Recycled PET content = reduced impacts

Comparing the life cycles of virgin PET and recycled PET (rPET)

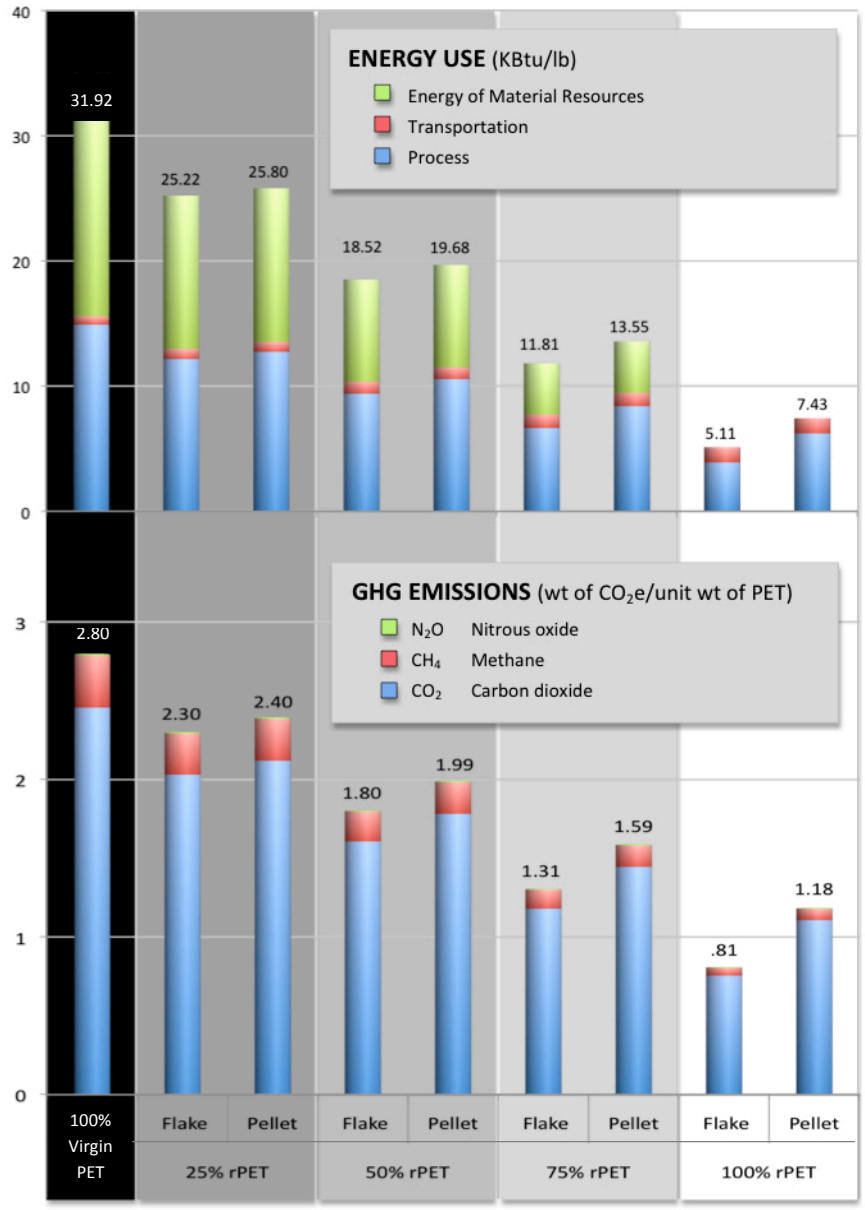
A 2010 life-cycle inventory[1] performed by Franklin Associates, Ltd. examined the energy requirements, solid waste generation, and atmospheric and waterborne emissions for the processes involved in collecting and sorting postconsumer PET and HDPE packaging and reprocessing it into clean resins.

The study results show that recycling PET has significant environmental benefits. These charts, developed from the study data, illustrate the greater energy and GHG savings that accompany higher percentages of recycled PET content.

Pound for pound, producing recycled PET flake takes only **16% as much energy**, and emits **29% as much greenhouse gas (GHG)**, as producing virgin PET resin does.

If all the PET postconsumer containers recycled in 2011 in the US were actually reprocessed, it would take about **40 trillion Btu less energy** than it does to produce an equivalent tonnage of virgin PET resin. (That's the amount of energy 477,000 US homes use in a year.)

The corresponding savings in greenhouse gas emissions would be **1.5 million tons of CO_2 equivalents (CO_2e)**, an effect comparable to taking 294,000 cars off the road.[2]



Notes:
RPET data are calculated on volume-based collection with 50% compaction and using the cut-off method for recycling allocation.
Global warming potential (GWP) factors for methane and nitrous oxide are 25 and 298 respectively, per IPCC 2007.
The charts use burden-per-pound comparisons, which are appropriate between virgin PET and rPET; comparisons between different polymers should be based on a common package.

[1] Access the full report at http://www.napcor.com/pdf/FinalReport_LCI_Postconsumer_PETandHDPE.pdf. The study was sponsored by the National Association for PET Container Resources (NAPCOR), the American Chemistry Council (ACC), the Association of Postconsumer Plastic Recyclers (APR), and the PET Resin Association (PETRA). It has been accepted into the US Life-Cycle Inventory Database, maintained by the National Renewable Energy Laboratory (DoE): https://www.lcacommons.gov/nrel/search.

[2] Calculations are based on LCI Report data, the volume of clean postconsumer PET flake produced from bottles recovered in the US in 2011 (http://www.napcor.com/pdf/NAPCOR_2011RateReport.pdf), EIA data on household consumption (http://www.eia.gov/consumption/residential/), and EPA GHG Equivalencies (http://www.epa.gov/cleanenergy/energy-resources/calculator.html).