DTE Electric Company

2016 Toxics Release Inventory Report

Community Right-to-Know

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About the Toxics Release Inventory

The Toxics Release Inventory (TRI) is a publicly available database of information on the release and transfer of nearly 650 chemicals by private companies and government facilities. Congress created TRI under the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA) and the U.S. Environmental Protection Agency (EPA) administers the program. In May 1997, electric utilities were added to the list of manufacturing industries required to report TRI data to the EPA. Reports are generated once per year for the previous year's emissions. The inventory covers air emission, water discharge, releases to land and amounts transferred to disposal facilities.

All TRI report data is available on the EPA's website: www.epa.gov/tri.

Commitment to the Environment

DTE Energy is committed to minimizing its impact on the environment, developing cleaner ways to produce energy, helping customers use energy more efficiently, and partnering to enhance the environment for plants, animals and people.

Assuring DTE Energy's power plants, electrical distribution system and other operations meet all environmental regulations is the starting point for the company's commitment to environmental stewardship. When possible and practical, DTE Energy goes beyond regulations to adopt practices that provide additional environmental benefits.

Currently, more than 30 DTE Energy facilities have received Wildlife Habitat Council certification for improving their grounds to support native wildlife. Also, DTE Energy has planted more than 20 million trees throughout Michigan to enhance parks, restore forests, and remove carbon dioxide from the atmosphere.

DTE Electric Company (DTE Electric) is a subsidiary of DTE Energy. For more information on DTE's corporate citizenship, visit dtecitizenship.com.

How to Interpret the Data

DTE Electric's TRI releases appear large due to land disposal volumes. Chemical releases reported do not represent the chemical concentrations as they occur in the environment.

- In the TRI program, a "release" is defined as a chemical that is emitted to the air, discharged to the water or managed for disposal. DTE Electric's air and water releases to the environment are smaller compared to the managed land releases. The land management accounts for putting the coal combustion by-products into managed landfills.

All DTE Electric power plants operate in compliance with state and federal emissions and discharge regulations.

- DTE Electric is committed to protecting the public health and the environment in its power plant operations. As a baseline, DTE ensures all plants comply with state and federal regulations governing releases to the air, land, and water. Beyond that, each power plant has voluntarily developed a site-specific environmental management plan and earned ISO 14001 certification. In addition, most operating power plants have earned Clean Corporate Citizen designations from the Michigan Department of Environmental Quality (MDEQ). This designation recognizes facilities that are top performers in environmental management and stewardship.

TRI data does not measure human exposure or provide health information.

- The U.S. EPA has listed approximately 650 chemicals and chemical substances on the TRI list. These chemicals, like many others not on the list, can potentially cause harm depending on a person's exposure or dose. Dose relates to exposure time and concentration. For example, exposure to ultraviolet rays from the sun can be harmless, cause mild-to-serious sunburn or even potentially lead to fatal disease such as skin cancer.
- The U.S. EPA's TRI reports do not include dose information and therefore do not provide the public with health information. Per the EPA, the TRI information is not designed to show if chemical releases pose potential health or environmental hazards. Rather, the reports divulge how many pounds of chemicals companies release onsite and transfer to offsite disposal facilities.

Power plant emissions will vary from year to year based on coal consumption and element concentrations in the coal.

- In 2016, DTE Energy generated about 68% of its electricity at five coal-fired power plants, 5% from renewable wind and solar energy sources, and the remainder from nuclear power, oil, natural gas, and hydro. While DTE Energy increases its use of renewable energy sources, the company continues to use coal because it has proven to be an economic, domestically available and abundant fuel.
- DTE Electric obtains coal from dozens of mines, and the coal from each mine has a unique mix of trace elements that are the source for chemicals reported in the TRI data. Generally, TRI releases at each plant will vary due to trace elements in coal and volume of coal burned each year.
- Power plants are taken in and out of service for repairs or to accommodate generation needs. Because releases are reported in pounds, not percentages of power produced, releases will fluctuate from year to year depending on how much power each plant produces.

DTE Energy is committed to the generation of electricity in an environmentally responsible manner.

- DTE Electric has long been an innovator in using pollution control technologies. For example, the company used electrostatic precipitators as early as 1924 and is among the world leaders in blending low-sulfur coal. DTE Electric continues to invest in new technology and has spent nearly $2 billion to install equipment at the Monroe Power Plant to control emissions of sulfur dioxide, nitrogen oxides, mercury and hydrogen chloride. The company has also invested about $250 million in dry sorbent injection systems at Belle River, St. Clair, River Rouge and Trenton Channel power plants to meet the 2016 mercury and acid gas limits.
- The TRI includes a category of releases to land. It's important to note that these land releases involve disposal of material into engineered and licensed landfills. By-products from coal combustion are not released uncontrolled to the environment.
- To reduce land releases, DTE Electric actively recycles fly ash from several power plants for use as a concrete additive.

2016 Summary

DTE Electric's 2016 emissions experienced a slight increase of 0.3%.

Overall, DTE Electric's emission releases, reportable under the U.S. EPA's TRI, increased by 0.3%, or 33,519 pounds, in 2016 compared to 2015, while the total amount of coal consumed by the plants decreased by 16.3%.

Air releases decreased 48%, or 1.6 million pounds, due in part to the pollution control equipment installed in 2016 at Belle River, River Rouge, St. Clair, and Trenton Channel Power Plants to reduce acid gas and mercury emissions. The flue gas desulfurization and selective catalytic reduction systems at Monroe Power Plant continue to neutralize hydrogen chloride, hydrogen fluoride, and sulfuric acid gas releases by 97%, 94%, and 85%, respectively. Managed land volumes increased 21%, or 1.5 million pounds, due to decreased ash recycling. While the 2016-installed pollution control equipment eliminates acid gases as a release, it adversely affects the fly ash quality such that cement companies can no longer use all of it, reducing recycling. Water releases decreased by about 12%, or 4,800 pounds, in part due to decreased water discharge from site basins to rivers and lakes.

2016 Total Plant Emissions

Power Plant	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Managed)*	Water *(Pounds Discharged)*
Belle River	3,454,524	67,771	3,379,209	7,544.0
Fermi II	3,563.41	2.14	3,561.28	0
Greenwood	0.1	0.1	0	0
Monroe	3,574,137	978,392	2,574,520	21,225.2
River Rouge	185,688	54,442	131,086	160.1
St. Clair	2,304,490	188,682	2,112,687	3,120.6
Trenton Channel	739,523	300,948	436,585	1,990.0
RY 2016 Total	**10,261,925**	**1,590,236.7**	**8,637,648**	**34,039.9**
System Total, Change over 2015, %	0.3%	-48.3%	21.4%	-12.4%
System Total, Change over 2015, Pounds	33,519	(1,485,770)	1,524,089	(4,800)
RY2015 Total	11,444,622	4,172,451.4	7,238,524	33,645.9

2016 Releases by Plant

Belle River Power Plant

TRI Chemical	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Managed)*	Water *(Pounds Discharged)*
Barium Compounds	3,107,700	1,100	3,100,000	6,600
Benzo(g,h,i)perylene	0.50	0.16	0.34	0
Chromium Compounds	14,203	73	14,000	130
Copper Compounds	46,184	130	46,000	54
Dioxin[1]	1.22400	1.22400	0	0
Hydrogen Chloride	29,000	29,000	NA	NA
Hydrogen Fluoride	7,900	7,900	NA	NA
Lead Compounds	8,027.26	41.45	7,967.10	18.71
Manganese Compounds	83,542	162	83,000	380
Mercury Compounds	295.32	61.96	227.12	6.24
Nickel Compounds	16,170	99	16,000	71
PACs[2]	17.78	3.63	14.15	0.00
Sulfuric acid	28,000	28,000	NA	NA
Vanadium Compounds	58,104	100	58,000	4
Zinc Compounds	55,380	1,100	54,000	280
TOTAL TRI *(except Dioxin)*	**3,454,523.9**	**67,771.2**	**3,379,208.7**	**7,544.0**

Notes: [1] Dioxin Emissions are reported to the EPA in grams
[2] PACs = Polycyclic Aromatic Compounds

Fermi II Power Plant

TRI Chemical	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Released)*	Water *(Pounds Discharged)*
Lead	3,563.41	2.14	3,561.28	NA

Greenwood Energy Center

TRI Chemical	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Managed)*	Water *(Pounds Discharged)*
PACs[1]	0.1	0.1	0	0

Notes: [1]PACs (Polycyclic Aromatic Compounds) use exceeded the TRI threshold, but experienced minor releases to the environment.

Monroe Power Plant

TRI Chemical	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Managed)*	Water *(Pounds Discharged)*
Ammonia	26,340	26,000	0	340
Arsenic Compounds	14,774	74	13,000	1,700
Barium Compounds	1,511,960	960	1,500,000	11,000
Benzo(g,h,i)perylene	0.47	0.34	0.13	0.00
Chromium Compounds	34,290	190	33,000	1100
Cobalt Compounds	16,110	52	16,000	58
Copper Compounds	56,620	250	56,000	370
Dioxin[1]	2.6631	2.66314	0	0
Hydrogen chloride	84,000	84,000	NA	NA
Hydrogen fluoride	23,000	23,000	NA	NA
Lead Compounds	17,261.98	102.38	17,108.00	51.60
Manganese Compounds	78,823	273	78,000	550
Mercury Compounds	488.30	72.25	390.47	25.58
Nickel Compounds	241,390	510	240,000	880
PACs[2]	28.82	7.82	21.00	0.00
Sulfuric acid	840,000	840,000	NA	NA
Vanadium Compounds	535,200	500	530,000	4,700
Zinc Compounds	93,850	2,400	91,000	450
TOTAL TRI *(except Dioxin)*	**3,574,137**	**978,391.8**	**2,574,520**	**21,225.2**

Notes: [1] Dioxin Emissions are reported to the EPA in grams
[2] PACs = Polycyclic Aromatic Compounds

River Rouge Power Plant

TRI Chemical	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Managed)*	Water *(Pounds Discharged)*
Barium Compounds	130,450	290	130,000	160
Benzene	22	22	0	0
Dioxin[1]	0.1726	0.1725	0	0
Hydrogen chloride	50,000	50,000	NA	NA
Hydrogen fluoride	4,100	4,100	NA	NA
Lead Compounds	1,082.82	17.41	1,065.28	0.13
Mercury Compounds	32.82	11.64	21.18	0.00
PACs[2]	0.50	0.50	0.00	0.00
TOTAL TRI *(except Dioxin)*	**185,688**	**54,442**	**131,086**	**160.1**

Notes: [1] Dioxin Emissions are reported to the EPA in grams
[2] PACs = Polycyclic Aromatic Compounds

St. Clair Power Plant

TRI Chemical	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Managed)*	Water *(Pounds Discharged)*
Arsenic Compounds	8,272	47	8,200	25
Barium Compounds	1,903,900	1,200	1,900,000	2,700
Benzo(g,h,I)perylene	0.19	0.10	0.09	0.0
Chromium Compounds	14,188	78	14,000	110
Copper Compounds	33,150	100	33,000	50
Dioxin[1]	0.7597	0.7597	0	0
Hydrogen chloride	110,000	110,000	NA	NA
Hydrogen fluoride	14,000	14,000	NA	NA
Lead Compounds	8,376.41	47.92	8,316.10	12.39
Manganese Compounds	55,194	120	55,000	74
Mercury Compounds	216.78	54.27	162.31	0.20
Nickel Compounds	14,130	93	14,000	37
PACs[2]	11.15	2.25	8.90	0
Sulfuric Acid	62,000	62,000	NA	NA
Vanadium Compounds	45,161	99	45,000	62
Zinc Compounds	35,890	840	35,000	50
TOTAL TRI *(except Dioxin)*	**2,304,490**	**188,682**	**2,112,687**	**3,120.6**

Notes:
[1] Dioxin Emissions are reported to the EPA in grams
[2] PACs = Polycyclic Aromatic Compounds

Trenton Channel Power Plant

TRI Chemical	Total *(Pounds)*	Air *(Pounds Emitted)*	Land *(Pounds Managed)*	Water *(Pounds Discharged)*
Barium Compounds	381,320	900	380,000	420
Benzo(g,h,i)perylene	0.05	0.05	0.0	0.0
Dioxin[1]	0.3877	0.3877	0	0
Hydrogen chloride	210,000	210,000	NA	NA
Hydrogen fluoride	31,000	31,000	NA	NA
Lead Compounds	3,545.97	50.94	3,495.03	0.00
Manganese Compounds	16,607	127	16,000	480
Mercury Compounds	118.92	29.24	89.67	0.01
PACs[2]	1.16	1.16	0.0	0.0
Sulfuric acid	58,000	58,000	NA	NA
Vanadium Compounds	22,300	110	22,000	190
Zinc Compounds	16,630	730	15,000	900
TOTAL TRI *(except Dioxin)*	**739,523**	**300,948**	**436,585**	**1,990**

Notes:
[1] Dioxin Emissions are reported to the EPA in grams
[2] PACs = Polycyclic Aromatic Compounds