The Canadian Coalition for Green Health Care
Coalition canadienne pour un système de santé écologique

HEALTHCARE ENERGY LEADERS CANADA
Generating Savings For Care

Energy Management Case Study #2

Curtailing steam loss has cut facility operating costs, reduced GHG emissions and improved environment of care.

In 2017, the Canadian Coalition for Green Health Care's HealthCare Energy Leaders team had the privilege of performing a facility audit at Weeneebayko General Hospital in Moose Factory - Ontario as part of an energy efficiency capacity building initiative funded by Ontario's Independent Electricity System Operator - IESO. One of the issues revealed during the audit was the excessive amount of condensate that was being lost on its return to the boiler.

Original estimates put the loss at approximately 60%, which resulted in higher energy and water consumption, and higher water treatment costs at the hospital which is part of the Weeneebayko Area Health Authority's (WAHA) portfolio of health care buildings along the west coast of James Bay.

The condensate loss concern was detailed in the facility audit report and became a topic earmarked for discussion with the hospital's Plant Operations and Maintenance staff during their participation in the Building Operator Certification (BOC) training hosted by (WAHA) and delivered by the Coalition in early 2018. Once conversation was initiated, it didn't take long for the team to drill down to the root causes of the condensate loss.

Since repairing the condensate return line system at the Weeneebayko General Hospital in 2017, the results have been amazing! In place for over two years, there have been no incidents of freezing, splitting or rupture.

Steam system loss was part of the equation and a number of remedies were quickly initiated as a result of the original audit. Steam line repairs were made as needed to minimize loss, and a steam trap audit was completed and trap repairs and replacements were completed as recommended in the steam trap audit report. This resolved many of the steam system problems and led to overall improved condensate return.

Amazing Results! Staff now have more time to focus on pre-emptive predicted maintenance.

The biggest issue facing the hospital in terms of condensate return was a set of steam lines running the length of a neighbouring housing complex. While somewhat insulated from the elements, the steam and condensate lines were exposed to extreme outdoor temperatures which would be sustained at minus 30 degrees Celsius for anywhere from three to five weeks during the deepest part of winter. This exposure was leading to condensate return lines rupturing and leaking, and thus the tremendous loss of condensate from the boiler/steam system.

As noted, the condensate loss not only was a cause of higher make-up water and chemical treatment costs, but it also represented a loss of valuable heat energy lost along with the condensate. And given WAHA's remote location in Ontario's far north, water treatment is a very expensive service made worse by the high cost of transportation and limited options.

Armed with newfound energy management knowledge and confidence, WAHA's BOC course participants put together a remediation plan, after only the first three modules of training, and were able to show a viable business case to the hospital's administration which resulted in funding approval.

During the summer of 2017, staff worked on repairing the condensate return line system, steam tracing it for the purpose of keeping it warm during the frigid winter months, and adding a new heavy layer of insulation and covering to the line.

Results have been amazing! The new lines have been in place for over two years and there has been no incidents of freezing, splitting or rupture.

The full complement of condensate now stays in the system and costs related to water treatment and system heat loss have been eliminated. In addition, the system itself is much more reliable and system repairs and related repair call-backs are greatly reduced. Staff now has more time to focus on pre-emptive predicted maintenance tasks.

The costs associated with the line repair, steam tracing, and insulation have an approximately three-year pay back, based on original business case calculations and actual achieved results.

Energy Management Resources

HealthCare Energy Leaders Canada - www.greenhealthcare.ca/HELC
ENERGY STAR® - www.greenhealthcare.ca/energystar-copy
RETScreen Clean Energy Management Software - www.greenhealthcare.ca/retscreen

The Canadian Coalition for Green Health Care is Canada's premier green health care resource network and is leading the evolution of green in Canada's health sector as a national voice and catalyst for environmental change. Collaboratively, we strive to reduce health care's ecological impact from compassionate care delivery while providing a nurturing platform upon which to discuss and promote best practices, innovation, environmental responsibility and climate change resiliency. www.greenhealthcare.ca

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