MSW SUCCESS STORY

Nanaimo Bioenergy Centre LFG Utilization Facility
British Columbia, Canada
Cedar Road Bioenergy Ltd., Regional District of Nanaimo, and BC Bioenergy Network

OVERVIEW OF MSW SUCCESS STORY:

Starting from an agreement in 2005 and commissioned in March 2009, the Nanaimo Bioenergy Centre landfill gas (LFG) utilization facility is the first to target small-medium sized municipalities in British Columbia, Canada.

Cedar Road Bioenergy Ltd., a member of the Sun Current group, owns and operates the gas utilization facility at the Nanaimo Landfill under a private public partnership agreement with the Regional District of Nanaimo (RDN). The Nanaimo landfill, a sanitary landfill operating since 1945, receives 74,420 cubic meters (m^3) or 55,996 tonnes of municipal solid waste per year, and has 6 horizontal wells, 32 vertical active wells, with additional wells coming on stream.

Cedar Road, the RDN, and a third funding and support partner, the BC Bioenergy Network have created a collaborative development and demonstration centre concept at the Nanaimo Bioenergy Centre, to disseminate information about the project, and to provide a platform for other suitable technology demonstrations.

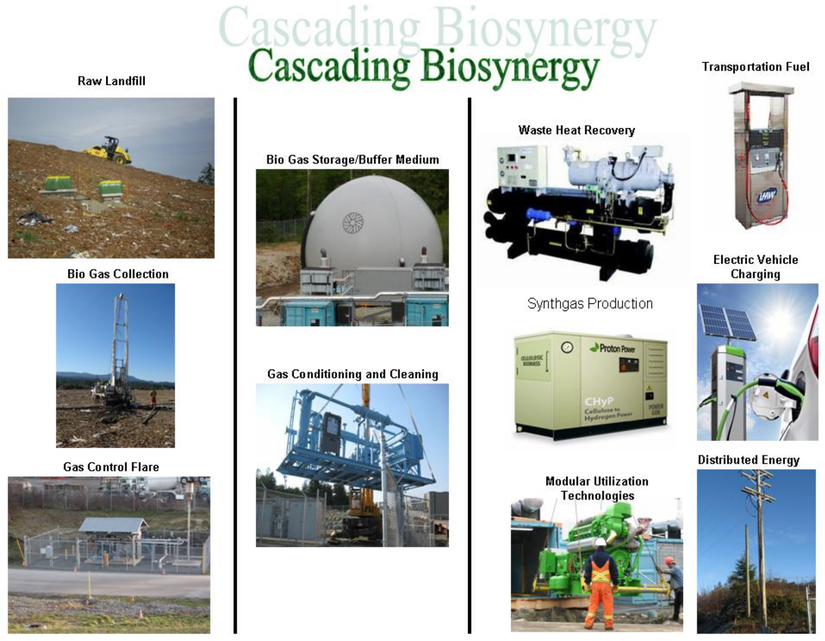
Cedar Road has built the $4.8 million world-class, small-scale LFG conversion facility over two phases. The site comprises gas conditioning and two 633 kW gensets, for a total generating capacity of 1.4 MW, gas and electrical storage. 500 m^3 of gas are currently being supplied by the RDN. The subsequent installation of a gas holding tank system proved a game changer for the facility, helping to significantly enhance profitability. Future phases will include transportation fuels and thermal heat recovery.

With the success of the Nanaimo project, the Nanaimo Bioenergy Centre is expected to be an effective solution for countries that are seeking economically viable methane reduction strategies. The Suncurrent Group is operating in Latin America.

CO_2e reductions in 2012: 28,113 tonnes; target of 30,000 tonnes CO_2e from 2013-2030

Double Membrane Biogas Storage System

- PVC coated polyester fabrics, UV-protected, fungicide treated, flame retardant
- Storage capacity: 1,180 m^3 raw biogas
- Cost installed: approximately CDN $150,000, including slab, sub-base, piping, valves, installation

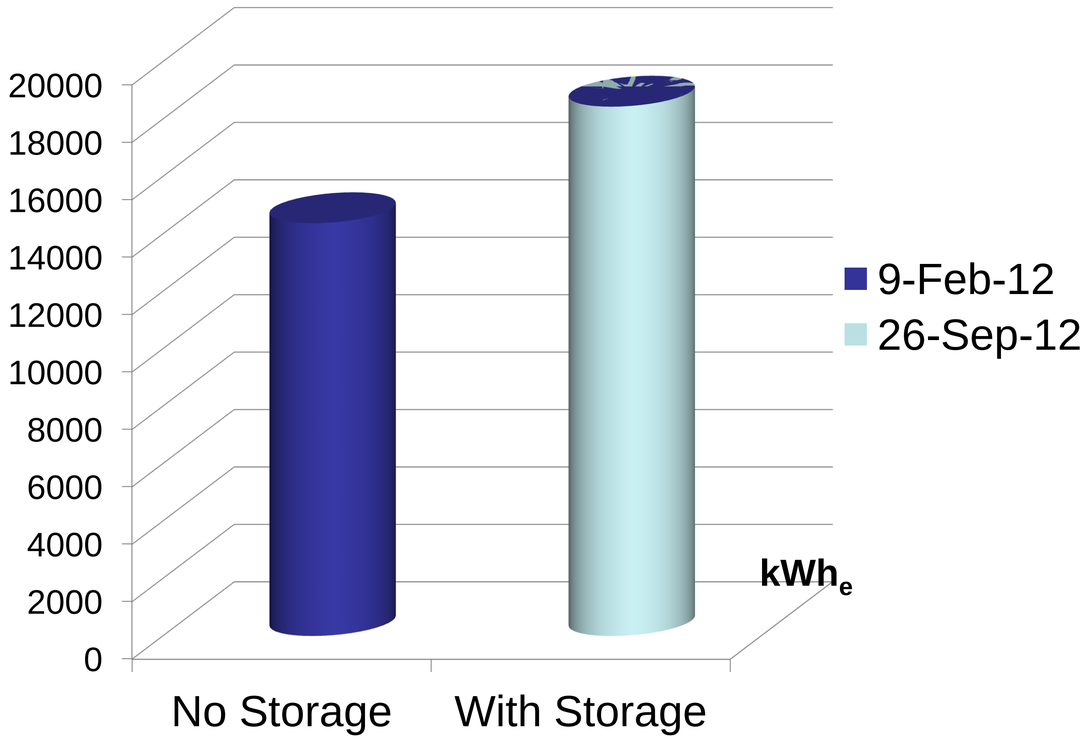


DISCLAIMER: The information and predictions contained within this poster are based on the data provided by the site owners and operators and site visits conducted by U.S. EPA. The Global Methane Initiative (GMI) cannot take responsibility for the accuracy of these data. It should be noted that conditions on landfills will vary with changes in waste input, management practices, engineering practices, and environmental conditions (particularly rainfall and temperature). GMI does not guarantee the quantity or quality of available landfill biogas from the landfill site, which may vary from the values predicted in this report.

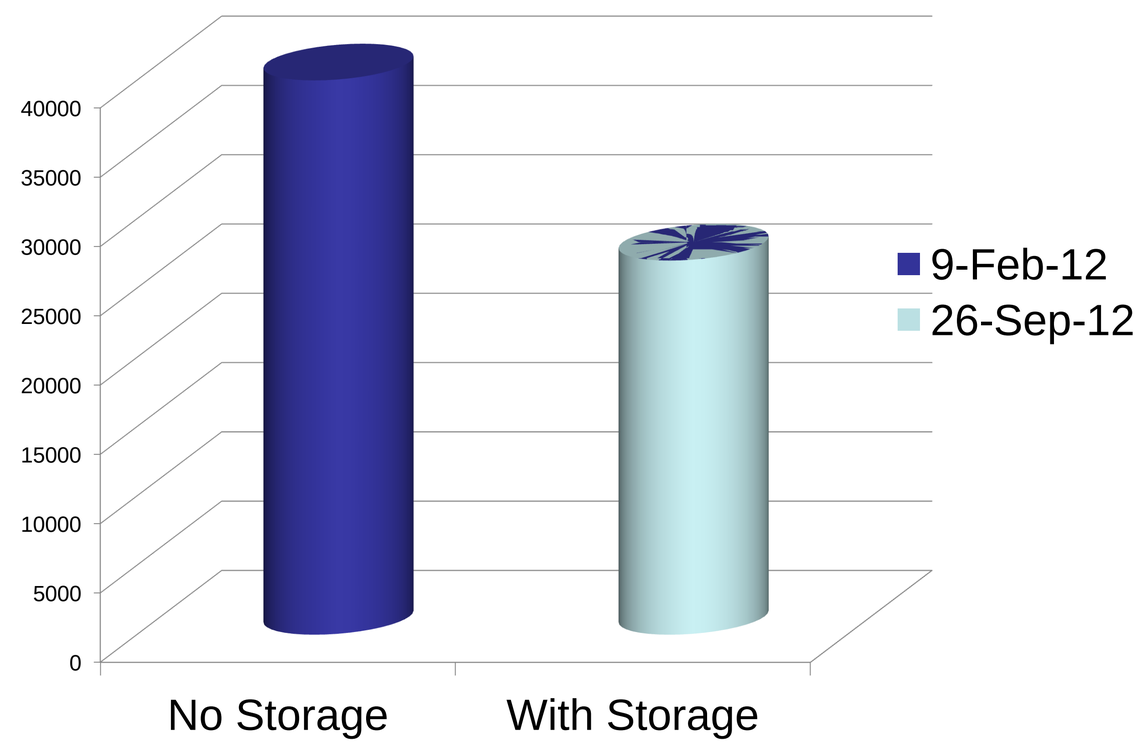
PROJECT ECONOMICS

Actual Installed Cost: Phase 1: CDN $4.8 M; Phase 2: $200,000
Cooperating Organizations Providing Funding: BCBN Innovative Clean Energy Fund, NRCan, EcoEnergy for Renewables, Community Futures, Suncurrent Group Inc.
Operation & Maintenance (per year): CDN $600,000 including debt interest payments

Daily Electron Output Increased:
Saleable electricity in kWh up by 28%



Daily O&M Cost decreased by 33%
Expected Cost savings $13,000 annual



MODELLED AND EXPECTED BENEFITS FROM THE DOUBLE MEMBRANE BIOGAS STORAGE SYSTEM

Cedar Road Bioenergy Inc. Estimated Gas Storage Benefits	Low Output	Low Medium Output	Medium Output	Medium High Output	High Output
Annual Revenue Before Improvements	$355,722	$444,652	$539,506	$634,360	$752,928
Gas Yields (54% to 58% Biomethane content or 7.4% more energy value)	35,096	43,870	52,644	61,418	72,385
Eliminate Landfill Gas Losses (20%)	94,854	118,568	142,281	165,995	195,636
Peak Pricing	23,694	29,618	29,618	29,618	29,618
Maintenance Cost Efficiency	13,000	13,000	13,000	13,000	13,000
Total Revenue + Improvements	509,366	636,708	764,049	891,391	1,050,568
Annual improvements	$166,644	$205,055	$237,543	$270,031	$310,640
Ratio Percentage Improvement	147%	146%	144%	143%	141%
Years of Benefit	20	20	20	20	20
Gross Cash Flow Benefit	$3,332,886	$4,101,108	$4,750,860	$5,400,610	$6,212,798

FOR MORE INFORMATION

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