



FUTURE REGIONAL RESOURCE DEVELOPMENT

In this section:

- 1. AGRICULTURE.....1
- 2. FORESTRY5
- 3. MINING and METAL PROCESSING or HANDLING7
- 4. ENERGY14
- 5. MANUFACTURING20

1. AGRICULTURE

The State of Agriculture in Manitoba, a report provided by the Manitoba government¹, provides a comprehensive overview of the agricultural industry, both currently and historically. Key highlights from this report include:

- The agricultural industry in Manitoba is well established, although a relatively small part of the economy. On average, agricultural production contributes about 4.5 percent to the total provincial gross domestic product (GDP), food processing contributes an additional 2 to 4 percent.
- The amount of farmland in Manitoba in 2011 was slightly lower than in 2006 (18 million acres compared to 19.1 million acres), but in general, the amount of farmland has remained relatively stable over the past 30 years (Figure 1.1)¹.
- The top five activities producing the most in terms of farm cash receipts are canola, hogs, wheat, cattle and dairy (Figure 1.2)¹.
- Canola production has grown steadily and accounts for the largest amount of seeded area. It is predicted that production levels will continue to rise as farmers continue to adopt new high-yielding hybrid varieties.

With respect to the release of known and suspected carcinogens from farm activities, the most likely changes in the future could be related to weed control. There may be an increased use of glyphosate if there is an increase in production of GM canola crops. There may also be changes in the kinds of herbicides used to prevent the spread of weeds which have become resistant to glyphosate and 2,4-D, some of which may have ecosystem impacts.

The main emissions of known and suspected carcinogens from the industrial and commercial processing and manufacturing of agricultural goods in 2011-2013 were small amounts of formaldehyde, cobalt, ethylbenzene and methyl isobutyl ketone, and approximately 232 tonnes of fine particulates (PM_{2.5}) (Table 1.1).

In terms of future activities that may release known or suspected carcinogens, only one proposed project undergoing a provincial environmental impact assessment is notable – a hemp fibre processing plant.² No information is available online, so it is not yet possible to determine if future emissions will be of concern.

¹ Government of Manitoba (2011). State of Agriculture in Manitoba. available at: http://www.manitoba.ca/agriculture/market-prices-and-statistics/yearbook-and-state-of-agriculture/pubs/state_of_ag_pubn.pdf

² <http://gov.mb.ca/conservation/eal/registries/index.html>

Figure 1.1 Agricultural land use in Manitoba

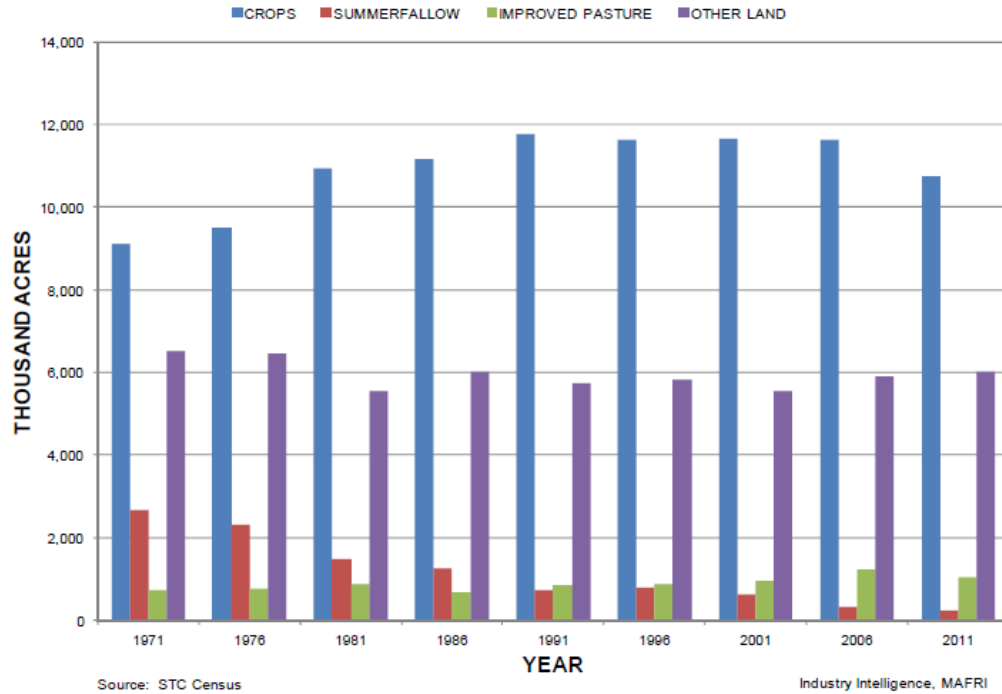
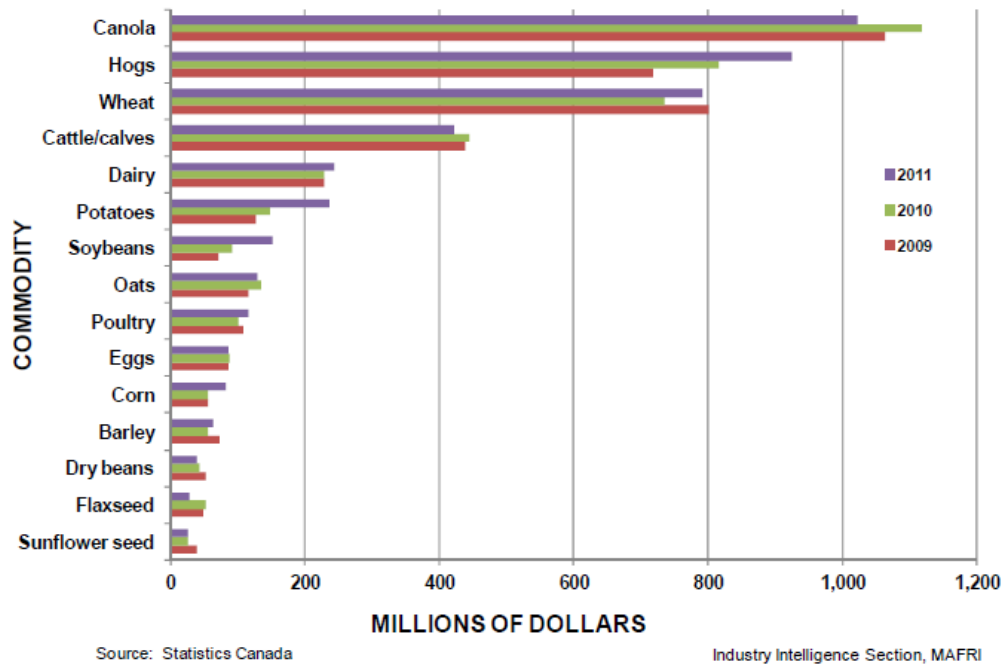


Figure 1.2. Farm cash receipts by commodity – 2009 to 2011



AGRICULTURE

Table 1.1. Known and suspected carcinogens emissions reported by the agriculture sector (not including farming and livestock operations)³

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
COBALT AND ITS COMPOUNDS – POSSIBLE CARCINOGEN						
	327			VITERRA INC.	CARMAN FEED MILL VITERRA	Carman
	1			HI-PRO FEEDS	HI-PRO FEEDS STE. ANNE	Ste. Anne
ETHYLBENZENE – POSSIBLE CARCINOGEN						
	75			UNIVAR CANADA LTD.	WINNIPEG	Winnipeg
FORMALDEHYDE – KNOWN CARCINOGEN						
	790			KOCH FERTILIZER CANADA, ULC	KOCH FERTILIZER CANADA, ULC	Brandon
	21			BUNGE CANADA HOLDINGS	BUNGE CANADA - ALTONA PLANT	Altona
METHYL ISOBUTYL KETONE – POSSIBLE CARCINOGEN						
	4			UNIVAR CANADA LTD.	WINNIPEG	Winnipeg
FINE PARTICULATES (PM_{2.5}) – KNOWN CARCINOGEN						
	38,322			BUNGE CANADA HOLDINGS	HARROWBY PLANT	Harrowby
	33,703			BUNGE CANADA HOLDINGS	ALTONA PLANT	Altona
	21,140			VITERRA INC.	AGASSIZ HIGH THROUGHPUT ELEV.	Winkler
	17,232			RICHARDSON PIONEER LTD.	SOUTH LAKES	Stonewall
	13,332			PARMALAT CANADA INC.	ST. CLAUDE	St. Claude
	12,101			ADM Agri-Industries	ADM Milling Co. - Winnipeg	Winnipeg
	9,669			KOCH FERTILIZER CANADA, ULC	KOCH FERTILIZER CANADA, ULC	Brandon
	8,030			MCCAIN FOODS CANADA LTD.	CARBERRY FACTORY	Carberry
	7,330			LANDMARK FEEDS	OTTERBURNE	Otterburne
	7,044			HI-PRO FEEDS	HI-PRO FEEDS STE. ANNE	Ste. Anne
	5,453			MCCAIN FOODS CANADA LTD.	PORTAGE LA PRAIRIE	Portage La Prairie
	5,250			LANDMARK FEEDS	ROSENORT	Rosenort
	4,898			RICHARDSON MILLING LTD.	PORTAGE LA PRAIRIE	Portage La Prairie
	3,974			SIMPLOT CANADA (II) LTD.	PORTAGE LA PRAIRIE	Portage La Prairie
	3,211			VITERRA INC.	CANOLA CRUSH PLANT	Ste. Agathe
	2,987			MAPLE LEAF CONS. FOODS INC.	CONSUMER FOODS - WINNIPEG	Winnipeg

³ Environment Canada National Pollutant Release Inventory (NPRI) <https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1>

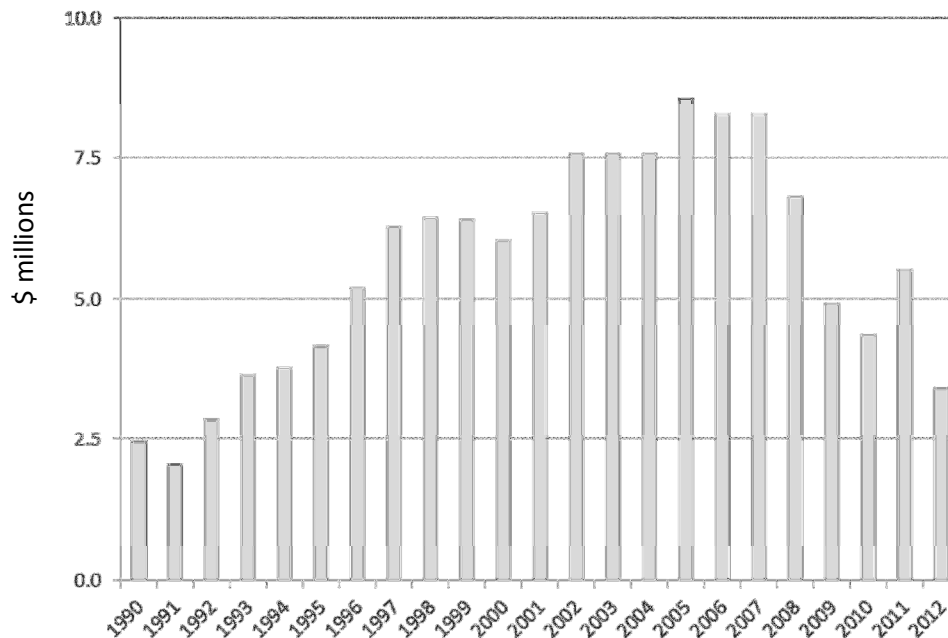
AGRICULTURE

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
FINE PARTICULATES (PM_{2.5}) – KNOWN CARCINOGEN continued						
	2,816			LOUIS DREYFUS COMMODITIES	LOUIS DREYFUS COMMODITIES	Rathwell
	2792.5			HI-PRO FEEDS	HI-PRO FEEDS CARMAN	Carman
	2,689			CARGILL LIMITED	CARGILL AGHORIZONS	Morris
	2,405			CARGILL LIMITED	CARGILL AGHORIZONS, ELVA	Melita
	2,302			CARGILL LIMITED	CARGILL AGHORIZONS	Elm Creek
	2,178			RICHARDSON PIONEER LTD.	SHOAL LAKE	Shoal Lake
	2,074			MAPLE LEAF AGRI-FARMS INC.	SOURIS FEEDMILL	Souris
	2,047			RICHARDSON PIONEER LTD.	MOLLARD	Brunkild
	2,035			MAPLE LEAF AGRI-FARMS INC.	FEED PLANT, LANDMARK	Landmark
	1,707			LOUIS DREYFUS COMMODITIES	VIRDEN	Virden
	1,690			RICHARDSON PIONEER LTD.	BRANDON	Brandon
	1,685			MAPLE LEAF CONSUMER FOODS	BRANDON	Brandon
	1,633			CARGILL LIMITED	CARGILL AGHORIZONS, OAKNER	Hamiota
	1,525			VITERRA INC.	SOURIS EAST (AU) VITERRA	Souris
	1,472			CARGILL LIMITED	CARGILL AGHORIZONS	Swan River
	1,188			CARGILL LIMITED	CARGILL AGHORIZONS	Nesbitt
	1,159			CARGILL LIMITED	CARGILL AGHORIZONS	Dauphin
	1,083			RICHARDSON PIONEER LTD.	TLA KILLARNEY EAST	Killarney
	1,074			RICHARDSON PIONEER LTD.	SWAN RIVER VALLEY	Swan River
	683			RICHARDSON PIONEER LTD.	DAUPHIN	Dauphin
	652			FEDERATED CO-OPERATIVES LTD.	BRANDON FEED PLANT	Brandon
	538			VITERRA INC.	BRANDON VITERRA	Brandon
	392			RICHARDSON PIONEER LTD.	MINNEDOSA	Minnedosa
	333			VITERRA INC.	BOISSEVAIN VITERRA	Brandon
	320			MAPLE LEAF AGRI-FARMS INC.	PURATONE ARBORG FEEDMILL	Arborg
	236			VITERRA INC.	BINSCARTH HTP VITERRA	Binscarth
	151			VITERRA INC.	HART FEEDS FEED MILL	Ste. Anne
	85			VITERRA INC.	CARMAN FEED MILL VITERRA	Carman

2. FORESTRY

The forestry industry in Manitoba is small compared to other provinces, and currently only two companies are operating in the province. Forestry revenues from sales of timber from provincial crown lands have been declining over the last decade (Figure 2.1).⁴ Decreasing timber sales may be related to the closure of the Tembec Pine Falls mill in 2009.

Figure 2.1 Annual forestry revenue – timber sales from provincial crown land, 1990 to 2012



With respect to silviculture activities, future changes in herbicide use could occur if glyphosate resistant weeds become established in regenerating areas. Given the declining trend in harvested volume, and the relatively infrequent use of glyphosate on clearcuts (typically only once or twice per clearcut), it is unlikely that this will be an issue in the near future.

The main emissions of known and suspected carcinogens from the processing and manufacturing of wood products in 2011-2013 were acetaldehyde, lead and PM_{2.5} from Tolko's kraft paper plant in The Pas, and formaldehyde and PM_{2.5} from Louisiana Pacific's Swan Valley OSB plant in Minitonas (Table 2.1). The Swan Valley OSB plant is currently undergoing conversion to allow for the production of engineered wood siding.⁵ This will increase the number of people employed at the mill from 160 to 200, and may change the amount and type of emissions.

There are no proposed forestry-related projects currently undergoing the provincial Environmental Impact Assessment process that could result in the release of known or suspected carcinogens.

⁴ http://nfdp.ccfm.org/data/detailed/html/detailed_8110_MB.html

⁵ <http://www.winnipegssun.com/2015/05/06/lp-corp-to-spend-95-million-on-manitoba-facility>

FORESTRY

Table 2.1. Known and suspected carcinogens emissions reported by the forestry sector (not including logging and silviculture activities)⁶

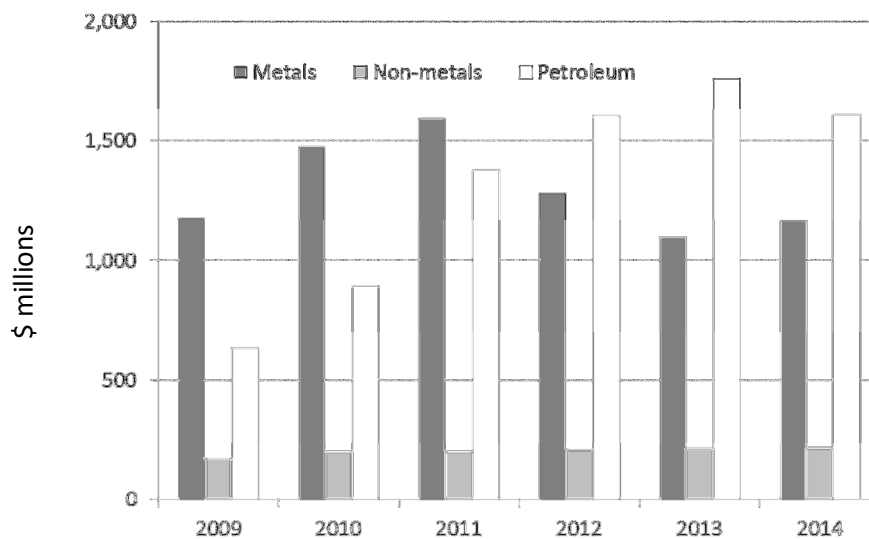
Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
ACETALDEHYDE – POSSIBLE CARCINOGEN						
	43,626	904		TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas
ARSENIC AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	21	199		TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas
CADMIUM AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	63	11		TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas
	<1			LOUISIANA-PACIFIC CANADA LTD.	LP SWAN VALLEY OSB	Minitonas
FORMALDEHYDE – KNOWN CARCINOGEN						
	70,545			LOUISIANA-PACIFIC CANADA LTD.	LP SWAN VALLEY OSB	Minitonas
HEXACHLOROBENZENE – POSSIBLE CARCINOGEN						
	0.002			TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas
HEXAVALENT CHROMIUM AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	3	14	0.001	TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas
LEAD AND ITS COMPOUNDS – PROBABLE CARCINOGEN						
	1,232	56	0.001	TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas
FINE PARTICULATE (PM_{2.5}) – KNOWN CARCINOGEN						
	1,990,454			TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas
	21,160			LOUISIANA-PACIFIC CANADA LTD.	LP SWAN VALLEY OSB	Minitonas
	12,000			C.P. LOEWEN ENTERPRISES LTD.	LOEWEN	Steinbach
	819			DEFEHR FURNITURE LTD.	PARTICLE BOARD PLANT/PANEL SUPPLY PLANT	Winnipeg
DIOXINS/FURANS (Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans) – NOT CLASSIFIABLE AS A GROUP TCDD – KNOWN CARCINOGEN						
	0.000007			TOLKO INDUSTRIES LTD.	MANITOBA KRAFT PAPERS DIVISION	The Pas

⁶ Environment Canada National Pollutant Release Inventory (NPRI) <https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1>

3. MINING and METAL PROCESSING or HANDLING

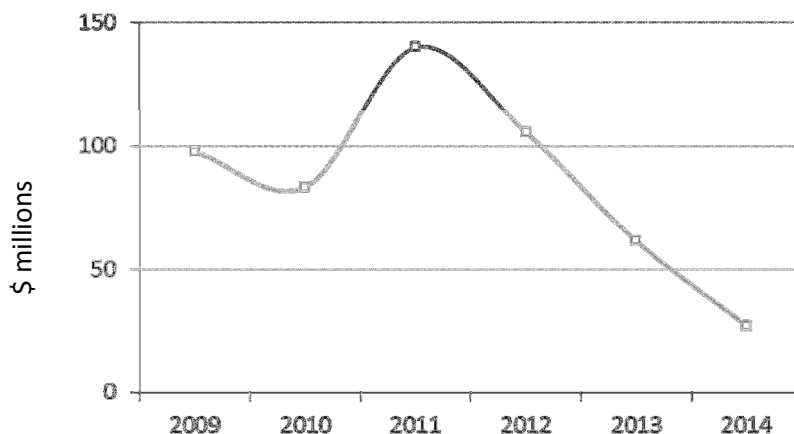
The value of mineral production in Manitoba was approximately \$3 billion in 2014, similar to the previous three years.⁷ This is due in large part to increases in petroleum production, since the value of metal production has declined since 2011 (Figure 3.1). This decline is also seen in the expenditures for mineral exploration (Figure 3.2), suggesting a focus on producing petroleum in favour of finding new mineral deposits to exploit for the time being, although this sector has experienced significant highs and lows over time, as the operations generally depend greatly on the prices of various minerals.

Figure 3.1 Value of production⁸



⁷ <http://www.gov.mb.ca/iem/busdev/sector/statistics.html>

⁸ <http://www.gov.mb.ca/iem/busdev/sector/statistics.html>

Figure 3.2 Mineral exploration expenditures (including petroleum)⁹

The most significant current emitter of known and suspected carcinogens in the mining sector in Manitoba is the Vale smelter in Thompson, with emissions of arsenic, cadmium, cobalt, lead, nickel and PM_{2.5} reported at much higher levels than any other operation in this sector (Table 3.1). Notably, 27 tonnes of nickel were reported as being released from the Vale smelter to water in 2011-2013. It was reported in 2010 that the Vale smelter would be phased out due to an inability to meet new standards for sulphur dioxide emissions coming into effect in 2015.¹⁰ Currently, the smelter has an exemption to continue operating until they transition to mining and milling only between 2016 and 2019.¹⁰ This should change emissions substantially for some substances.

Since the 2010 closure of the main operations at the Hudson Bay Mining and Smelting Co. (HudBay) smelter in Flin Flon, emissions in the local area have decreased dramatically. Small amounts of arsenic and lead, and a moderate amount of cadmium were reported as being emitted from the smelter in 2011-2013, and will likely continue as ore from the HudBay Reed copper mine, opened in 2014, is being processed in Flin Flon. Future emission levels may increase if production is increased at Reed mine.

Other significant emitters include: Graymont Western Canada (Faulkner), which emitted 184 tonnes of PM_{2.5} in 2011-2013, and Gerdau Ameristeel Corp. (Selkirk), Ancast Industries Ltd. (Winnipeg), Lafarge North America (Stonewall), and Monarch Industries Ltd. (Winkler), each of which emitted more than 10 tonnes of PM_{2.5} in 2011-2013 (Table 3.1).

There are seven proposed projects currently undergoing environmental impact assessments (EIA) in the mining and metals processing or handling sector that could result in releases of known or suspected carcinogens (Table 3.2).

- Five are related to receiving metals or scrapping metals and storage of hazardous wastes. Brunswick Steel is an existing operation receiving steel from a producing mill, shipping steel to

⁹ <http://www.gov.mb.ca/iem/busdev/sector/statistics.html>

¹⁰ <http://www.thompsoncitizen.net/news/thompson/vale-could-keep-smelter-and-refinery-open-until-2019-1.1372345>

end user as is, or sometimes cutting/bending steel on site prior to shipping to consumer. Xpotential Products Inc. has two applications in process, related to the operation of an automotive scrap yard and a hazardous waste transfer facility. The Urbanmine application is also for automotive scrapping and handling other scrap metals, and will store some related hazardous wastes on site before transferring to other facilities. Geraud Ameristeel is applying to license an existing battery storage and scrap metal transfer facility. With respect to the release of known or suspected carcinogens from these sites, there is potential for accidental site contamination from the storage of metals, oil, fuel, antifreeze, batteries, PCB capacitors, mercury switches and ozone depleting substance, and the possibility of contaminated runoff in case of spills.

- Two are related to mining. Hudbay is expected to invest roughly \$700M in their Lalor Lake mine site in order to expand that operation. The current application is for upgrades to the existing Snow Lake concentrator to handle additional ore. Emissions from this operation are unlikely to change substantially; however, processed ore is to be trucked to Flin Flon for smelting.¹¹ This will increase emissions from the Flin Flon smelter in the future. The second application is from Victory Nickel, looking to amend the location of the tailings and waste rock site for their recently licensed Minago open pit nickel mine. The tailings and waste rock site could become a contaminated site in the future due to unexpected runoff or leaching. It is not stated where the processed ore will be shipped for smelting.

¹¹ http://gov.mb.ca/conservation/eal/registries/5652lal/revised/1_rpt_2013_05_09_lalorconcentrator_final.pdf

MINING and METAL PROCESSING or HANDLING

Table 3.1 Known and suspected carcinogens emissions reported by the mining and metal processing or handling activities¹²

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
ARSENIC AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	3,885	1,026		VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson
	109	479		HUDSON BAY MINING AND SMELTING CO.	HBMS METALLURGICAL COMPLEX	Flin Flon
	0.02	0.2		CANICKEL MINING LIMITED	BUCKO LAKE MINE	Wabowden
	0.003			SANGOLD CORPORATION	MILL & MINE SITE	Bissett
		26		HUDSON BAY MINING AND SMELTING CO.	HBMS SNOW LAKE MILL	Snow Lake
		279		SNOW LAKE MINE	NEW BRITANNIA MINE	Snow Lake
CADMIUM AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	2,230	55		HUDSON BAY MINING AND SMELTING CO.	HBMS METALLURGICAL COMPLEX	Flin Flon
	962	17		VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson
	4			GRAYMONT WESTERN CANADA INC.	FAULKNER PLANT	Faulkner
	0.001			CANICKEL MINING LIMITED	BUCKO LAKE MINE	Wabowden
	0.0005			SANGOLD CORPORATION	MILL & MINE SITE	Bissett
		1		HUDSON BAY MINING AND SMELTING CO.	HBMS SNOW LAKE MILL	Snow Lake
COBALT AND ITS COMPOUNDS – POSSIBLE CARCINOGEN						
	1,794	310		VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson
	0.1			SANGOLD CORPORATION	MILL & MINE SITE	Bissett
HEXACHLORBENZENE – POSSIBLE CARCINOGEN						
	1			GERDAU AMERISTEEL CORPORATION	MANITOBA MILL	Selkirk
HEXAVALENT CHROMIUM AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	4			KEYSTONE AUTOMOTIVE INDUSTRIES ON INC.	NORTHSTAR/FAIRMONT PLATING - WINNIPEG	Winnipeg

¹² Environment Canada National Pollutant Release Inventory (NPRI) <https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1>

MINING and METAL PROCESSING or HANDLING

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
LEAD AND ITS COMPOUNDS – PROBABLE CARCINOGEN						
	4,753	49		VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson
	539	2		GERDAU AMERISTEEL CORPORATION	MANITOBA MILL	Selkirk
	250	235		HUDSON BAY MINING AND SMELTING CO.	HBMS METALLURGICAL COMPLEX	Flin Flon
	22			GRAYMONT WESTERN CANADA INC.	FAULKNER PLANT	Faulkner
	0.8			GERDAU AMERISTEEL CORPORATION	METALLICS RAW MATERIAL	RM of St. Andrews
		0.1		KEYSTONE AUTOMOTIVE INDUSTRIES ON INC.	NORTHSTAR/FAIRMONT PLATING – WINNIPEG	Winnipeg
	0.07	0.2		CANICKEL MINING LIMITED	BUCKO LAKE MINE	Wabowden
		0.2		SANGOLD CORPORATION	MILL & MINE SITE	Bissett
		3		HUDSON BAY MINING AND SMELTING CO.	HBMS TROUT LAKE MINE	Flin Flon
		67		HUDSON BAY MINING AND SMELTING CO.	HBMS SNOW LAKE MILL	Snow Lake
		0.07		SNOW LAKE MINE	NEW BRITANNIA MINE	Snow Lake
		25		HUDSON BAY MINING AND SMELTING CO.	HBMS CHISEL LAKE MINE	Snow Lake
MERCURY AND ITS COMPOUNDS – POSSIBLE CARCINOGEN WHEN CONVERTED TO METHYLMERCURY						
	59	0.03		GERDAU AMERISTEEL CORPORATION	MANITOBA MILL	Selkirk
	2			GRAYMONT WESTERN CANADA INC.	FAULKNER PLANT	Faulkner
	0.01	0.2		VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson
		0.1		HUDSON BAY MINING AND SMELTING CO.	HBMS METALLURGICAL COMPLEX	Flin Flon
		0.001		HUDSON BAY MINING AND SMELTING CO.	HBMS TROUT LAKE MINE	Flin Flon
		0.04		HUDSON BAY MINING AND SMELTING CO.	HBMS SNOW LAKE MILL	Snow Lake
		0.003		HUDSON BAY MINING AND SMELTING CO.	HBMS CHISEL LAKE MINE	Snow Lake
NAPHTHALENE – POSSIBLE CARCINOGEN						
	900			MONARCH INDUSTRIES LIMITED	WINKLER FACILITY	Winkler

MINING and METAL PROCESSING or HANDLING

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
NICKEL AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	53,991	27,000		VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson
	16			ROYAL CANADIAN MINT	WINNIPEG MINT	Winnipeg
	0.2			SANGOLD CORPORATION	MILL & MINE SITE	Bissett
	0.2			RUSSEL METALS INC.	WINNIPEG NORTH	Winnipeg
FINE PARTICULATE (PM_{2.5}) – KNOWN CARCINOGEN						
	796,280			VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson
	184,475			GRAYMONT WESTERN CANADA INC.	FAULKNER PLANT	Faulkner
	32,918			GERDAU AMERISTEEL CORPORATION	MANITOBA MILL	Selkirk
	22,555			ANCAST INDUSTRIES LTD.	ANCAST INDUSTRIES LTD.	Winnipeg
	14,327			LAFARGE NORTH AMERICA	STONEWALL QUARRY	Stonewall
	11,660			MONARCH INDUSTRIES LIMITED	WINKLER FACILITY	Winkler
	3,735			LEHIGH HANSON MATERIALS LTD.	GLACIER QUARRY	RM of Rockwood
	2,871			ROYAL CANADIAN MINT	WINNIPEG MINT	Winnipeg
	1,811			GERDAU AMERISTEEL CORPORATION	METALLICS RAW MATERIAL	RM of St. Andrews
	1,760			CANICKEL MINING LIMITED	BUCKO LAKE MINE	Wabowden
	1,736			TANTALUM MINING OF CANADA	BERNIC LAKE MINESITE	Lac du Bonnet
	1,719			RUSSEL METALS INC.	WINNIPEG NORTH	Winnipeg
	1,536			SANGOLD CORPORATION	MILL & MINE SITE	Bissett
	1,440			SNOW LAKE MINE	NEW BRITANNIA MINE	Snow Lake
	1,039			LEHIGH HANSON MATERIALS LTD.	PINE RIDGE	Rm of Springfield
DIOXINS/FURANS (Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans) – NOT CLASSIFIABLE AS A GROUP TCDD – KNOWN CARCINOGEN						
	0.001			GERDAU AMERISTEEL CORPORATION	MANITOBA MILL	Selkirk
	0.000004			VALE CANADA LIMITED	THOMPSON OPERATIONS	Thompson

Table 3.2. Provincial environmental impact assessments related to mining and metal processing or handling – in process or open for comment¹³

File	Proponent/Licensee	Project Name	Date Last Modified	Region
649.1	Brunswick Enterprise Ltd.	Steel Manufacturing Facility	2015-06-18	Central
5702	Future Scrap Div. of Xpotential Products Inc.	Auto Wrecking	2014-08-07	Eastern
5708	Future Scrap Div. of Xpotential Products Inc.	Hazardous Waste Transfer Facility	2014-08-07	Eastern
5652	Hudson Bay Mining and Smelting Co. Limited	Lalor Concentrator	2014-03-13	Northern
5463.1	Victory Nickel Inc.	Minago Project - Tailings and Waste Rock Management Facility Relocation	2014-08-19	Northern
5665	Gerdau Ameristeel Corporation	Metallics Raw Materials Transfer Facility	2013-09-20	Winnipeg
5684	Urbanmine Inc.	Scrap Processing Facility	2015-04-17	Winnipeg

¹³ Manitoba Conservation and Water Stewardship Public Registry <http://gov.mb.ca/conservation/eal/registries/index.html>

4. ENERGY

Hydro and thermal electric power. Manitoba Hydro is the main producer of electric power in Manitoba. Electricity from water powered generating stations accounts for about 96 percent of the total produced annually. Most of the remaining 4 percent comes from thermal and diesel generating stations.¹⁴ Manitoba Hydro also operates over 13,000 km of transmission lines.¹⁵

Modest amounts of PM_{2.5} were reported as being emitted by the Brandon thermal generating station which uses natural gas and coal (17 tonnes 2011-2013), along with very small amounts of cadmium, hexachlorobenzene, dioxin/furans (Table 4.1). Emissions of PM_{2.5} are also reported from four small thermal generating stations using diesel.

There are two major projects underway – Bipole III and the Keeyask Project. Bipole III received provincial approval in 2013 to build 1,380 km of 500kV transmission line. Construction began in early 2014 and is expected to be complete in 2018. The Keeyask Project, also approved in 2014, includes construction of a generating station (dam and generators), associated infrastructure (access roads and work camp) and several transmission lines to support construction of the project (22 m of 138kV) and then connect the project to the transmission system (four 138kV lines, each 4 km long). The dam will flood approximately 45 km² of land. Tataskweyak Cree Nation, War Lake First Nation, York Factory First Nation, and Fox Lake Cree Nation have partnered with Manitoba Hydro in the Keeyask Project.

Building dams increases the production of methylmercury in freshwater systems as bacteria decompose plants and soil in newly flooded areas. The amount of methylmercury created increases with the amount of land flooded. In general, methylmercury levels in fish from reservoirs can be two to three times higher for up to 10 years after a dam is built, before slowly returning to pre-dam levels in 20 to 30 years.¹⁶ (Bodaly et al).

Exposure to methylmercury can have very serious health effects. At high levels, hearing, vision, balance, speech and body movements can all be affected dramatically. At lower levels, babies born to mothers who have been exposed during pregnancy suffer significant damage to the brain.¹⁷ There are not many studies on methylmercury and cancer in humans, but in 1993 the International Agency for Research on Cancer (IARC) classified methylmercury compounds as **possibly carcinogenic**, based on animal studies.¹⁸

Two documents were found that discuss the potential health impact on local First Nations due to the expected increase in methylmercury levels. The first is a human health risk assessment conducted by a

¹⁴ https://www.hydro.mb.ca/corporate/facilities_operations.shtml

¹⁵ https://www.hydro.mb.ca/corporate/facilities/transmission_system.shtml

¹⁶ Bodaly et al (2007). Postimpoundment Time Course in Increase Mercury Concentrations in Fish in Hydroelectric Reservoirs of Northern Manitoba, Canada. Archives of Environmental Contaminant Toxicology 53 pp 379-389.

¹⁷ Eknio et al 2007. Minamata disease revisited: An update on the acute and chronic manifestations of methyl mercury poisoning. Journal of the Neurological Sciences. V 262 Iss 1-2, pp131-144.

¹⁸ IARC Monograph 53 (1993): <http://www.inchem.org/documents/iarc/vol58/mono58-3.html>

consultant in support of the project application during the environmental impact assessment process. The study determined there would be an increase in mercury concentrations producing a 'hazard quotient' above 1, indicating a health risk could occur.¹⁹ The second is a review and refinement of the first study, completed by a different consultant at the request of CAC Manitoba.²⁰ This study concluded that community members would not be at risk from increased methylmercury exposure if they followed existing fish consumption guidelines.

There are four proposed projects undergoing environmental impact assessments:

- Pointe du Bois Transmission: a new 115kV line from Pointe du Bois to Whiteshell station near Seven Sisters Falls. This project is currently on hold.
- St. Vital Transmission: two 230kV transmission lines from St. Vital Station, one connecting to Letellier Station and the other on existing right-of-way connecting to La Verendrye Station near Oak Bluff.
- Manitoba-Minnesota Transmission: a new 500kV line primarily to export electricity to the US, using existing rights-of-way and requiring approximately 120 km of new right-of-way.

Right-of-way maintenance can include the use of herbicides containing glyphosate, such as RoundUp, or 2,4-D, both of which are suspected carcinogens. Constructing new rights-of-way may lead to an increase in herbicide use in the future.

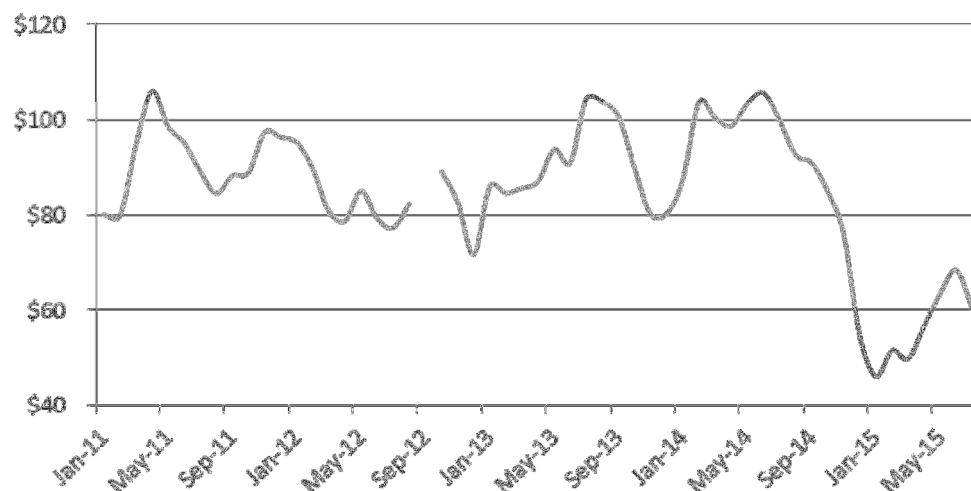
Oil and Gas. Manitoba Hydro is also the main natural gas distributor in Manitoba, with approximately 1,740 km of transmission pipeline and 7,100 km of distribution pipeline. Natural gas is purchased from Alberta and brought in via a main-line transmission pipeline owned by TransCanada Pipelines Ltd. (TCPL).²¹

In terms of oil and gas production, southwestern Manitoba was the site of a small oil and gas boom in recent years, driven mainly by global oil prices. Due to the downturn in prices (Figure 4.1), output from these sites has slowed down considerably since early 2014.

¹⁹ http://gov.mb.ca/conservation/eal/registries/5550keeyask/supplemental-filing-number-1/03human_health_risk-cd_version.pdf

²⁰ <http://www.cecmanitoba.ca/resource/hearings/39/CAC-025%20Keeyask%20Human%20Health%20Risk%20Assessment.pdf>

²¹ https://www.hydro.mb.ca/corporate/facilities/manitoba_hydro_naturalgas.shtml

Figure 4.1. Oil production in Manitoba - selling price per barrel 2011 to 2015²²

The most significant emitter of known or suspected carcinogens in this sector between 2011 and 2013 was the Penn West Petroleum operation at Waskada (209 tonnes of PM_{2.5}). Emissions in 2014 and for the near future should be well below this level given the drop in production. It was reported that the property was up for sale in June 2015.²³ If oil prices increase, activity and emissions from this sector will increase accordingly.

There are two proposed projects of interest currently undergoing the environmental impact assessment in Manitoba:

- Northwest Gas Transmission: a new 58km gas pipeline, mostly in existing road right-of-way, connecting to an existing pipeline near Oak Bluff to the Iles Des Chenes pipeline near Selkirk.
- TransCanada Pipelines Energy East Project: conversion of an existing natural gas pipeline to a crude oil pipeline, requiring 58km of new right-of-way in Manitoba.

No significant emissions of known or suspected carcinogens are expected from these pipelines; however, herbicides containing glyphosate or 2,4-D may be used to maintain the pipeline rights-of-way.

²² <http://www.gov.mb.ca/iem/petroleum/oilprices/index.html>

²³ <http://www.pipelinenews.ca/features/drilling-exploration/manitoba-expects-significant-decline-in-activity-1.1953491>

ENERGY

Table 4.1 Known and suspected carcinogens emissions reported by the energy sector²⁴

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
BENZENE – KNOWN CARCINOGEN						
	1,039			IMPERIAL OIL	WINNIPEG TERMINAL	Winnipeg
	56			HUSKY OIL OPERATIONS LIMITED	MINNEDOSA ETHANOL PLANT	Minnedosa
BENZO[A]ANTHRACENE – POSSIBLE CARCINOGEN						
	0.003			IMPERIAL OIL	WINNIPEG TERMINAL	Winnipeg
BENZO[A]PHENANTHRENE (CHRYSENE) – POSSIBLE CARCINOGEN						
	0.006			IMPERIAL OIL	WINNIPEG TERMINAL	Winnipeg
CADMIUM AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	0.1	0.1		MANITOBA HYDRO	BRANDON GENERATING STATION	Brandon
HEXACHLOROBENZENE – POSSIBLE CARCINOGEN						
	0.06			MANITOBA HYDRO	BRANDON GENERATING STATION	Brandon
INDENO[1,2,3-CD]PYRENE – POSSIBLE CARCINOGEN						
	0.002			IMPERIAL OIL	WINNIPEG TERMINAL	Winnipeg
FINE PARTICULATE (PM_{2.5}) – KNOWN CARCINOGEN						
	209,036			PENN WEST PETROLEUM LTD.	WASKADA	na
	64,825			ARC RESOURCES	GOODLANDS OIL BATTERY 16-10	n/a
	58,865			EOG RESOURCES CANADA INC.	WASKADA SOUR GAS PLANT 16-21	n/a
	17,300			MANITOBA HYDRO	BRANDON GENERATING STATION	Brandon
	14,376			LEGACY OIL + GAS INC.	PIERSON OIL BATTERY 09-32	n/a
	12,583			HUSKY OIL OPERATIONS LIMITED	MINNEDOSA ETHANOL PLANT	Minnedosa
	3,400			MANITOBA HYDRO	SHAMATTAWA DIESEL SITE	Shamattawa
	2,470			MANITOBA HYDRO	LAC BROCHET WASKADA HZ 02/06-24-001-	Lac Brochet
	2,463			PENN WEST PETROLEUM LTD.	26W1/00	na
	2,140			MANITOBA HYDRO	BROCHET	Brochet

²⁴ Environment Canada National Pollutant Release Inventory (NPRI) <https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1>

ENERGY

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
FINE PARTICULATE (PM_{2.5}) – KNOWN CARCINOGEN						
	2,030			MANITOBA HYDRO	TADOULE LAKE	Tadoule Lake
	1,555			PENN WEST PETROLEUM LTD.	WASKADA 00/11-22-001-25W1	na
	1,470			UNIVERSITY OF MANITOBA	CENTRAL ENERGY PLANT (POWERHOUSE)	Winnipeg
	489			ENERPLUS CORPORATION	KIRKELLA OIL BATTERY 07-10	n/a
	413			PETROBAKKEN ENERGY LTD.	TANCAM WASKADA 08-33-001- 24W1	na
	388			CANADIAN NATURAL RESOURCES LIMITED	PIERSON 12-30-002-28W1	na
	349			PENN WEST PETROLEUM LTD.	WASKADA HZNTL UNIT #8 2/3-8-2- 25W1	na
	322			PENN WEST PETROLEUM LTD.	WASKADA HZ 02/05-23-001- 25W1/00	na
	297			ATOMIC ENERGY OF CANADA LIMITED	WHITESHELL LABORATORIES	Pinawa
	5			ENBRIDGE PIPELINES INC.	CROMER TERMINAL	Cromer
DIOXINS/FURANS (Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans) – NOT CLASSIFIABLE AS A GROUP TCDD – KNOWN CARCINOGEN						
	0.00002			MANITOBA HYDRO	BRANDON GENERATING STATION	Brandon

ENERGY

Table 4.2. Provincial Environmental Impact Assessment related to energy – in process or open for comment²⁵

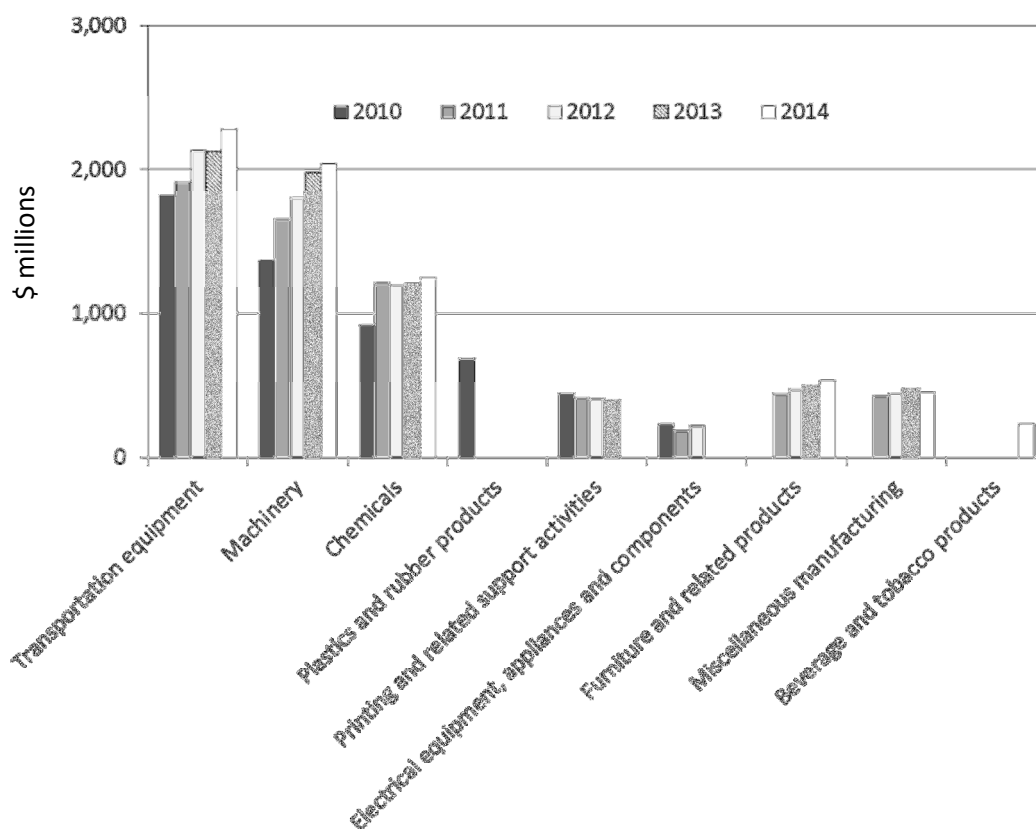
File	Proponent/Licensee	Project Name	Date Last Modified	Region
5716	Manitoba Hydro	Pointe du Bois Transmission Project	2015-08-27	Eastern
5719	Manitoba Hydro	St. Vital Transmission Complex	2014-11-25	Winnipeg
5750	Manitoba Hydro	Manitoba-Minnesota Transmission Project	2015-06-24	Winnipeg, Eastern
5768	TransCanada Pipelines	Energy East Pipeline Project	2015-05-12	Northern, Parkland, Central Plains, Pembina Valley, Eastern
5792	Manitoba Hydro	Northwest Gas Transmission Project	2015-09-28	Central

²⁵ Manitoba Conservation and Water Stewardship Public Registry <http://gov.mb.ca/conservation/eal/registries/index.html>

5. MANUFACTURING

Manitoba has a diverse manufacturing sector in addition to agricultural, forestry, mining, metal handling and processing and energy. The manufacturing of transportation equipment contributed over \$2 billion in sales in 2014, the highest amount since 2010 (Figure 5.1)²⁶. The manufacturing of machinery is also showing an increasing trend in sales value, reaching \$2 billion in 2014. Other subsectors appear to be relatively stable over this time period, although in some cases annual data have not been released by Statistics Canada, making it difficult to establish a trend.

Figure 5.1 Manufacturing sales by subsector in Manitoba – 2010 to 2014*



* Not including food manufacturing (See Section 1); primary metals, fabricated metal products and non-metallic mineral products (See Sections 3 and 4); or wood products (See Section 2).

Currently, the largest emitters in 2011-2013 in this sector reporting to the NPRI are:

- Kitchen Kraft of Canada (Winnipeg) – 34.5 tonnes of ethylbenzene emitted to air
- Decor Cabinets Ltd (Morden) – 27.6 tonnes of methyl isobutyl ketone emitted to air
- Frank Fair Industries, manufacturer of plastic motor vehicle parts (Winnipeg) – 154.7 tonnes of styrene emitted to air

²⁶ <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/manuf33h-eng.htm>

MANUFACTURING

It is difficult to predict what future emissions may be, given the diversity in types of manufacturing. A close watch on applications for licences under the provincial environmental assessment act will be useful to identify potential impacts to local and regional environmental quality.

There are no proposed projects currently undergoing environmental impact assessments that are likely to result in new emissions of known or suspected carcinogens.

MANUFACTURING

Table 5.1 Known and suspected carcinogens emissions reported by the manufacturing sector²⁷

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
CADMIUM AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	0.2			STANDARD AERO LTD.	WINNIPEG	Winnipeg
ETHYLBENZENE – POSSIBLE CARCINOGEN						
	34,500			KITCHEN CRAFT OF CANADA	KITCHEN CRAFT OF CANADA	Winnipeg
	300			AKZO NOBEL WOOD COATINGS LTD.	AKZONOBEL WOOD COATINGS (WINNIPEG)	Winnipeg
FORMALDEHYDE – KNOWN CARCINOGEN						
	15			DEFEHR FURNITURE LTD.	DEFEHR FURNITURE LTD.	Winnipeg
HEXAVALENT CHROMIUM AND ITS COMPOUNDS – KNOWN CARCINOGEN						
	6			STANDARD AERO LTD.	WINNIPEG	Winnipeg
	5			BOEING CANADA OPERATIONS LTD.	BOEING CANADA WINNIPEG	Winnipeg
	1			CANEXUS CORPORATION - BRANDON	CANEXUS CORPORATION	Brandon
	0.2			ERCO WORLDWIDE	HARGRAVE PLANT	Virден
			10	CLOVERDALE PAINT INC.	GUERTIN COATINGS	Winnipeg
LEAD AND ITS COMPOUNDS – PROBABLE CARCINOGEN						
	0.003			PPG PHILLIPS INDUSTRIAL COATINGS INC	PPG PHILLIPS INDUSTRIAL COATINGS - WINNIPEG	Winnipeg
			5	CLOVERDALE PAINT INC.	GUERTIN COATINGS DIV. OF CLOVERDALE PAINT INC.	Winnipeg
METHYL ISOBUTYL KETONE – POSSIBLE CARCINOGEN						
	27,603			DECOR CABINETS LTD.	DECOR CABINETS	Morden
	9,100			KITCHEN CRAFT OF CANADA	KITCHEN CRAFT OF CANADA	Winnipeg
	740			PPG PHILLIPS INDUSTRIAL COATINGS INC	PPG PHILLIPS INDUSTRIAL COATINGS - WINNIPEG	Winnipeg
	225			CLOVERDALE PAINT INC.	GUERTIN COATINGS DIV. OF CLOVERDALE PAINT INC.	Winnipeg
NAPHTHALENE – POSSIBLE CARCINOGEN						
	388			INTERPROVINCIAL COOPERATIVE LTD.	CHEMICAL PLANT	Winnipeg

²⁷ Environment Canada National Pollutant Release Inventory (NPRI) <https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1>

MANUFACTURING

Substance	Total Emissions 2011-2013 (KG)			Company Name	Facility Name	City
	AIR	WATER	LAND			
FINE PARTICULATE (PM_{2.5}) – KNOWN CARCINOGEN						
	7,817			CANEXUS CORPORATION - BRANDON	CANEXUS CORPORATION	Brandon
	6,986			CERTAINTEED GYPSUM CANADA, INC.	WINNIPEG WALLBOARD PLANT	Winnipeg
	6,010			MOTOR COACH INDUSTRIES	FORT GARRY PLANTS 4 & 5	Winnipeg
	3,948			DIAGEO CANADA INC.	GIMLI PLANT	Gimli
	3,921			DEFEHR FURNITURE LTD.	DEFEHR FURNITURE LTD.	Winnipeg
	3,660			GENERAL MILLS CANADA	GENERAL MILLS - WINNIPEG	Winnipeg
	2,600			KITCHEN CRAFT OF CANADA	KITCHEN CRAFT OF CANADA	Winnipeg
	1,698			ERCO WORLDWIDE	HARGRAVE PLANT	Viriden
	1,269			CANADIAN LINEN & UNIFORM SERVICE	CANADIAN LINEN & UNIFORM SERVICE - D24	Winnipeg
	1,101			SPECTIS MOULDERS	SPECTIS MOULDERS - NIVERVILLE	Niverville
	1,029			FRANK FAIR INDUSTRIES LTD.	FRANK FAIR INDUSTRIES	Winnipeg
	776			STANDARD AERO LTD.	WINNIPEG	Winnipeg
	657			GRACE CANADA INC.	GRACE CONSTRUCTION PRODUCTS	Winnipeg
	492			DEPARTMENT OF NATIONAL DEFENCE	17 WING WINNIPEG	Winnipeg
	437			AGRIUM INC.	BLOOM TERMINAL	Portage La Prairie
	25			CLOVERDALE PAINT INC.	GUERTIN COATINGS DIV. OF CLOVERDALE PAINT INC.	Winnipeg
STYRENE – POSSIBLE CARCINOGEN						
	154,690			FRANK FAIR INDUSTRIES LTD.	FRANK FAIR INDUSTRIES	Winnipeg
	14,507			FIAT PRODUCTS	FIAT PRODUCTS - WINNIPEG	Winnipeg
	7,580			TRIPLE E RV	TRIPLE E RV	Winkler
	5,220			FAROEX LTD.	PLANT 1	Gimli

