “First of all, we liked the location. As far as lifestyle, the



JEFF HINCKLEY | DISPATCH

Luxury condominiums of the Lakes at Golf Village offer lake and golf-course vistas.

golf course and clubhouse are within a wedge shot.

“We liked the floor plan. It has a big open space for the grandkids,” said Richard Seils, who with his wife, Diane, were the

first to buy at the Lakes at Golf Village. “I really like these windows,” Mrs. Seils said, “just all of these windows and all of the light.”

— **Kevin Kidder**
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