Backgrounder

Impacts & Alternatives to Burning Tires

Approximately 10.8 million tires (for cars and light and medium trucks) were sold in Ontario, in 2002. Thirty percent represent tires sold on new vehicles (original equipment) and 70% were sold as replacement tires.[1]

Presently, between five and fifteen percent of Ontario's used tires are unaccounted for and presumed to be stockpiled or landfilled. Ontario does have a number of reprocessing facilities that produce crumb rubber. This is believed to account for 40-50% of used tires. Thirty-five to forty percent are used in civil engineering products or are shipped to the US and burned in cement kilns. Ten to fifteen are retreaded. [2]

However, the reality is that tire burning is growing at an alarming rate in North America. While no Canadian figures are available, US figures speak clearly of this growth. At present there are 107 facilities that burn tires, and another 96 facilities have proposals to burn. The good news is that recycling markets are also increasing. Government leadership is needed to steer Ontario towards a responsible, environmentally sound solution that promotes reuse and recycling and prohibits burning. **Ontario's *Waste Diversion Act, 2002* is supposed to accomplish this goal. Its proper implementation would result in the Minister rejecting the, as yet, confidential *Scrap Tire Diversion Program,* recently passed by the Waste Diversion Organization.**

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Ontario's waste Diversion Act

Ontario's Waste Diversion Act adopted June 2002, is "An Act to promote the reduction, reuse and recycling of wastes."[3] The Minister of Environment is responsible for designating wastes that will require Waste Diversion Ontario (WDO), the government

[1] Developing a Scrap Tire Diversion Program: A Primer, Ontario Tire Stewardship, September 2003
[2] Developing a Scrap Tire Diversion Program: A Primer, Ontario Tire Stewardship, September 2003
[3] *Waste Diversion Act 2002*. Government of Ontario webpage: http://www.e-laws.gov.on.ca/DBLaws/Source/Statutes/English/2002/S02006_e.htm

corporation established to oversee the development, implementation and operation of waste diversion programs, to act accordingly. So far, the Minister has designated used motor oil, tires and computers as designated wastes, under the Act.

Importantly, Section 25 of the Act requires that each stewardship program for a designated waste must include the following[4]:

1. Activities to reduce, reuse and recycle the designated waste.
2. Research and development activities relating to the management of the designated waste.
3. Activities to develop and promote products that result from the waste diversion program.
4. Educational and public awareness activities to support the waste diversion program.

Financial Incentives in Proposed *Scrap Tire Diversion Program*

The Ontario Tire Stewardship (OTS) is an incorporated body under the Waste Diversion Act to function as the Industry Funding Organization (IFO) for scrap tire diversion. Board of Directors includes Canadian Tire Corp., Michelin North America (Canada) Inc., OK Tire Stores, Wal-Mart Canada and the OTDA.

Consumers will pay a $4.00 Tire Stewardship Fee (TSF) for passenger and light truck (P/LT) tires and $6.00 for commercial or truck, tires (CT). Tire Retailers collect the TSF at retail for new tire and car purchases). Retailers charge an administration fee of $0.35 for P/Lt tries and $0.50 for CT tires. The rest is remitted to the OTS.

The collect fees or "eco-fees" are to fund transportation and processing credits for diversion operations as well as core stewardship programs, including R&D, end-use incentives, public education, communication and stockpile abatement and development of new markets. **This is where the problem begins. The fee structure promotes the burning of tires, which goes against the Waste Diversion Act and subsidizes companies who pollute by providing a cheaper fuel source.**

Processing Incentives:
Reuse and retreading of tires: $139 increasing to $150 per metric tonne over 5 years
Ground Rubber: $100-$120/metric tonne
Fabricated Products: $60/metric tonne
Tire Shred $50/metric tonne
TDF (Ontario only): $40/metric tonne

Processing incentives are only payable to Processors with processing operations in Ontario. Currently, only one cement kilns in Ontario is permitted to accept tires for

[4] ibid.

energy recovery and reduce the amount of coal used (Essroc Italcementi Group, Picton ON) but as of yet does not use Tire Derived Fuel in its manufacturing process.

In Ontario, one cement company (LaFarge in Bath ON) has applied for a Certificate of Approval (CoA) to use tires and other wastes. The company is aggressively lobbying other industries and municipalities to support approval of their application. Under the proposed Tire Stewardship Plan the number of CoA applications by industry is expected to grow rapidly.

Air Quality Impacts of Burning Tires

Tires are incinerated with coal to fuel cement making in cement kilns. However, tires are favoured over coal because they have a higher heat energy by weight and often charge a lower tipping fee per tire than a dump. Emissions of sulphur, particulates and heavy metals (zinc, chromium, nickel, lead and cadmium) increase when tires replace coal as a fuel source in these facilities[5].

Even studies submitted by the Ontario Tire Stewardship (OTS) show an increase in heavy metal emissions and particulates[6].

Tires are also often burned as a fuel supplement in industrial boilers and co-generation plants. Pulp and paper mills, electrical generation plants, iron foundries, and copper smelters are all potential tire burning facilities. It is worth noting that the tires displace natural gas in these facilities, a cleaner fuel source than burning coal. Tires emit five times more nitrogen oxides (NOx) than natural gas when used as a fuel.

Environmental Impacts of Tire Production

Tires are composed of a vast array of materials, many of which are non-renewable and others of which are hazardous.

About 20 kilograms of rubber (either natural of synthetic) are used in each car tire. Tire manufacturing consumes 68% of the worldwide production of natural rubber. Tapped from hevea or "rubber" trees, is most often harvested from plantations in Africa and Southeast Asia. Rubber tree plantations are grown as industrial cash crops. The goal of this type of monoculture farming is rapid growth, uniformity and a high yield. The environmental costs are soil erosion, reduced soil fertility and an increase in dependence on fertilizers, pesticides and irrigation. This leads to a reduction of groundwater and/or stream flow. If an area of land requires clear cutting to make room for the plantation, there is also a loss in biodiversity.

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[5] Environmental Research Foundation, Cement Kiln Incineration of Hazardous Wastes, 1992

[6] Scrape Diversion Program, August 20, 2004. Ontario Tire Stewardship Program. Appendix 31: TDF Trace Elements Study page 133

Synthetic rubber is made from oil (styrene-butadiene made from monomers found in petroleum). It takes 22 gallons of oil to make one truck tire and 7-8 gallons of oil to make a passenger car or light truck tire[7].

Tires also contain a wide array of chemical additives, and metal and textile cords, adding oils, black carbon, pigments, antioxidants, silica and other chemicals to the product. Each material adds to the performance of the tire improving rolling resistance, grip and wear of the tire.

Recycling Markets for Tires on the Increase in North America

The retread industry in the US received a boost when the federal government issued procurement guidelines that encouraged federal fleets to buy retreads. This was first done by the U.S. Environmental Protection Agency (EPA) in 1988, and was later strengthened by an Executive Order from then President Bill Clinton, mandating that all government vehicles use retreads, where possible.

California has an extensive recycled content procurement law. Under that law state agencies must purchase retread tires for all nonsteering truck tires greater than 19 inches or trucks and trailers that weight 20,000 pounds or more.[8]

The Ford Motor Company uses 5% recycled rubber in the tires on some of its vehicles. Ford also uses recovered tire material in products such as break liners.[9]

Texas has doubled its use of crumb rubber in road construction since 2002 – recycling nearly 2 million tires a year.

[7] http://es.epa.gov/techinfo/facts/oldtires.html, sited August 18, 2003
[8] www.epa.gov/epaoswer/non-hw/recycle/jtr/comm/rub-info.htm
[9] www.epa.gov/epaoswer/non-hw/recycle/jtr/comm/rub-info.htm