

Tenant Electrical Appliances and Device Use in a Toronto Multi-Unit Residential Building (MURB)

Miles Roque, Dr. Alan Fung, and Vera Straka; Email: miles1.roque@ryerson.ca
Applied Science and Environmental Management, Ryerson University, Toronto ON

Introduction

There are 1189 multi-unit residential buildings (MURBs) in Toronto, with 800 buildings built between 1945 and 1984 (City of Toronto, 2011). Energy savings in MURBs can be achieved by tenant engagement strategies and programs. The first step, however, is to identify tenant's electrical consumption habits in order to attract and target their specific behaviours.

Objectives

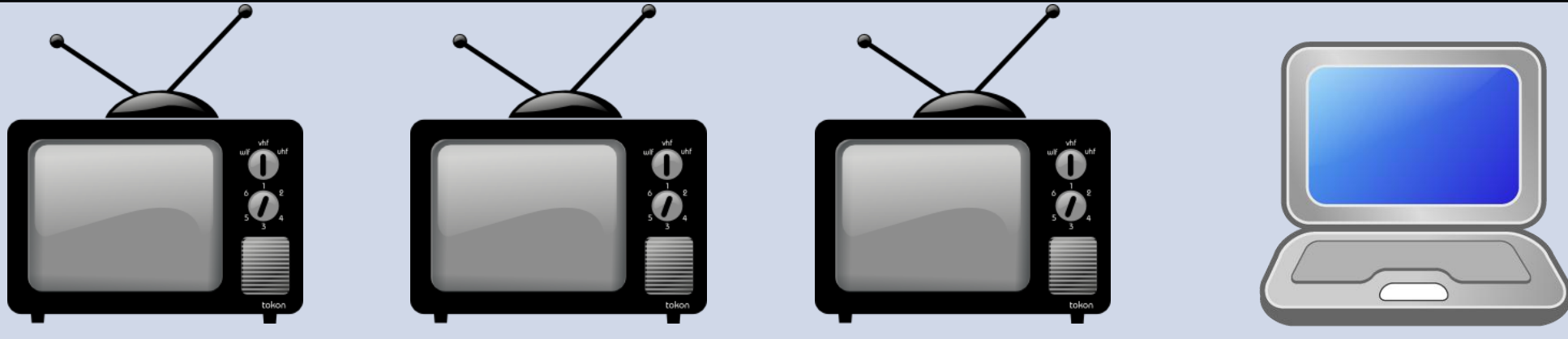
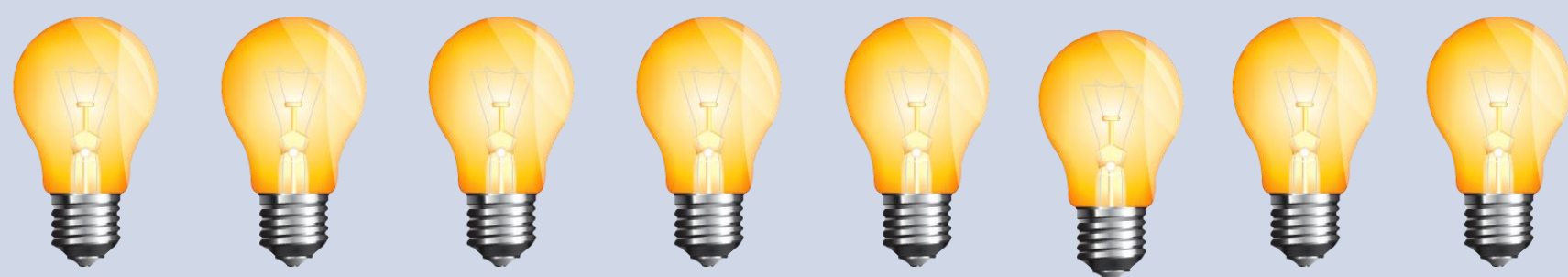
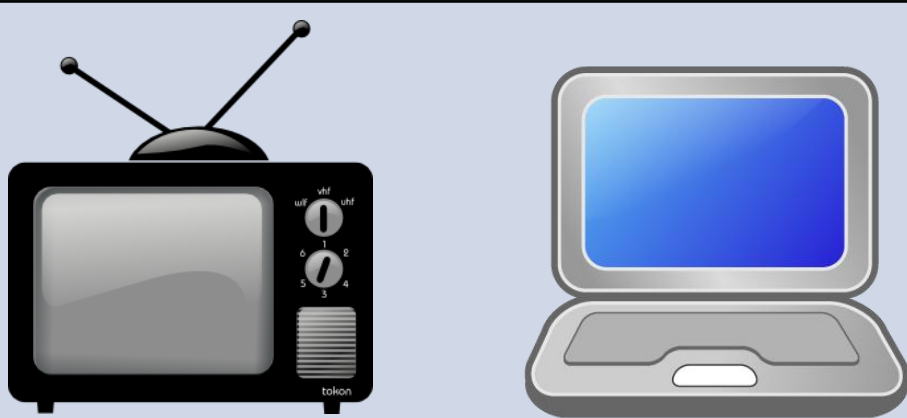

- Investigate tenant's electrical consumption in a Toronto multi-unit residential buildings (MURBs)
- Compare results to Natural Resources Canada's Survey of Household Energy Use (SHEU) 2007

Methods

Three methods were used in order to collect survey data:

1. Paper-based self-enumeration
2. Personal interviews
3. Computer-based self-enumeration

Results (Toronto Site – A total of 49 households)

Survey of Household Energy Use (SHEU) 2007	Toronto Site
 	 
<ul style="list-style-type: none"> • Lighting: Average # of CFLs – 1.9 and Incandescent light bulbs – 8 • Personal computers, including laptops, were present in 80% of households. • Television: 26 percent of Canadian households use three or more TV sets, where 77% are regular (tube) TVs • 28% never turn off the cable box after use 	<ul style="list-style-type: none"> • Lighting: Average # of CFLs – 2.4 and Incandescent light bulbs – 1.6 • 47% of the households have a personal computer • Television: 55% of the households use one TV set, where 36% are regular (tube) TVs • 9% never turn off the cable box after use

The Study Site

- Consists of 11 floors with a total of 136 units
- Majority of the units are bachelor-size (21.37 m²)
- Non-profit housing
- Affordable housing for low-income single-person households
- Rental costs include electricity and water.
- Each unit is furnished with a refrigerator and electric stove/range

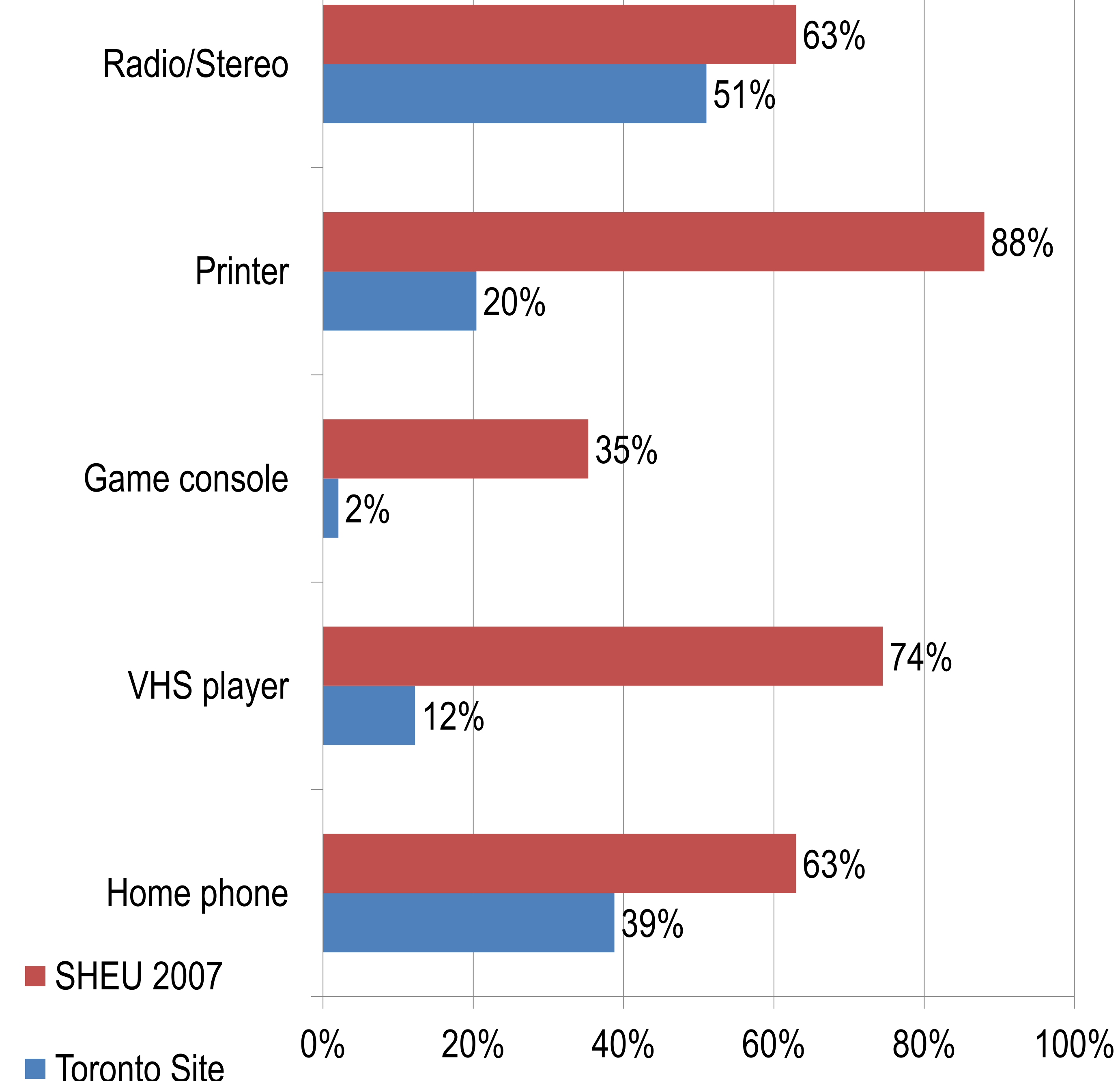
Conclusion

Preliminary results suggest that the Toronto site tenants use less electronic devices and appliances compared to SHEU 2007. This means they use less electricity than the average Canadian household.

Future Work

- Compare and analyze tenant sub-metering data to survey data
- Develop a model to represent tenant's electrical appliances and device use

Percentage of Households with Selected Electronics



References

Canadian Mortgage and Housing Corporation, C. (2012). *Government Assisted Housing, 1996 – 2012 CMHC-SCHL*. Retrieved September 23 2011, from http://www.cmhc-schl.gc.ca/en/co/buho/seca/seca_001.cfm
City of Toronto. (2011). *Tower Renewal Implementation Book*. Retrieved March 2012, from City of Toronto: http://www.toronto.ca/city_manager/pdf/tr_implementation_book.pdf
Natural Resources Canada. (2010). *Office of Energy Efficiency*. Retrieved September 23, 2012, from Natural Resources Canada: <http://oe.e.nrcan.gc.ca/Publications/statistics/sheu-summary07/pdf/sheu-summary07.pdf>

SPONSORS

