

**BC HYDRO POWER SMART PILOT:  
BLUE HORIZON HOTEL TWO PASSIVE INFRARED MOTION SENSOR  
SYSTEMS FOR IN-ROOM HOTEL ENERGY MANAGEMENT**

**FINAL SUMMARY REPORT**

**Background:**

The object of this report was to determine electrical energy savings offered by two passive infrared motion sensor-based energy management systems at the Blue Horizon Hotel, Vancouver, B.C. These systems were the Energex system, used for in-room HVAC cooling optimisation, and the Wattstopper WN-100 Motion Sensor Nightlight device. Both systems were installed on the 28<sup>th</sup> floor and compared to mirror monitored rooms on the 27<sup>th</sup> floor, which were used as the baseline control.

**Technology Overview:**

*The Energex System:*

The Energex system is a discretely hidden hardwired passive infrared motion sensor-based control system used primarily to optimise the control of hotel in-room HVAC units. The Energex system conserves many types of fuel used to heat or cool hotel rooms.

*The Wattstopper WN-100 Motion Sensor Nightlight device:*

The WN-100 is a motion-sensing wall switch and nightlight, which controls lighting based on occupancy. It was primarily designed for hotel bathroom lighting.

**Results:**

The results of this pilot confirmed electrical energy savings for the Energex system of **38.47%** and **251.86 kW.h/room** over 139 days on the HVAC in-room cooling system. Taking into account natural gas savings, the Energex system could save about \$19,000 per year in total energy costs with a less than **2-year simple payback**. The Wattstopper saved **34.83%** and **1.58 hours per day per room** in bathroom lighting savings, estimated to be about **30 kW.h/room per year** with a simple payback from energy savings of about **85 years**.

**Acknowledgements:**

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