

U of T listed among Toronto's top polluters

A federal database shows U of T's downtown campus is one of the city's top polluters, but that doesn't tell us much about its energy efficiency



University of Toronto chief operations officer Ron Swail poses with solar panels on the roof of 255 McCaul St. The University of Toronto's St. George Campus is one of the largest emitters in the city — but the data doesn't tell the whole story. (Photo: Andrew Francis Wallace / Toronto Star) | Article by: AINSLIE CRUICKSHANK (Staff Reporter), Wed., June 14, 2017

The University of Toronto's St. George campus is one of the city's largest greenhouse gas emitters, polluting more than the Redpath sugar refinery, a federal government database shows.

But the university and two environmental groups warned that a facility's annual emissions alone don't offer much insight into its environmental record.

"The size of the emitter doesn't tell you that much about whether they're good or bad," said Keith Brooks, Environmental Defence's programs director.

"The real question is how efficient they are," said Franz Hartmann, the executive director of the Toronto Environmental Alliance, in a separate interview.

In 2015 the downtown campus produced 92 kilotonnes of greenhouse gases, measured in carbon dioxide equivalents.

But the campus is "basically ... a city unto itself, it has a population of approximately 80,000 people a day," said Ron Swail, who is responsible for building operations at the downtown campus and a staff of 600.

Most of the campus' greenhouse gas emissions stem from its central steam plant, said Swail.

The steam plant heats most of the campus' 130 buildings and a number of off-campus buildings – including the Royal Ontario Museum – through a district heating system.

The plant, which runs on natural gas, is much more efficient than the alternative, Swail said. It uses five boilers, including one backup, to meet the campus' heating needs instead of about 200 boilers in individual buildings.

It also uses excess heat to produce electricity and waste heat to warm the Bahen Centre, the campus' fourth largest building.

"Many cities are moving towards district energy, which pump steam and water to heat and cool buildings, because they produce fewer emissions and operate more efficiently than conventional on-site

heating and cooling systems,” said Carlyle Coutinho, the president of Enwave, which owns the Walton and Pearl Street steam plants.

If each building had its own boiler, U of T may not have been required to report to the federal Facility GHG Emissions Reporting Program, even if the combined emissions still exceeded the reporting threshold.

Only facilities that produce more than 50 kilotonnes of greenhouse gases are required to report their emissions through that program.

Like Hartmann and Swail, Brooks said district energy systems are generally more energy efficient than individual furnaces, but there are steps the university can take to further increase the efficiency of their system.

That’s something the university takes “very seriously,” said Swail. It hired its first energy reduction manager in 1977. Since then it has undertaken “hundreds” of initiatives, ranging from lighting changes and roof top solar arrays to full building retrofits, to reduce its energy and water consumption.

Those projects have made a difference. Since 2000 the campus has added 25 buildings, representing more than 3.5 million square feet, and seen a 50 per cent jump in the student campus population. At the same time its water usage and greenhouse gas emissions have declined.

“We’ve been able to avoid 50,000 tonnes of greenhouse gas emissions...that’s equivalent to over 10,000 cars being taken off the road,” said Swail.

But his team faces challenges, particularly with heritage buildings, on a campus where the average building age is 80 years old. In a typical energy efficiency retrofit, upgrades to a building’s outer structure would be undertaken.

With heritage buildings, “it’s very difficult when you have outside facades you’re not allowed to touch and inside facades that are absolutely beautiful,” Swail said.

In those cases, upgrades like new windows and caulking around doorways can still make a difference.

In other cases, like U of T’s McCaul Street Exam Centre, a retrofit can make a huge difference.

Retrofitted from a warehouse in 2008, the building was the university’s first, but no longer only, LEED Gold building.

A living wall in the lobby welcomes visitors and the 60,000 students who write their exams in the building. In the basement, two large cisterns collect water used to flush toilets. While on the roof, a 67 kilowatt solar array and off-white roof tiles help lower the building’s greenhouse gas footprint.

Overall, the building uses roughly 60 per cent less water and 30 per cent less electricity than a typical building.

Numerous other initiatives are underway at U of T’s downtown campus, supported by the university’s \$7.5 million Green Revolving Fund and funding from the provincial and federal governments.

There are plans to retrofit 50 per cent of the campuses research facilities, which are some of the university’s most energy intensive buildings, and new university design standards have recently been established that will ensure all new structures are at least 20 per cent more energy efficient than the latest standards.

Plans are also in the works for a new 14 storey timber building – a less energy intensive building material than steel or cement – and new net zero laneway houses in the Huron-Sussex neighbourhood.

“We’ve got a lot of oars in the water,” Swail said.