



Sustainable Wood Energy Project – Camrose County, AB

Background

In October 2007, the Camrose County, Alberta Council began investigating renewable energy sources and alternative wastewater treatment methods. Following consultations with Alberta Environment and Sustainable Resource Development, Alberta Agriculture and Rural Development and Natural Resources Canada – along with visits to an experimental willow tree plantation in Whitecourt and a successful wood biomass boiler system in Edmonton – the Council began efforts to combine the two concepts in Camrose County.

In 2008, the Council launched the Camrose County Sustainable Wood Energy Project. The initiative would consist of a wood biomass boiler retrofit and wood fuel storage site at the County Administration Office in Camrose, in addition to an alternative wastewater treatment facility with a willow plantation at the Hamlet of Ohaton Lagoon.

The Viessmann Solution

A fully containerized Viessmann Pyrot wood-fired boiler system was commissioned to provide space heating for the 2,365-square-metre Camrose County Administration Office.

Installation Details

The Pyrot KRT-150 boiler (rated at 85% efficiency) was commissioned in March of 2011. The boiler handles approximately 96% of the Administration Office's regular heating load and 69% during periods of peak demand. A natural gas boiler provides supplementary heating when required.

A wood chip storage silo and automated feed system ensure a consistent fuel supply for the boiler. A fuel acquisition storage site with an aeration system at the County yard is used to stockpile additional fuel for the Pyrot boiler, which requires 120 tonnes of wood chips annually. The wood chips come from a variety of sources, including County road allowances, County-owned land, local landowners, landfill and transfer sites and the Ohaton Willow plantation.

A total of 17,600 willows of various types were planted at the wastewater treatment site. As these trees mature, they are harvested, dried and processed as wood chip fuel. The initial harvest of the willows began in January 2013 and will dramatically reduce the biomass system's operating costs as they comprise an increasingly greater portion of the system's fuel supply.



A Viessmann Pyrot KRT-150 boiler utilizes locally-sourced wood biomass fuel to heat the 2,365-square-metre Camrose County Administration Office



Camrose County Reeve Don Gregorwich stands among willows that help treat wastewater while also providing a renewable fuel source for the biomass boiler

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The Results

By retrofitting the Administration Building's outdated, inefficient gas-fired boiler system (which operated at only 55% efficiency) Camrose County has reduced its annual CO₂ emissions by approximately 148 tonnes.

The project continues to provide valuable research data while also demonstrating a viable alternative to conventional methods for sewage waste effluent discharge. It has been profiled at a variety of conferences, in online publications and in television and radio stories. Members of the public and representatives from numerous municipalities and private organizations have visited the willow plantation and biomass boiler installation to learn more about the County's innovative solution to these two environmentally and financially challenging issues.

In 2011, Camrose County was awarded the Minister's Award for Municipal Excellence (Innovation Category) for its Sustainable Wood Energy Project.

Project Details

Project Year	2011
Equipment	Pyrot KRT-150
Rated Output	512 MBH / 150kW



A containerized system with Pyrot KRT-150 boiler, peripheral equipment and wood chip silo simplified the heating system retrofit



The fully-automated boiler system utilizes modern combustion technology, advanced safety systems and digital controls to deliver clean, reliable and efficient biomass heating