

Executive Summary

To support the energy and greenhouse gas (GHG) emissions reductions laid out in UBC's Community Energy and Emissions Plan (CEEP)ⁱ for residential neighbourhoods on campus, the University is developing a building energy benchmarking strategy. One of the first initiatives in the strategy is the implementation of a benchmarking pilot project that focuses on six multi-family rental buildings in UBC's residential neighbourhood; five low-rise (four storey) and one high-rise (fourteen storey) buildings. The pilot was carried out with funding support from BC Hydro and in partnership with three municipalities: City of New Westminster, Surrey, and Victoria that are working on benchmarking their own building portfolios.

Energy benchmarking is the process of comparatively assessing a building's energy performance relative to other similar buildings. Many organizations, especially governing bodies, have turned towards benchmarking as a policy tool to overcome informational gaps that act as barriers to energy efficiency investment.ⁱⁱ For UBC's multi-family buildings, energy benchmarking serves as a precursor for informed decision making around energy efficiency improvements.

The main objectives of this study are to benchmark the six rental buildings in ENERGY STAR Portfolio Manager (ESPM)ⁱⁱⁱ, an online energy management tool that allows for self-serve utility consumption tracking, and to identify an appropriate strategy for communicating the benchmarking results to building owners. A full report will be available in the SEEDs database^{iv}.

Through the completion of the study, it was determined that benchmarking UBC's multi-family buildings using ESPM is a straightforward process once utility data is acquired. The software is suitable for UBC since it is free and non-proprietary and has multiple connections to other UBC initiatives, such as the Residential Environmental Assessment Program (REAP)^v and SMARTTool^{vi} reporting requirements.

To communicate the results, a custom UBC-specific statement of energy performance was produced for each of the buildings in the study. The two-page report, intended for building owners, provides an overview of the building that includes: performance history, a breakdown of GHG emissions by source and an estimated breakdown of the building's energy end-uses.

The results and lessons learned from the pilot study will be used to inform the development of UBC's benchmarking strategy. The study is easily scalable and can be applied to other multi-family buildings on campus to improve the university's local benchmark baseline information.

One significant obstacle encountered in the benchmarking process was obtaining aggregated suite level electricity data. Based on the time commitments, it may be worthwhile to postpone expanding benchmarking to other multi-family buildings on campus until a process is in place for automated electronic data exchange.

To improve communication and encourage action on results, the statement of energy performance requires development. The report displays building performance without conveying what the results

actually mean for the building owner. To improve the report, it should be revisited and tailored in a way that will encourage building owners to take action on energy efficiency.

Benchmarking UBC's multifamily buildings is a preliminary step on making informed decisions around energy efficiency investments in UBC's neighbourhoods. The pilot project was ultimately a success and has resulted in a number of recommendations and instructions to advance UBC's benchmarking strategy. Through participation in the pilot project and by contributing to the wider discussion around benchmarking, UBC has positioned itself as a local leader in the energy benchmarking transformation.

ⁱ The University of British Columbia. "UTOWN@UBC Community Energy & Emissions Plan". Information available online: <http://sustain.ubc.ca/campus-initiatives/climate-energy/CEEP>

ⁱⁱ Institute for Market Transformation, 2012. "Energy Transparency in the Multifamily Housing Sector". Report available online: http://www.imt.org/uploads/resources/files/Energy_Trans_MFSector_IMT_ExecSumm_final.pdf

ⁱⁱⁱ Natural Resources Canada. "ENERGY STAR Portfolio Manager Access Page". Information available online: <http://www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/3693>

^{iv} The University of British Columbia. "SEEDS Library". Information available online: <http://sustain.ubc.ca/courses-teaching/seeds/seeds-library>

^v The University of British Columbia. "Residential Environmental Assessment Plan". Information available online: <http://sustain.ubc.ca/campus-initiatives/green-buildings/reap>

^{vi} Province of British Columbia. "Measuring Greenhouse Gas Emissions". Information available online: <http://www2.gov.bc.ca/gov/content/environment/climate-change/policy-legislation-programs/carbon-neutral-government/measure>