

Location	Technology	Proponent	Date	Details	Sources and Links
Alberta					
MD of Bonnyville	Biomass combustion	Biomass Energy Techniques (BET)	2020	Contracted a feasibility study for the BET technology, which was completed by Morrison Hershfield. The study concluded that the technology is unproven for MSW and that conditions are not favourable economically or technically at this point. If MD Bonnyville still wishes to proceed they should determine the trigger points and work with neighbouring municipalities to solidify feedstock.	
Exshaw	Biomass combustion	Bow Valley Waste Commission	2018	Biomass burner Installed at Francis Cooke Regional Landfill three years ago. Used to heat the Administration and Maintenance buildings through concrete floor slabs, which also help to absorb heat in the summer months. Capital cost ~ \$100k, and a year of adjustments to get it tuned for the mountain environment. Feedstock (~100 tonnes/year) is waste wood delivered to the landfill which is ground into wood chips.	https://www.motoday.com/local-news/green-solutions-take-shape-at-francis-cooke-regional-landfill-1570976
Calgary Region	Biomass combustion	Eco-Growth Environmental	2017	The process turns waste into a dehydrated biomass, shrinking its volume by around 80 per cent. A boiler is fueled by the biomass, burning at around 8600 to 9000 British Thermal Units per pound — higher than the typical 7000 BTUs of wood.	Eco-Growth Environmental Inc.
Edmonton	Gasification	Enerkem	2014	Edmonton's Waste to Biofuels and Chemicals Facility is the world's first commercial-scale waste-to-biofuels facility of its kind and is designed to turn household garbage into biofuels and renewable chemicals. The facility is built, owned and operated by Enerkem Alberta Biofuels, a subsidiary of Enerkem. Using Enerkem's proprietary technology, it aims to convert 100,000 tonnes of municipal solid waste into 38 million litres of biofuel annually to help Alberta reduce its greenhouse gas (GHG) emissions. After initially producing just methanol, the facility has installed new process to produce ethanol in 2017. Not currently seeking outside feedstock.	Waste to Biofuels and Chemicals Facility :: City of Edmonton
Grand Prairie	Landfill gas	Aquatera	2021	Aquatera Utilities Inc. is the leading provider of water, wastewater, and solid waste services in the Grande Prairie region. Through their Landfill Gas-to-Energy Project, Aquatera captures naturally occurring methane gas and converts it into energy which provides heat and electricity for their Water and Wastewater Treatment Plants. Aquatera monetizes their Landfill Gas-to-Energy Project through the sale of excess power to the Alberta energy grid, and through the generation of carbon credits which are available for purchase to high carbon emitters to offset their emissions, making it a net positive operation. Within the next five years, Aquatera is considering investment in pyrolysis technology to treat municipal solid waste (MSW), specifically plastics.	Plant that would produce fuel out of garbage may come to Grande Prairie EverythingGP
High River/Aldersyde	Catalytic thermal depolymerization	Cielo	2019	Process - catalytic thermal depolymerization. From website: We have developed a proven and patented technology in conjunction with a related party, which will produce a high cetane, ultralow sulfur renewable diesel, kerosene and naphtha fuels. Feedstock for the facility is the world's most available and inexpensive feedstock of household, commercial and construction/demolition garbage, including feedstocks of Municipal Solid Waste ("MSW") and cellulosic materials such as wet organics (compost), all plastics, paper, tires, cardboard, sawdust and wood. Cielo has an exclusive global license from a related party for a game-changing refining process that can convert multiple different waste streams into renewable diesel at a considerably lower cost than biodiesel companies.	Corbella: Alberta company turns trash into diesel with new technology Calgary Herald
Peace Region Waste Management Company	Biomass combustion	BET (Biomass Energy Techniques)	2021	The Waste Commission is running a pilot project for BET. The technology has been successful with wood waste but the Peace Region is testing with MSW – including cardboard and plastics. Pilot uses 8 Tonnes/day. The gasification system heats one boiler that heats 3 large shops and they have plans to produce energy/electricity. Just under \$2 million invested so far for equipment (BET machine, buildings, waste shredder, and conveyor system). Also looking at a magnet for the front end of the feedstock feeder. Several mechanical and technical issues encountered during first year. Machine required constant monitoring and the feedstock mix. Seems to work best when MSW is combined with shredded cardboard and plastics. Batch testing only at this point; machine turned off/on every day. Manager is very hands-on and mechanical.	https://biomassenergytechniques.com/ Pilot project to turn garbage into energy – Smoky River Peace River Express (smokyriverexpress.com)
SAEWA (Southern Alberta Energy from Waste Association)	Mass burn incineration	TBD	pending	Non-profit coalition of 60 municipal entities and waste management jurisdictions in southern Alberta (created in 2009) committed to the research and implementation of energy recovery from non-recyclable waste material that will reduce the long term reliance on landfills. SAEWA continues to move forward with its project to produce energy from waste for commercial sale. Newell Regional Landfill (Brooks Region) has been identified as the preferred site for the SAEWA WTE facility. A Request for Expression is underway to officially solicit interest from technology vendor partners.	
Swan Hills	Incineration		1987	First built by the provincial Government of Alberta in 1987, the plant underwent an \$85 million expansion in 1992 to become a fully-integrated facility able to treat all forms of hazardous waste as well as their residues. The Facility has the capacity to destroy a total of 45,000 tonnes per year, through one of the two processes: incineration and physical/chemical. Government has implemented a reduced operating model, anticipating the plant closing after 2025, which is when all PCBs will have to be destroyed, which is the primary function of the plant.	Alberta decision to scale back Swan Hills waste treatment plant leads to layoffs Globalnews.ca
Sylvan Lake	Pyrolysis	Fogdog Energy and/or Northcore Energy	pending	Converting garbage into electricity by patented pyrolysis technology developed at U of C using "The Converter" that turns waste into "fluff". "All" waste streams accepted and no financing required - if Fogdog Energy meets performance measures, the Town pays an annual performance fee over ten years. The Town of Sylvan Lake has formalized plans to collaborate with Fogdog Energy Solutions Inc. in order to bring a No Landfill Disposal Facility to the community. Waiting for Alberta Environment and Parks approval.	http://fogdogenergy.com/ Sylvan Lake Project (fogdogenergy.com)
Wainwright	Incineration		Closed 2015	Built as a demonstration facility and began operations in about 1995. Had a capacity of about 9,000 tonnes of waste per year and provided steam to a canola processing plant located nearby. The plant's primary purpose was to burn biomedical waste (of which it handled 90%), although it did also burn municipal waste. This provided the revenues needed (high tipping fees) to offset the high cost of burning municipal waste when compared to local landfilling costs. The facility was closed in 2015 due to emission concerns, and is now being decommissioned due to the costs associated with retrofitting it to current standards.	

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Outside Alberta					
Burnaby, BC	Mass burn incineration	Metro Vancouver	1988	Mass burn technology. Metro Vancouver's Waste-to-Energy Facility has operated in Burnaby since 1988 and handles about 260,000 tonnes of garbage per year – roughly a quarter of the region's garbage. Metro Vancouver annually earns about \$8 million from the sale of electricity and \$300,000 from the sale of recyclable metal. Throughout its over 30 years in service, the facility has performed considerably better than the required regulatory emissions standards.	About Metro Vancouver's Waste-to-Energy Facility
Chester, NS	Pyrolysis	Sustane Technologies	2020	\$16 million 40,000-square-foot pilot plant using pyrolysis to produce biomass pellets, synthetic diesel and recyclable material. At full capacity, the new facility will process 150 tonnes of household and commercial waste. Biomass pellets to be sold to industries such as paper mills and power plants as an energy source.	Garbage gold: Sustane converts curbside waste into high-value biomass products - Canadian Biomass Magazine
Region of Peel, ON	Mass burn incineration	Emerald Energy-from-Waste - privately owned and operated facility	1992	Operating since 1992 accepting waste from the Region of Peel, other municipalities as well as U-Pak Disposal Ltd., a related company. Five two-unit gasifiers/combustion modules work in parallel to process 500 tonnes per day of solid waste. Generates ~10 MW of electricity, of which the facility itself consumes about 2 MW and the remainder is sold to the local power utility. Noted that electricity generated from WtE is not considered renewable under Ontario rules.	https://www.thestar.com/news/qa/2016/01/05/peel-region-says-no-to-incineration.html
		Regional facility proposed	2016	Peel Region cancelled plans to build a new energy-from-waste plant in October, after councillors questioned the need for a pricey project in light of the region's new aggressive diversion targets. Peel recently increased its target for reducing, reusing, recycling and composting waste from 60 per cent to 75 per cent, said Brampton regional Councillor Michael Palleschi.	
PEI	Incineration District heating	Enwave Energy Corporation	1985	Canada's longest-running, privately operated, biomass-fired district heating system, operating since the 1980s, serving over 100 customers in the downtown core of Charlottetown. 25,000 tonnes per year MSW and wood generate steam and hot water for district heating.	https://wmc.pe.ca/wp-content/uploads/2019/12/PEI-Energy-Systems9-25-07.pdf
Quebec City (Ville de Quebec)	Mass burn incineration		1974	Located in the Limoilou district, the Incinerator of The City of Quebec, has been in operation since 1974. Its maximum waste treatment capacity is 312,000 tonnes annually. The incinerator receives household waste from the residential, institutional, commercial and industrial sectors throughout Quebec City and the neighbouring regional county municipalities (RCMs). Sludge from the two wastewater treatment plants is also dehydrated, dried and incinerated.	Incinerateur (quebec.qc.ca)
Varenes, QC	Gasification	Energem	2021	Varenes Carbon Recycling is a waste to biofuels plant expected to ramp up to a production level of 100,000 tons of methanol per year which can then be converted to other low-carbon biofuels such as ethanol and gasoline. The Government of Quebec is allocating more than \$160 million to the Varenes Carbon Recycling project, while the Government of Canada is contributing \$74 million, in addition to project financial support from Shell Canada Products, Suncor Energy and Proman, as well as Energem, the Quebec company behind the technology that will be used in Varenes.	https://www.newswire.ca/news-releases/the-governments-of-canada-and-quebec-invest-in-renewable-energy-and-organic-residual-waste-management-in-varenes-843325735.html
York Durham, ON	Mass burn incineration	Durham York Energy Centre	2016	Newest WtE plant in Canada - started operations 2016; Mass burn technology; Capacity 140,000 tonnes per year, upgrading to 160,000; Ultimate capacity 400,000 tonnes per year	https://www.durhamyorkwaste.ca/en/index.aspx
Other Historic/Pending WtE Projects					
Alberta		Bow Bioenergy			https://www.bowbioenergy.com/
Alberta	TBD	Grizzly Resources Ltd.	2021	Grizzly Resources Ltd. (Grizzly) is looking for a strategic partnership to develop a waste to energy plant in Alberta.	https://grizzlyresources.com/
Alberta	Refuse derived fuel	RDF Recycling Systems Group		RDF (refuse derived fuel) and biomass projects	https://recyclingsystemsgroup.com/
Alberta	Refuse derived fuel	WastAway		Attempted to develop projects with a number of Alberta municipalities	www.wastaway.ca
Aldersyde, AB	Anaerobic Digestion	Highwood Organics Processing		Organics handling and processing in the Foothills and Calgary area. Located in Aldersyde. Anticipate opening in Spring 2021 for select clients. Phase 1 of the development will bring material into a Class 1 compost facility during the construction of a large-scale Anaerobic Digester.	https://highwoodop.ca/
Beiseker, AB	Incineration		2020	Proposed biomedical waste incinerator was rejected.	Southern Alberta village council rejects proposed biowaste incinerator CBC News
County of Red Deer, AB	Plasma arc gasification	Plasco	2012	The nine municipalities on the Central Waste Management Commission decided it could not guarantee enough garbage to feed the proposed 200-tonne-a-day plant that was to use plasma technology to convert garbage into a syngas that could be used to generate electricity.	Plasco deal scrapped – Red Deer Advocate
Strathmore, AB	Biofuel	Carbon Clean Energy (CCE)		\$285 million wheat-based biofuels facility to be constructed near Strathmore, Alberta. The facility is designed to produce 160 million litres of denatured ethanol for fuel blending, 1.76 mmBtu of biogas and 12 MWh of green power generation annually.	Project Wheatland - Emissions Reduction Alberta (eralberta.ca)