

Waste away

Ambitious programs help
province thin out shipments to landfills

BY PETER MITHAM

The numbers are stark: Canadians produce an average of 1,031 kilograms of garbage each per year, of which all but 24.6 per cent ends up in landfill. The single biggest contributors are businesses, which generate 21 million tonnes of waste a year; residences contribute 13 million.

Alberta is above average when it comes to residential waste generated per person, at 267 kilograms. Its businesses and other non-residential sources account for a whopping 855 kilograms per person: 1.6 times the national average and the greatest of any Canadian province.

Moreover, the province that pioneered electronic waste-recycling now sees industry lagging behind the residential sector in diverting waste from landfill. The non-residential sector diverted approximately 336,827 tonnes of waste in 2008 versus a residential 391,709. The overall diversion rate is third-lowest in the country, at 15.3 per cent. By weight, organics and paper products are the top materials diverted.

"We were ahead, but we're firmly trailing now," laments Christina Seidel, executive director, Recycling Council of Alberta in Bluffton, Alberta.

The brightest spot is the example set by municipalities such as Edmonton, which has spurred its neighbours to set aggressive waste-diversion targets. Strathcona County, which includes suburb Sherwood Park, has achieved a diversion rate of 66 per cent since adopting in 2008 an aggressive initiative targeting residents.

"The Edmonton area is really the only one that's gone hard after organics diversion," Seidel says.

The drawback, however, is that municipalities focus on the residential portion of the waste stream, which is the one that falls under their direct control.

"And that's only a quarter of the waste stream," Seidel points out. "The recycling rate in the [non-residential] sector has not increased at all, and that's where our real challenge is."

Industrial strength

Oil is one of the key segments of the Alberta economy where the spotlight shines particularly brightly on reducing environmental impact. Small surprise, then, that Calgary-based Newalta specializes in recycling oils and other industrial residues, reducing demand for new extraction.

The province's water table is also under pressure, thanks to the use of steam-assisted gravity drainage (SAGD) to extract oil from the oilsands. A partnership struck in 2008 between the government-funded Alberta Water Research Institute and GE Water & Process Technologies, which conducts water treatment and processing, has sought to reduce water use in oil recovery. (For more on SAGD, see feature, page 22.) Kontek Ecology Systems Inc. of Burlington, Ontario, will manufacture a reverse-osmosis wastewater treatment system for Harvest Operations Corp., a Calgary-based producer of crude oil and natural gas. The system will eliminate the



Turbine at the Oldman River Wind Farm in Pincher Creek, Alberta, operated by Bullfrog Power

need for softening salts in wastewater treatment at Harvest's Black Gold oilsands project near Conklin. The processed water is potable, and Harvest will allocate a third for cooking and drinking.

Home advantage

Edmonton's leadership in waste diversion shows in a network of 16 facilities that recycle residential waste.

Organics are composted, while a new \$80-million facility being built for the city by Enerkem, Montreal, will convert various non-compostable, non-recyclable materials into ethanol. Upon its full operation in 2013, the biofuel plant promises to boost the city's residential waste-diversion rate from 60 to 90 per cent.



A new Greys Recycling plant in Edmonton will create a local option for recycling paper, white cotton and denim. Greys also plans to manufacture paving blocks from crushed glass

Alberta's long-standing bottle-deposit system ensures the return of bottles for grinding in Airdrie and recycling as fibre-glass at plants in Innisfail and Edmonton.

The loop is less tight for paper and metal, both of which often go outside the province for recycling. Still, the province accounts for a fifth of Canada's cardboard recycling and more than half the volume of mixed metals diverted from landfills. A new plant built by Greys Recycling Industries Ltd. in Edmonton will create a local option for recycling paper, as well as white cotton and denim. Greys also plans to manufacture paving blocks from crushed glass.

Depots across the province accept electronics, while Telus Corp. and retailers such as London Drugs, Future Shop and Best Buy Canada Ltd. accept used items for safe disposal.

Workers sorting recyclables at Edmonton's Materials Recovery Facility



Post-consumer to compost

Composting is one of the most effective ways to reduce landfill. Strathcona County has collected organic waste from households since 2008. The waste is sent to a facility north of Edmonton, where it is composted and a portion returned for municipal landscaping or sold to the community.

Edmonton reckons that composting organic matter and municipal sludge helps divert approximately 60 per cent of waste from landfills. Outside the city, anaerobic digesters using technology developed by Highmark Renewables Research LP are in place or planned for Vegreville and Chin, a small community east of Lethbridge. South of Viking, the Iron Creek Hutterite Colony entered into partnership with BioGem Power Systems Inc. to build a highly efficient biogas system that generates electricity from hog manure. The system supplies the colony and feeds excess power into the provincial grid.

Vancouver-based West Coast Reduction Ltd. has facilities in Calgary, Edmonton and Lethbridge that collect animal waste for rendering into raw material for livestock feed, cosmetics and other products.

Many Alberta institutions now work with vendors that serve food in compostable packaging or with biodegradable cutlery. Edmonton requires all city meetings and staff events to use only

biodegradable or reusable products. Similarly, Good Earth Cafes Ltd. of Calgary, with 30 locations across the province, collects its used coffee grounds and makes them available for customers to use in their composting programs at home. Good Earth also purchases 1,435 megawatt hours annually from Toronto's Bullfrog Power Inc., provider of wind energy, to power its cafés.

Builder filler

Construction waste accounts for close to a quarter of what enters Alberta's landfills each year, with construction of the average residence generating at least four tonnes of waste. Yet a new program spearheaded by the province in partnership with the Alberta Construction Association and the Canadian Home Builders' Association promises to divert concrete, asphalt, wood and drywall to other uses.

In Calgary, for example, TDL Drywall Inc. sends its waste drywall to New West Gypsum Recycling Inc., which processes it for use in new boards. Concrete and asphalt are recycled by operators such as Mixcor Aggregates Inc. of Leduc and Fish Creek Excavating Ltd. of Calgary. Fish Creek estimates that it keeps upwards of 500,000 tonnes of material out of landfill each year.

Asphalt shingles are more difficult to handle, the presence of nails complicating their recovery for many operators. ■