



SHIP IN A BOTTLE

A question of value, but who reaps the benefits?
A perspective on PET recycling and PET exports.

BY MICHAEL SCHEDLER AND KATE EAGLES

PET recycling is widespread in the U.S. today, with the majority of approximately 7,700 curbside programs, thousands of drop-off programs, and an increasing number of public spaces and venues all collecting PET containers. Despite this accessibility – or perhaps because of it – there appears to be little large-scale public discussion about the social, environmental, or economic value of recycling in general, and of PET recycling in particular. The National Association for PET Container Resources (NAPCOR) wants to revisit this, and to reframe the way in which we understand the value of PET recycling, extending that value beyond the 1970s and 1980s legacy of litter remediation and landfill diversion.

Recycled material is valuable secondary material: heavily sought-after and suitable for a wide variety of end-uses. Of course, this is true both for the PET material we process and use domestically, and for the substantial quantities – over half of the volume collected – which we currently send overseas to export markets.

The history of collection

PET recycling is a relatively young industry and PET collection has been prompted by distinct drivers and events. In the 70s, 80s, and into the 90s, recycling was seen as an important means of addressing growing concerns about litter, as well as the public perception that landfills were filling up and shutting down, and that we as a nation would soon be inundated with garbage. Anti-litter sentiment resonated strongly, reinforced by memorable campaigns such as Keep America Beautiful's iconic "crying Indian" public service announcements. Out of the eleven state container deposit laws currently active in the United States, all were at least partially intended to help reduce litter, and all but one (Hawaii) was enacted between 1971 and 1987.

A dramatic manifestation of the landfill concern began in March 1987 when the infamous garbage-laden *Mobro 4000* barge traveled from Islip, New York and headed down to Louisiana where it intended to dump its 3,100-ton load at a much more favorable tipping fee than was offered locally. The Louisiana deal fell

through, as did a potential solution in North Carolina and the barge headed as far south as Belize with no takers for its cargo, eventually returning to Brooklyn where its load was incinerated.

The two-month journey kept the *Mobro* in the news headlines and the incident manifested the concerns of the times, galvanizing the general populace, as well as regional and national leaders, to put resources behind recycling and waste diversion programs. It was a pivotal moment and communities took notice. In 1988, there were just over 1,000 curbside recycling programs in the U.S.; in 1990 there were approximately 2,700, which expanded to over 9,000 by 1998. As container deposit laws brought in significant volumes of PET, and the PET market began to develop, PET was increasingly included in curbside program collection.

PET and sustainability

PET is not a global commodity in the way that metal and paper are, primarily due to the material's (and other plastics) value/density equation which creates challenges for entrepreneurial-driven collection. Because of this, it's unlikely that PET would be collected in the U.S., Canada, Europe and Japan without publicly-initiated programs. The strong anti-litter and overflowing landfill drivers created a push for public programs and were an essential step in the development of PET recycling. PET containers collected through recycling in the U.S. went from 8 million pounds in 1979, to over 1,400 million pounds in 2009.

But, by the late 90s, the litter and landfill concerns that had triggered large-scale changes had largely lost their place in the public consciousness. Today, a mix of climate change, resource responsibility, waste and recycling, and related energy issues seem to resonate more strongly with the public, all as captured in the concept of *sustainability*. Sustainability has become the primarily lens through which both consumers and industry look to assess sound environmental practice and products. To varying degrees, consumers want products that are produced responsibly, include recycled content, have a clear end-of-life option for both product and packaging, and that they can understand as "green."

For corporations, sustainability is perhaps better described as the juxtaposition of environmental responsibility and sound corporate management, with companies seeking efficiencies in product

sourcing, manufacturing process, energy, packaging, transport, merchandising, and, of course, cost.

The first test of package sustainability is its ability to fulfill its primary function: delivering a safe, top quality product essential for energy and raw materials efficiency. PET is clear, lightweight, unbreakable and re-sealable – it unquestionably provides function, but also does more than that. From the NAPCOR perspective, there is no true sustainability without recycling; recycling captures the energy inherent in a package and re-purposes that energy. PET is uniquely positioned as a sustainable package with its proven functionality, recyclability, capacity for lightweighting, and its suitability for the inclusion of recycled content in both food and non-food applications.

Demand, detailed

Yet while PET is well-positioned vis-à-vis today's prominent environmental driver – sustainability – this concept has not directly translated to large-scale public policy to spur additional collection infrastructure, as litter or landfills once did. Instead, it's had a different sort of influence: a marked affect on consumer buying preferences. Consumers are making conscious decisions about the products and packaging they buy, looking for environmentally preferable attributes, such as recycled content. Brand owners and retailers have responded. The demand for recycled PET (rPET) is growing quickly, up 44 percent between 2008 and 2009 for food and beverage bottles, however post consumer PET bottle supply has not kept pace and remains a critical issue. Since the supply of available bottles is price inelastic, the market is seeing higher-than-virgin pricing for rPET in some instances. This is unquestionably a challenge and may cause some rPET users to question how deep their commitments run on issues of sustainability; it is not a healthy, sustainable dynamic for the industry.

In the short term, there are only a few ways to increase PET bottle supply. New state or federal deposit laws would boost PET collection and it appears that we may see increased interest in this type of legislation following the November elections. NAPCOR is actively working to facilitate PET thermoform recycling and has made significant progress over the last year or so, however these additional volumes will not come on line soon enough to alleviate

supply pressures. Curtailing exports would be a third short-term remedy, but in the interest of free trade and global markets, any formal restrictions appear to be unlikely.

The export effect

The first year that the volume of post-consumer PET bottles exported out of the United States surpassed the volume that remained was 2008, with most going to China. In 2009, export volumes dropped slightly but were still more than half of the total collected. There are various reasons for this, including higher prices, cash payments, and little, if any, bale specifications. Some analysts feel that the Chinese markets enable PET recycling in the U.S., citing contributions to the balance of trade, but the reality is this: many MRF operators and brokers choose to export their material due to lax specifications and, in some cases, slightly higher pricing. NAPCOR certainly recognizes the principles of free trade, but feels this is shortsighted for a number of reasons:

- **The breakdown of product specifications leads to shipping more waste, both here and abroad, thus increasing inefficiency.** While admittedly increasing diversion rates, this practice also increases system cost, energy use, and greenhouse gas (GHG) emissions.
- **Exporting raw materials negates the extended economic development benefits derived from their reclamation and remanufacture into finished goods, arguably recycling's greatest dividend.** From an energy and raw materials perspective, the total volume of containers recycled in 2009 would require over 28 trillion British thermal units less energy than the amount of energy that would be required to produce the equivalent tonnage of virgin PET – this is equivalent to the annual energy use of 304,000 U.S. homes. The corresponding savings in GHG emissions is 1 million tons of CO₂ equivalents, an amount comparable to taking 181,000 cars off the road. These equivalencies are for the total volume of containers recycled in 2009 – we exported over half of this volume.
- **Exporting PET bottles exports jobs.** According to a 2001 R.W Beck report, the U.S. recycling industry employs approximately 1.1 million people, generates an annual payroll of \$37 billion, and \$236 billion in annual revenues.

The plastics recycling manufacturing portion of this total is approximately 185,000 jobs, second only to ferrous metals in number of recycling jobs by major material group; the annual payroll for plastic recycling is estimated at \$5 billion with estimated annual receipts of \$28 billion.

- After a period of stagnation, NAPCOR estimates that there will be over \$350 million dollars invested in new infrastructure to recycle and reclaim PET bottles during 2010 and 2011. **By the end of 2011, this will potentially result in as much as 300 million pounds more PET reclamation capacity than the estimated total volumes of PET bottles being collected in the U.S. and Canada.**
- **Exporting bottles is akin to exporting energy** since the principal components are derived from oil and natural gas.
- **Strong local recycling programs require strong local markets**, not those subject to political pressure and disruptions.

The bottom line is that the continued large-scale exportation of PET bottles – the collection of which, in many cases, is subsidized by U.S. tax dollars – jeopardizes

existing investments and inhibits new ones; squanders opportunity for job creation; diverts valuable raw materials; and encourages waste and inefficiency.

Conclusions

PET packaging is well-positioned in today's marketplace, with a positive sustainability story to tell, and interest in recycled PET resin continuing to grow. Yet to realize its potential, the PET equation requires supply. While current environmental drivers have spurred rPET demand, they have not directly influenced PET collection or supply. Although jobs and energy are beginning to resonate with state and federal policy makers, there is no cohesive move to take a broader view of this, so the global market continues to dominate.

Over the long term, the export question goes to the very heart of why the U.S. should incorporate recycling as a national ethic and not just as a local concern. The value to society of making secondary materials available to U.S. manufacturers – both from an environmental and an economic point of view – far outweighs the short-term expediency of simply increasing diversion and thereby saving landfill space. There

is a larger strategic issue here as well, as exemplified by China's recent decision to use their control of rare earth metals as a political weapon. The U.S. has already ceded many segments of its manufacturing base to China; if we choose not to support our domestic reclamation investments, we further risk our remaining plastic manufacturers – those that use plastics as a raw material – jeopardizing their ability to remain competitive. NAPCOR calls upon both public and private sector entities to sell bottles to U.S. and Canadian reclaimers, and in so doing, to embrace a long-term strategic view while supporting local investments and infrastructure.

Michael Schedler is director of technology for NAPCOR, where he coordinates the association's technical programs and collection and recycling methods. Kate Eagles is the communications director for NAPCOR. NAPCOR's position statement pertaining to PET exports can be found at <http://www.napcor.com/PET/positions.html> ↗

Reprinted with permission from Resource Recycling, P.O. Box 42270, Portland, OR 97242-0270; (503) 233-1305, (503) 233-1356 (fax); www.resource-recycling.com.