



A CRADLE-TO-CRADLE APPROACH TO APPLIANCE LIFECYCLE MANAGEMENT

Environmental responsibility runs deep in GE's DNA, and when it comes to the lifespan of an appliance, the sustainability trait dominates – from “birth” to end of life – and is consistent with the company's ecomaginationSM initiative to deploy solutions for today's energy and environmental challenges. From lower-emission manufacturing to responsible disposal and recycling, GE is leading the pack.

BIRTH

Cleaner Manufacturing

GE is bringing more appliances to market via more sustainable processes. As an example, in April 2011, GE became the first full-line appliance manufacturer in the U.S. to adopt a foam-blowing agent, known as cyclopentane, which reduces greenhouse gas (GHG) emissions of the foam-blowing process in its Decatur, Ala., plant by 400,000 metric tons of CO₂ equivalent (CO₂e) annually.

In March 2012, GE began using cyclopentane for bottom-freezer refrigerators assembled at Appliance Park in Louisville, Ky. This transition will reduce average annual CO₂e emissions of the foam-insulating process by more than 99 percent, or 117,781 metric tons of CO₂e annually, compared to the foam-blowing agent used previously in top-freezer refrigerator manufacturing at Appliance Park. In Louisville, alone, this equals:

- The annual emissions of **23,185** cars on U.S. roads.¹
- The annual CO₂ absorbed by **32,093** acres of Southeastern U.S. forest.²



LIFECYCLE

Sustaining Excellence



GE was recently awarded the ENERGY STAR® “Sustained Excellence” Award for the seventh straight year, recognizing GE's commitment to delivering appliances that provide high levels of efficiency throughout their useful life. In fact:

- GE offers nearly 500 ENERGY STAR®-qualified appliances.³
- Close to 70 percent of GE Appliances' dollar sales in 2011 were from ENERGY STAR® models.
- GE invested \$50 million in ENERGY STAR®-qualified products in 2011.

Beyond just being efficient, GE is also kicking up the intelligence factor – with smarter appliances and home energy management (HEM) technologies that are part of GE's Brillion™ suite of home energy solutions. Brillion-enabled appliances, smart thermostats, home energy managers, and other intelligent devices provide consumers with more information and control to help them make smarter energy choices.



DID YOU KNOW ...

GE is the first appliance manufacturer to partner with four voluntary EPA programs collectively? These include:

- ENERGY STAR®
- Responsible Appliance Disposal (RAD)
- WasteWise
- SmartWay

END OF LIFE

Responsible Disposal and Recycling

As the first appliance manufacturer to partner with the U.S. Environmental Protection Agency (EPA) on its Responsible Appliance Disposal (RAD) Program, GE is working with Appliance Recycling Centers of America (ARCA) to drastically reduce landfill waste and greenhouse gas (GHG) and ozone-depleting substance (ODS) emissions of appliance recycling.

- The innovative UNTHA Recycling Technology (URT) system in ARCA Advanced Processing's (AAP) regional recycling center in Pennsylvania will reduce the typical landfill waste of a refrigerator by approximately **85 percent** by weight.⁴
- If the foam from the **9 million** refrigerators disposed of annually in the U.S. was processed through this recycling technology, the GHG emissions avoided would be equivalent to the annual CO₂e emissions of more than **2.4 million** cars on U.S. roads.⁵

GE is also the first and only appliance manufacturer to partner with the EPA's WasteWise Program – a voluntary initiative focused on waste reduction and saving environmental resources while reducing emissions.

NEW LIFE

Completing the Lifecycle Loop



In a true cradle-to-cradle approach, ARCA and GE transform materials – including high-quality steel, plastics, copper and even foam – that were once destined for landfill, into materials for use as fuel and other products.

In fact, steel recovered from appliances at AAP's regional recycling facility in Philadelphia is sold to a supplier that provides steel deck plate to GE Transportation's Locomotive division for the manufacturing of new locomotives.

1 Assuming the average rate of CO₂ emissions per U.S. passenger vehicle is 5.08 MT of CO₂ per year. Source: U.S. Environmental Protection Agency: www.epa.gov/otaq/climate/documents/420f11041.pdf.

2 Average rate of CO₂ sequestration by U.S. forest equals 3.67 MT of CO₂ per acre per year. Source: U.S. EPA: www.epa.gov/appdstar/pdf/brochure.pdf.

3 Base models

4 ARCA Advanced Processing 2010 Landfill Data, based on the component listing found in the American Plastics Council 1994 Composition, Properties and Economic Study of Recycled Refrigerators Report.

5 Based on the Stevenson Company data and calculations using U.S. Environmental Protection Agency global warming potential (GWP) equivalents:

www.epa.gov/cleanenergy/energy-resources/calculator.html.