



The Plastic Bag – VS – Paper Bag Facts

Use-Less-Stuff.com (“ULS”) has issued a [report](#) comparing plastic and paper grocery bags. ULS made the following findings:

1. Plastic bags generate 39% less greenhouse gas emissions than uncomposted paper bags, and 68% less greenhouse gas emissions than composted paper bags. The plastic bags generate 4,645 tons of CO₂ equivalents per 150 million bags; while uncomposted paper bags generate 7,621 tons, and composted paper bags generate 14,558 tons, per 100 million bags produced.
2. Plastic bags consume less than 6% of the water needed to make paper bags. It takes 1004 gallons of water to produce 1000 paper bags and 58 gallons of water to produce 1500 plastic bags.
3. Plastic grocery bags consume 71% less energy during production than paper bags. Significantly, even though traditional disposable plastic bags are produced from fossil fuels, the total non-renewable energy consumed during their lifecycle is up to 36% less than the non-renewable energy consumed during the lifecycle of paper bags and up to 64% less than that consumed by biodegradable plastic bags.
4. Using paper sacks generates almost five times more solid waste than using plastic bags.
5. After four or more uses, reusable plastic bags are superior to all types of disposable bags -- paper, polyethylene and compostable plastic -- across all significant environmental indicators.

The ULS report concludes as follows

Legislation designed to reduce environmental impacts and litter by outlawing grocery bags based on the material from which they are produced will not deliver the intended results. While some litter reduction might take place, it would be outweighed by the disadvantages that would subsequently occur (increased solid waste and greenhouse gas emissions). Ironically, reducing the use of traditional plastic bags would not even reduce the reliance on fossil fuels, as paper and biodegradable plastic bags consume at least as much non-renewable energy during their full lifecycle.



In 2005, the Scottish Government issued a full environment impact assessment [report](#) on the effects of a proposed plastic bag fee (the “Scottish Report”). This is the most comprehensive environmental report ever conducted comparing plastic bags and paper bags. The report states:

[A] Paper bag has a more adverse impact than a plastic bag for most of the environmental issues considered. Areas where paper bags score particularly badly include water consumption, atmospheric acidification (which can have effects on human health, sensitive ecosystems, forest decline and acidification of lakes) and eutrophication* of water bodies (which can lead to growth of algae and depletion of oxygen).

Paper bags are anywhere between six to ten times heavier than lightweight plastic carrier bags and, as such, require more transport and its associated costs. They would also take up more room in a landfill if they were not recycled.

The Scottish Report contains the comparison in the table below. The lightweight plastic bag was given a score of 1 in all categories as a reference point. A score greater than 1 indicates that another bag makes more contribution to the environmental problem than a lightweight plastic bag when normalised against the volume of shopping carried. The indicators take account of emissions which occur over the whole lifecycle.

INDICATOR OF ENVIRONMENTAL IMPACT	Plastic bag HDPE lightweight	Paper bag
Consumption of nonrenewable primary energy	1.0	1.1
Consumption of water	1.0	4.0
Climate change (emission of greenhouse gases)	1.0	3.3
Acid rain (atmospheric acidification)	1.0	1.9
Air quality (ground level ozone formation)	1.0	1.3
Eutrophication of water bodies *	1.0	14.0
Solid waste production	1.0	2.7
Risk of litter	1.0	0.2

* Eutrophication means the process by which a body of water becomes rich in dissolved nutrients, thereby encouraging the growth and decomposition of oxygen-depleting plant life and resulting in harm to other organisms.