glass vs. plastic

Perception & Reality

My journey of discovery

Like most of us, I have always assumed that glass was the better environmental choice for our product packaging. I assumed glass required less energy to manufacture and was less polluting than plastic, and that all plastics were toxic and leaching. We had challenges with both our glass and plastic packaging; I really needed to find a solution.

The pitfalls associated with our current glass packaging:

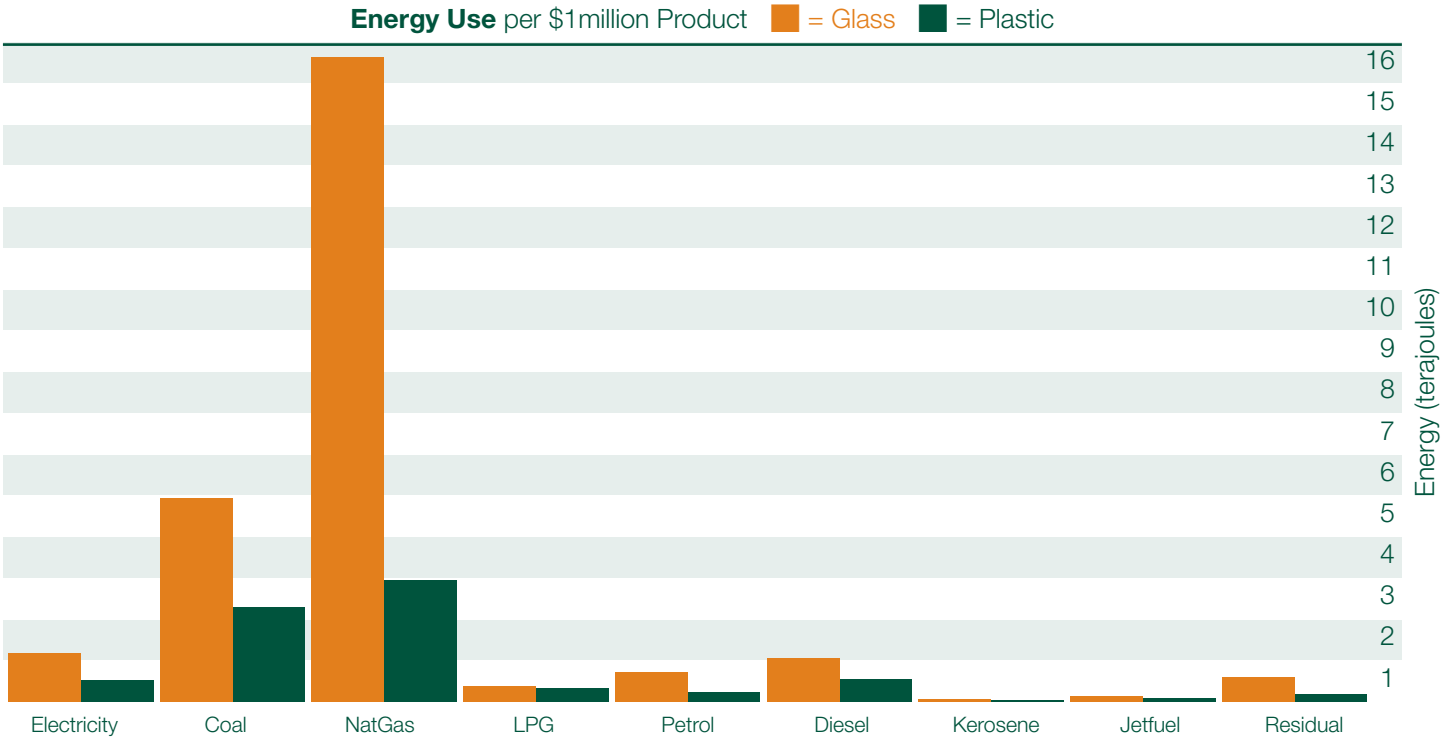
- Glass is very **heavy** and therefore very **energy intensive** to ship around the planet,
- Glass is brittle and can **break** during shipping, and
- Our current glass packaging does not dispense the entire product resulting in **wasted product** and frustrated customers.

The pitfalls associated with some plastic packaging:

- Plastic can **leach** dangerous chemicals into the product,
- Plastic is **polluting** to the environment and,
- Plastic can contain **toxic** plasticicers such as PVC and pthalates.

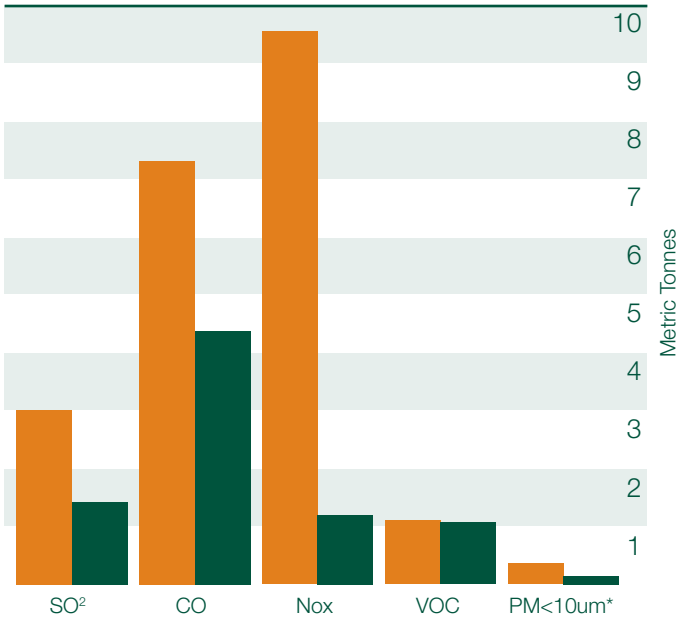
I started assessing the ecological impact of both glass and plastic packaging, using four environmental parameters:

1. **Energy Consumption**
2. **Air Pollution**
3. **Environmental Release** (Waste Production)
4. **Global Warming Potential** (Greenhouse Gases)



Glass consumes nearly **3 times more energy** to produce than plastic

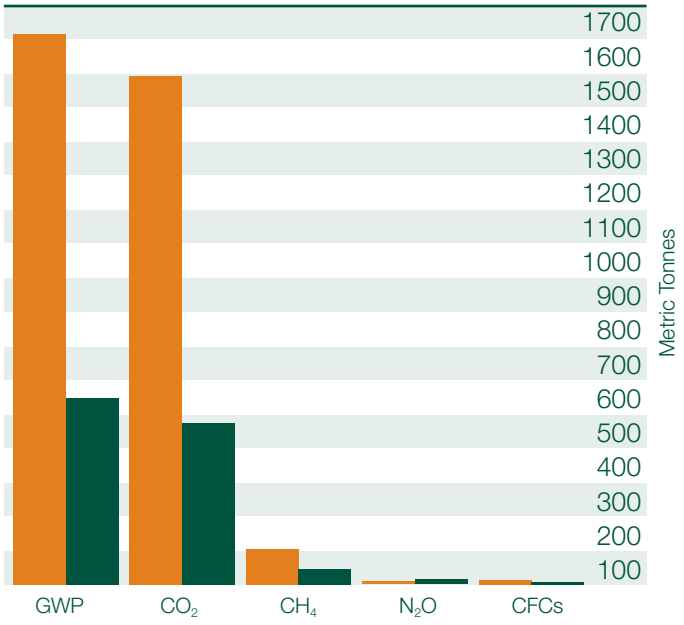
Air Pollutants $1million Product



*(Sulfur Dioxide, Carbon Monoxide, Nitrous Oxides, Volatile Organic Compounds, Particulate Matter <10um)

Glass produces nearly **3 times more air pollution** than plastic

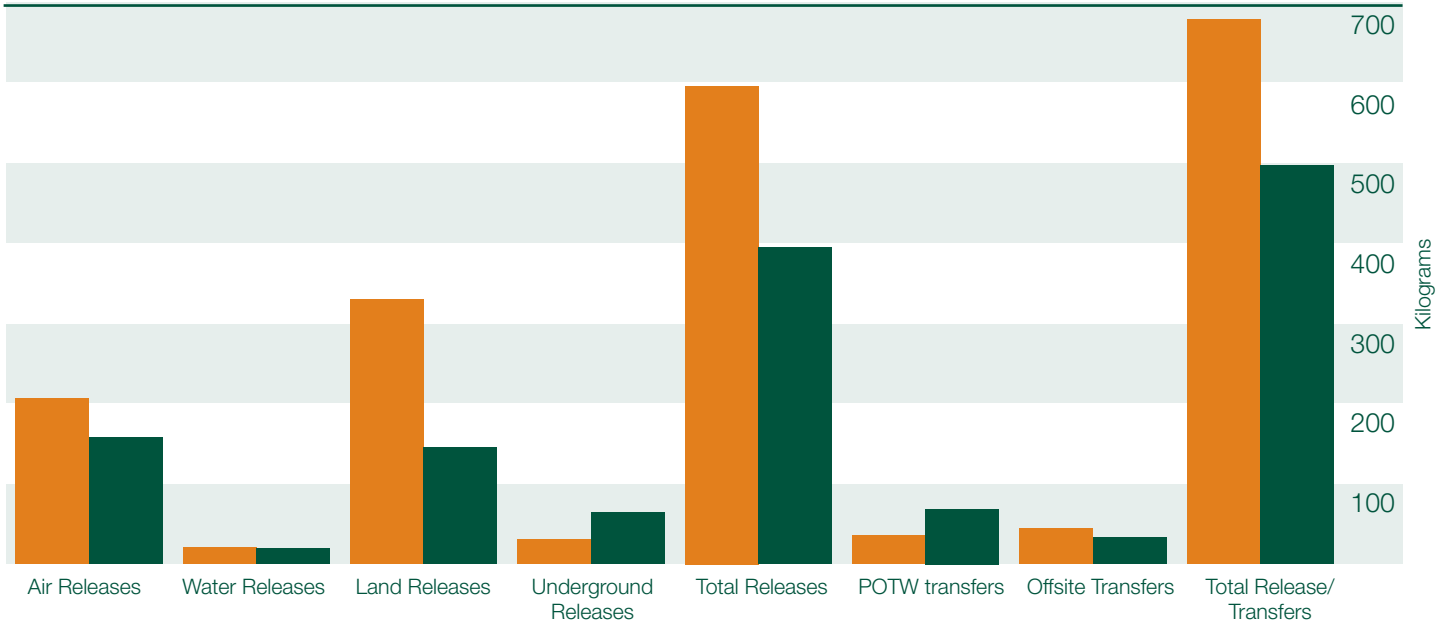
Greenhouse Pollutants $1million Product



(Global Warming Potential, Carbon Dioxide, Methane, Nitrous Oxide, Chlorofluorocarbons)

Glass creates nearly **3 times more global warming gases** than plastic

Environmental Release $1million Product = Glass = Plastic



Glass produces **40% more environmental waste** release than plastic

The above information is summarised from the Economic Input-Output Life Cycle Assessment by Carnegie Mellon University Green Design Institute (2007). Available from: <http://www.eiolca.net/>

Wow! I realised glass wasn't all it was cracked up to be. Even if no energy was involved in the transport and cleansing of returnable bottles, returnable bottles would have to be recycled about 20 times to compete with plastics. Plastic seemed to be a better solution, ecologically, but I still had concerns about the toxic leaching associated with it. An ideal solution would be to fnd a material had none of the pitfalls, yet all of the benefits of both glass and plastic. After researching lots of different types of packaging I found polypropylene. Could this be the answer I was looking for?

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Polypropylene: leaner, cleaner, greener

Polypropylene:

- Is manufactured from clean technologies (non-toxic)
- Does not leach harmful chemicals (no Bispenol-A, no PVC plasticisers, no Phthalates)
- Requires 30% fewer resources than other plastics
- Is extemely stable with excellent barrier properties (no leaching or outgassing)
- Is 100% recyclable
- Is lightweight (less CO2 product during transit)
- Has superior impact resistance and resilience (no product breakage during transit)

Hmmm... none of the pitfalls of conventional plastic, and it offered the strength and stability of glass, without the weight and large carbon footprint. My research was getting exciting! Now I just had to overcome the challenges we were having with our current glass packaging. Product wastage was a big problem.

After much searching, I found this new airless (vacuum technology) packaging. Oh my goodness... could it be true? It dispenses in any position (even upside down!), it's leak proof, has no metal parts (no corrosion, 100% recyclable) and has a pump with automatic self-closing valves that protect the product from oxidation and prevents dry-out (those pesky dried product plugs in the end of your pump). No product oxidation, no contamination, no product wastage, no leaking product, no frustrated customers! And they look good too. Mission accomplished!

I'm excited to say that we'll be rolling out our new, leaner, cleaner, greener packaging over the next few months.

Narelle

ONEgroup
Organic and Natural Enterprise Group
27 Expansion St, Ashmore QLD 4214 Australia
Email: support@onegrp.com **Tel:** 61 7 5539 2011