

## **Edmonton wastes no time in reaching No. 1**

**In the shadow of the notoriously dirty oil-sands-extraction business, Alberta's capital leads the continent in waste management**

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EDMONTON -- Just beyond the Imperial oil refinery on Edmonton's eastern fringe, a broad patch of rolling grassland is strewn with enormous warehouses. At one of them, the newest, the scene at the intake ramp has a surreal quality - a sense that a colossal error is being conducted with industrial efficiency.

The ramp emerges from a wide expanse of concrete piled with sleek CPUs and laser printers. Two workers in jumpsuits and face masks shove at the mound with steel rakes, forcing what must be hundreds of thousands of dollars worth of high-tech equipment onto a conveyor belt moving slowly skyward.

From inside the facility comes the sound of metal shearing from its mountings and heavy-gauge plastic being torn to shreds. On one raised platform, a cadre of workers attacks cathode-tube televisions and computer monitors with hammers and pneumatic drills, separating valuable (and toxic) metals and glass from thick plastic casings, dropping the latter into a two-storey hopper that spits shards from its mouth like a petrochemical popcorn popper.

"Some people say this is mining for the minerals above ground," says Victor Roth, president of GEEP Alberta, a subsidiary of Global Electric Electronic Processing Inc. of Barrie, Ont. In a private-public partnership with the city, the company digs lead from monitors, iron from CPUs and aluminum from printers. Circuit boards yield platinum, silver and cadmium so precious that they warrant shipping to a smelter in Belgium. Workers on the disassembly line drop hunks of valuable steel, copper and high-grade plastic into bins below.

This \$10-million electronic-waste recycling facility, opened in March, is the crowning glory of the Edmonton Waste Management Centre - which was already a world-class installation. In the shadow of Alberta's notoriously dirty oil-sands-extraction business, Edmonton has developed one of the planet's most sophisticated and thorough waste-management regimes.

The centre boasts one of North America's largest composting facilities, one of its most comprehensive solid-waste-recycling plants and Alberta's longest-running landfill-methane-fed biogas power plant, which generates enough electricity to power 4,600 Edmonton households. With the addition of e-waste, Edmonton now diverts 60 per cent of its residential garbage from landfill and is on track to increase that total to more than 90 per cent by 2012 (this is compared with 52 per cent in Vancouver, 40 per cent in Toronto, 33 per cent in New York and a paltry 20 per cent in both distant London and nearby Calgary).

Edmontonians now bring their garbage to the curb in one of two bags: blue for recyclables and green for everything else. The recyclable materials arrive at the Materials Recovery Facility, where all but 9 per cent of the 40,000 tonnes of plastic, paper, glass and metals collected each year are recovered for use in other products.

More than 60 per cent of the 180,000 tonnes of undifferentiated mess in the green bags goes to the composting facility to be turned into fertilizer. It starts off piled in a wide field to mature, where it's joined by as much as half of the biosolids collected at the city's main

wastewater treatment plant up the road; in all, nearly 70 per cent of Edmonton's biosolids become compost. And an innovative process partly developed at the Edmonton Waste Management Centre of Excellence, an on-site research facility, distills struvite - a potent phosphorous fertilizer - from the wastewater plant's liquids. Even the sand that coats the city's streets against the winter ice is now gathered up each spring, with 95 per cent of it cleansed and reused.

Meanwhile, at the base of the old CN building downtown, a cozy shop called the Reuse Centre has been open since July, 2007, taking in items rejected by other thrift shops - swaths of fabric, buttons, greeting cards and file folders. For a \$2 flat fee, customers can cart off as much as they like. "The two dollars that people pay isn't to make money," says Nicola Harper, who volunteers behind the counter and hunts for gems to add to the product line of handmade, techie-themed jewellery she sells at Acorn Studios, her online store. "It's to make the public aware that waste has a value. That's the only reason they're charging is to make people realize that, oh, this stuff isn't free. It's not waste."

Formerly a waste-management engineer, evaluating plant applications for the Alberta government. Ms. Harper was born and raised in England. She studied at the University of Alberta, but then decided that the Edmonton Waste Management Centre was too unique to leave behind.

"I came over for a year on a scholarship, and I was meant to return to Britain," Ms. Harper says. "And I stayed purely because of the waste management here. It was so cutting-edge."

About 94,000 tonnes of garbage still goes to landfill each year, but plans have now been finalized for an on-site gasification plant, where all but the most tenacious scraps will be converted into biogas for electricity generation. Once it is up and running around 2011, less than 10 per cent of Edmonton's discarded residential waste will remain as trash.

The perspective shift was born of an increasingly common urban crisis: By the mid-1980s, the City of Edmonton was running out of space to dump its garbage. Its landfill site was nearly full. After several fruitless years hunting for another site, the municipal government - led by a progressive mayor, Jan Reimer, and a tenacious waste-management engineer, Ray Neehall - decided to make the garbage fit into the existing dump.

"If you want to be really cynical," says Jerry Leonard, executive manager of the Edmonton Waste Management Centre of Excellence, "you could say that the reason for Edmonton being a leader is that they were forced into it."

The new approach started in 1988 with one of Canada's first curbside recycling programs. In the following years, by methodically diverting one material after another from its waste stream, Edmonton achieved the magic sustainability trick that Mr. Leonard calls "turning goop into gold."

In fact, the city has done the job almost too efficiently - the e-waste plant, not even half a year old, is already in danger of running out of gear to grind up. The facility was designed with sufficient capacity to process e-waste from all of western Canada; the five years worth of Edmonton's stockpiled electronic junk scattered throughout the Waste Management Centre's rolling grounds will feed the system for less than a year. "I'm already anticipating the problem being supply," Mr. Roth says.

Edmonton's garbage regime is a world-class endeavour. It is, however, far from a complete solution - not as long as the two-thirds of the city's waste generated by commercial and industrial activity remains outside its purview. The first step toward solving that riddle, though, is the one Edmonton has already taken - approaching all of its old goop as potential gold.

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