Telecommuting & Hoteling:

A Study to Explore Energy Savings Impacts and Opportunities for Power Smart and BC.

Traditional work arrangements involve employees transacting their time with employers, rather than a work product. The information revolution has created the opportunity for employees to separate time and place from the final product. By utilizing technologies that allow employees to work remotely, both employer and employee can realize benefits from productivity gains and cost savings. Studies on telecommuting have shown many qualitative benefits, such as increased productivity and improved work-life balance. However, research on quantitative benefits focuses primarily upon the energy and cost savings related to decreased oil consumption from reduced travel distance. The intention of this project was to provide background on current telecommuting and hoteling practices, as well as to investigate the potential energy savings due to the lowered utilization of office space and equipment.

The electricity used by the commercial sector comprised 11.3% (115 PJ) of total usage in BC in 2011. The majority of this electricity is consumed by offices for space maintenance (heating/cooling, lighting, ventilation, etc.) and for office equipment (photocopiers, computers, etc.). Studies have shown that the average utilization of an individual workstation is less than 16%, which creates the opportunity for energy savings by condensing the amount space required by increasing the utilization rate. This can be accomplished through hoteling, which allows employees to book individual work stations or meeting rooms as required. Companies that have implemented hoteling have been successful in reducing their total office space requirements by more than 40%.

On average, each square meter of office space uses 306.8 kWh of energy annually. Given that total commercial area in BC is 104.3 million m^2, there is significant potential for energy savings due to decreased commercial space usage. Between 2006-2011, commercial space grew at a rate of 2.4% per year, which increased electricity usage by more than 760 GWh annually. Encouraging the implementation of telecommuting and hoteling could slow the rate of growth, decreasing energy demands from the commercial sector.

Another potential avenue for energy savings due to telecommuting is the decreased electricity consumption from lowered office equipment usage. A study conducted by Sun Microsystems in 2008 showed that there is a net savings of 59 watts per hour when comparing an office worker's utilization of office equipment in the workplace versus a home office. In British Columbia, telecommuting workers are currently saving approximately 48 GWh annually in just office equipment energy usage.

The report compiled for the Power Smart division of BC Hydro covers qualitative and quantitative considerations of telecommuting and hoteling. There is a definite potential for increasing energy savings through remote work and increased utilization of existing office space. As the technology that facilitates telecommuting advances and environmental considerations become more pressing, the prevalence of telecommuting and hoteling will continue to grow.