



Environmental Leadership

Clean land, water and air are essential to human life and health. DTE Energy is committed to environmental stewardship and protecting the natural resources upon which we all depend.

Environment

Air Quality

Our environmental expenditures in 2016 totaled \$57 million.

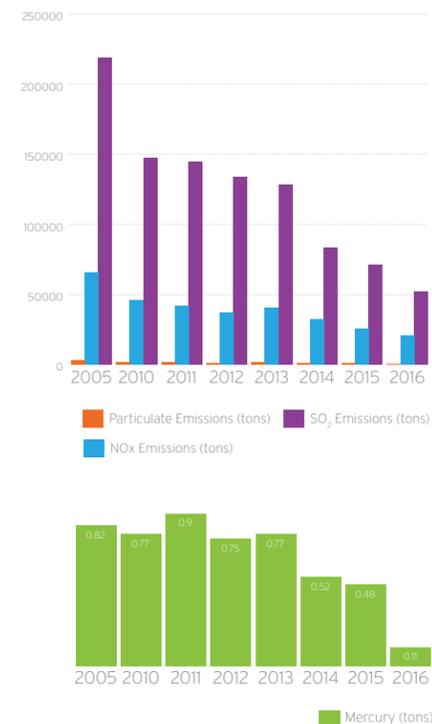
We have been a leader in adopting new technologies and practices to reduce emissions since the 1920s, when our Trenton Channel Power Plant was among the first to install electrostatic precipitators to remove fly ash from the exhaust stacks.

DTE Electric has reduced emissions of particulate matter (PM), sulfur dioxide (SO₂) and nitrogen oxides (NO_x) by more than 85 percent since the mid-1970s. During this same period, total annual generation increased 12 percent. More recently, since 2005 we have reduced emissions 83 percent for PM, 76 percent for SO₂, 69 percent for NO_x and 86 percent for mercury.

We continue to invest in emission reductions to meet increasingly stringent air quality requirements, spending \$2.4 billion through 2016 to comply with federal regulations. DTE has completed installation of state-of-the-art emission controls at the Monroe Power Plant, our largest generating plant and the fourth largest coal-fired plant in the country. The emission controls consist of flue gas desulfurization (FGD) and selective catalytic reduction (SCR) units to control emissions of SO₂, NO_x, mercury and other hazardous pollutants. These controls allow the plant to meet stringent federal regulations including the United States Environmental Protection Agency's Mercury and Air Toxics Standards (MATS).

Our remaining coal-fired power plants reduce mercury and other toxic air pollutant emissions with a combination of dry sorbent injection and activated carbon injection emission control systems. As shown in the air emissions chart to the left, mercury emissions from DTE Electric power plants have decreased dramatically as a result of these measures.

Air Emissions



Habitat and Biodiversity

2016 Wildlife Habitat Council Awards

River Rouge Power Plant Regional Corporate Habitat of the Year

Muskegon Service Center Bats Project Award, recognizing the team's efforts to create habitat for native bat species

At DTE Energy, we work to take care of the land, water and living creatures both within our service territories and beyond. DTE is one of the largest landowners in Michigan. We maintain thousands of acres of land in its natural state and provide habitat for hundreds of species of birds, mammals, fish and insects. We also reclaim previously disturbed land to actively create and manage habitat featuring native Michigan plants, such as gardens that benefit the monarch butterfly and other pollinators.

Our utility operations implement an avian protection plan to minimize the impacts of our electric lines on bird populations. An electronic reporting system helps to identify key equipment that may need to be modified to enhance avian protection. With the increasing number of wind turbines in our generation portfolio, the plan has been appropriately broadened to address the impact of bats also. Plan implementation involves establishing procedures for observing birds and bats near electric lines and wind turbines, for removing nests from transmission poles before birds can become settled and for documenting and communicating these management measures. We train our field employees to be aware of the requirements under federal wildlife protection rules.

Wildlife Habitat Council Certified Sites

DTE Energy facilities are home to hundreds of species of wildlife. Some are endangered or threatened and we are helping their populations increase and stabilize through our efforts to provide habitat in an environment that frequently makes little room for wildlife. To this end, DTE Energy has 36 sites certified under the Wildlife Habitat Council, a nonprofit organization that helps companies manage their property for the benefit of wildlife. In 2016, two of our locations received new certifications – Citizen's Gas in Adrian, Mich., and DTE Electric's Newport Service Center in Monroe. We continue to increase the amount of habitat our operations support. Ten existing sites were also re-certified during the year.

WHC certified sites

- 1996 **Belle River Power Plant:** East China Township
- 1999 **Monroe Power Plant:** Monroe
- 2000 **Fermi 2 Power Plant:** Newport
Downtown Headquarters: Detroit
- 2001 **St. Clair Power Plant:** East China Township
- 2002 **Trenton Channel Power Plant/Sibley Quarry:** Trenton
- 2003 **Taggart Compressor Station:** Six Lakes
- 2004 **Greenwood Energy Center:** Kenockee
River Rouge Power Plant: River Rouge
- 2005 **Western Wayne Service Center:** Belleville
- 2007 **Ashley Mews:** Ann Arbor
- 2008 **Allen Road Facility:** Melvindale
Belle River Compressor Station: East China Township
Grayling Service Center: Grayling
Michigan Avenue Service Center: Ypsilanti
Mt. Pleasant Service Center: Mt. Pleasant
Washington-10 Compressor Station: Washington
- 2009 **Alpena Service Center:** Alpena
Kalkaska T&SO: Kalkaska
Ludington Service: Center Ludington
Milford Compressor Station: Milford
Muskegon Service Center: Muskegon
Tawas Service Center: Tawas City
Traverse City Operations: Traverse City
Conner's Creek Power Plant: Detroit
- 2010 **Big Rapids:** Big Rapids
Cadillac: Cadillac
- 2012 **Gaylord T&SO Station:** Gaylord
Wealthy Street Station: Grand Rapids
- 2015 **Escanaba Service Center:** Escanaba
Kingsford Service Center: Kingsford
Lynch Road Service Center: Detroit
Petoskey Service Center: Petoskey
Sault Ste. Marie Service Center: Sault Ste. Marie
- 2016 **Citizen's Gas:** Adrian
Newport Service Center: Monroe

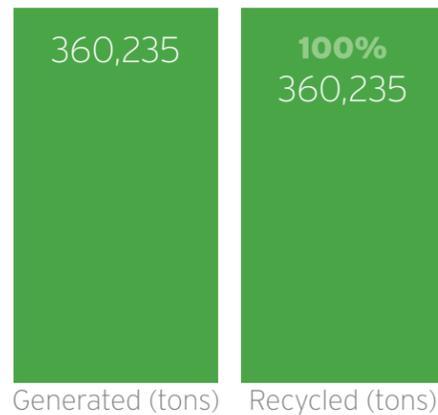
■ DTE - Gas ■ DTE - Electric ■ Other

Reforestation in Lower Michigan

DTE Energy has a long history of preserving, protecting and sustaining our environment. In 2016, the DTE Energy Foundation partnered with ReLeaf Michigan to plant 115 trees in seven communities from Wayne and Macomb counties to the Thumb to Northern Lower Michigan. The DTE Energy Foundation also worked closely with the Michigan Department of Natural Resources to plant trees, marking the 20th anniversary of a partnership that has resulted in more than 40,000 trees and seedlings being planted in 490 Michigan communities.

Waste and Recycling

Gypsum

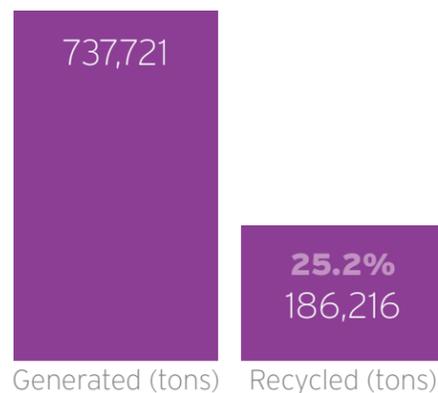


Coal Combustion Residuals

Fly ash and bottom ash are byproducts of the coal burned in our power plants. Synthetic gypsum is a byproduct of the flue gas desulfurization (FGD) units that reduce sulfur dioxide emissions from coal-fired plants. These coal combustion residual (CCR) materials – ash and synthetic gypsum – are recycled to the greatest extent possible. The portion of the CCR not recyclable is disposed in state and federally regulated landfills and impoundments. Our ash recycling rates dropped in 2016 as we brought sorbent injection and activated carbon emission controls on line to meet the Mercury and Air Toxic Standards (MATS) rule. The presence of sorbents and activated carbon in coal ash reduces its acceptability for beneficial reuse.

Gypsum is used as a component in drywall manufacturing and as a beneficial additive in agriculture. In 2016, we recycled 100 percent of the gypsum produced at DTE Energy power plants, 360,235 tons.

Ash



DTE Energy operates three licensed landfills for disposal of fly ash not recycled and each coal plant has on-site facilities for managing CCR before it is recycled or disposed. These landfills operate in compliance with applicable state and federal laws and are routinely inspected by state and local regulatory agencies. We assess the condition of our facilities and equipment on a regular basis and conduct maintenance and repairs as necessary to maintain structural integrity and operational performance.

In response to high-profile incidents around the country involving coal ash spills in 2014, DTE Energy began re-evaluating all of our ash handling facilities and determined that we have no issues of concern. In April 2015, the Environmental Protection Agency (EPA) finalized a rule to regulate CCR. The rule maintains the status of CCR as non-hazardous waste and lays out various design and performance standards that companies must meet. DTE Energy continues to implement a compliance program managing our CCR landfills and impoundments in accordance with state regulations and EPA's rule.

Recycling

DTE Energy's pollution prevention programs help to minimize impacts and conserve resources by reducing the volume of waste that would otherwise go to landfills for disposal.

As part of our customer energy efficiency programs, we accept old appliances for recycling when customers purchase new, more efficient models. In 2016, DTE customers recycled more than 37,000 appliances, saving nearly 38,000 megawatt hours of electricity due to improved energy efficiency. To administer the program, we partner with Solutions for Energy Efficient Logistics to manage the appliance pick-ups and Goodwill's Green Works safely dismantles and recycles the scrapped appliances.

The table below summarizes all the materials that DTE Energy recycled in Michigan during 2016:

Material Recycled	Weight (lbs.)
Lamps	22,188
Batteries	70,112
Paper	390,202
Cardboard	728,065
Electronics	249,240
Mercury/Mercury Containing Equipment	3,782
Metal Non-Ferrous	134,206,531
Metal Ferrous	9,302,874
Miscellaneous	100,050
Plastic	78,500
Wood	795,875

Nuclear Waste

Our Fermi 2 Power Plant has on-site facilities for the management, processing and temporary storage of radioactive waste materials.

Used nuclear fuel consists of solid, ceramic-like pellets secured in zirconium alloy tubes. After the fuel has expended its useful energy, it is removed from the reactor and stored in a steel-lined, concrete vault filled with water. Water provides a natural radiation barrier and cooling for the used fuel. After seven years in the used fuel pool, it can be moved into large concrete and steel storage containers. Fermi 2 began on-site dry storage of used fuel in 2014. All on-site nuclear waste storage is subject to strict regulations requiring multiple layers of safety and security systems.

Low-level radioactive solid waste sent from Fermi 2 for off-site disposal includes material generated during water treatment, trash with radioactive contamination and irradiated components. Fermi 2 complies with extensive federal regulations governing radioactive waste shipments to licensed burial sites or intermediate processing facilities. Any low-level waste sent for processing is then shipped directly to a licensed burial site.

Land Restoration and Remediation

Before natural gas became widely available in the 1940s and '50s, "manufactured gas" produced from coal and oil was used for lighting, cooking and heating in homes and businesses. As natural gas – which is extracted from underground geological formations – replaced manufactured gas, manufactured gas plants (MGPs) were shut down. Years later, industry, state and federal environmental agencies began studying these sites and recognized that plant operations and the way in which MGPs were abandoned had resulted in residual contamination at the sites. The U.S. Environmental Protection Agency estimates that 3,000 to 5,000 former MGP sites are located in towns and cities across the country.

As DTE Gas, founded in 1849, grew into the statewide utility it is today, it acquired numerous local gas companies that had operated MGPs. Today, DTE Gas is responsible for a total of 16 MGPs throughout the state. A preliminary response and investigation has been completed at each site and work has been completed at several sites. In addition to these DTE Gas properties, DTE Electric is responsible for three MGPs and our subsidiary Citizens Gas is responsible for one site.

Full remediation and closure has been achieved at nine sites, allowing the properties to be developed for a variety of uses. Two other MGPs have undergone partial site closure.

During 2016, closure was completed at the following sites:

- DTE Gas's former manufactured gas plant (MGP) site in Greenville, Mich., property currently operates as a landscaping business.
- Citizens Gas's former MGP site in Adrian, Mich., received closure for the remainder of the property and the River Raisin. The property currently operates as the Citizens Gas Fuel Service Center.

Additionally in 2016, DTE Gas made significant progress on MGP site cleanup at its Wealthy Service Center in Grand Rapids and the former Station A site located within the City of Detroit's Riverside Park.

Reef Project for Sturgeon in Detroit River

DTE Energy is doing its part to support restoration efforts to spur the recovery of native fish in the Great Lakes region. Loss of rocky habitat in the Detroit and St. Clair River systems, which has occurred since the 1800s due to industrialization, has contributed to a decline in the lake sturgeon population – a state and provincially threatened species that can grow to up to 6.5 feet in length and live up to 40 years. DTE Energy is proud to support restoration efforts in these rivers to rebuild native fish communities throughout the Great Lakes region and in turn benefit communities and the residents who live there.

DTE Energy biologists who monitor water intake pipes and conduct ecological assessments for the company have contributed their time and unique expertise to support reef construction projects designed to facilitate fish spawning. Other project partners include the University of Michigan Water Center, Michigan Sea Grant, U.S. Geological Survey, U.S. Fish and Wildlife Service and Michigan Department of Natural Resources.

The restoration team built their first pilot spawning reef near the head of Belle Isle in the Detroit River in 2004. DTE provided coal cinders, a by-product of a nearby power plant, to help reduce the cost of the pilot project and demonstrate that a constructed reef was possible in the Detroit River. Most recently, in 2016, DTE Energy provided a staging area at our retired Connors Creek Power Plant for 15,000 tons of limestone to support the construction and expansion of additional spawning reefs in the St. Clair River and the Detroit River.

The results of the team's efforts are already becoming visible. Lake sturgeon eggs were found on four different constructed spawning reefs in the Detroit and St. Clair Rivers. This means sturgeon found the new habitat structures and deemed them suitable for spawning. Equally important, sturgeon eggs appear to be incubating and hatching successfully on the reefs, producing viable larvae that are showing up in nets downstream of the constructed reefs.

Water



We use water from lakes and rivers to cool our thermal electric power plants. Our power plants withdraw and return water to Michigan's surface waters under the authority of permits issued by the State of Michigan.

In 2016, DTE Energy facilities in Michigan withdrew approximately 1.08 trillion gallons of surface water. Most of that volume, 1.07 trillion gallons, was cooling water for generating facilities – about 27,300 gallons per megawatt-hour generated. Water consumption – water not returned directly to the water system and largely lost through evaporation – is calculated to be 1.8 percent of withdrawal.

The majority of our power plants utilize once-through cooling, so most of the water withdrawn is then returned to the same water body with a slightly elevated temperature. These thermal discharges have not been found to adversely affect aquatic ecosystems. The Fermi 2 Power Plant and the Greenwood Energy Center have closed-cycle cooling systems, which reduce the amount of water withdrawal required. In 2016, these plants recycled approximately 462 billion gallons of water.

One of our generating facilities is located in an area where water resources are constrained – the 44 megawatt Mt. Poso biomass plant near Bakersfield, Calif., representing less than 0.01 percent of our total generating capacity. Located in the arid Central Valley region of California near Bakersfield, the Mt. Poso facility reuses water recovered from the oil production activities of an adjacent oil field instead of directly withdrawing surface water. Surplus water is provided to local ranchers for their cattle operations.

Environmental Protection Agency Clean Water Act Regulations

The United States Environmental Protection Agency (EPA) finalized regulations in 2015 that set limits on the levels of toxic metals in power plant wastewater discharges and required the elimination of discharges from ash transport systems. To meet compliance deadlines starting in November 2018, DTE is evaluating alternatives and will likely implement new wastewater treatment measures, as well as changes to ash handling and storage at several power plants.

DTE is also evaluating alternatives for reducing the environmental impacts of intake structures at several facilities in response to cooling water withdrawal regulations issued by the EPA in May 2014. We are coordinating our work with the State of Michigan to determine whether any significant aquatic impacts are associated with our existing intake structures and whether there are cost-effective alternatives. Under the regulations, impact studies need to be completed over the next several years. State regulators will then make the final determination of what type of technology will be needed to reduce impacts to fish and other aquatic life.

Compliance

Compliance

The United States Environmental Protection Agency (EPA) and an environmental activist group have brought litigation against DTE Electric for alleged violations of the Clean Air Act. DTE Energy has maintained throughout these legal proceedings that we have operated our plants in compliance with all applicable state and federal laws and regulations. Initial court rulings agreed and found DTE to be in compliance. However, in January 2017, a divided appeals court reversed the decision of the lower court and ruled against DTE. DTE Energy filed a petition for rehearing in front of the appeals court in February 2017 and is awaiting a response from the court.

Depending upon the outcome of the litigation and further discussions with the EPA, DTE Electric could be required to install additional pollution control equipment at some or all of the power plants in question, implement early retirement of facilities where control equipment is not economical, engage in supplemental environmental programs and/or pay fines.

In 2016, DTE Electric and DTE Gas facilities – four separate sites – received a total of nine letters of violation (LOVs). None of these have resulted in any fines or penalties. In 2016, 23 LOVs were received by facilities in DTE's Power and Industrial Projects business unit. Six of these LOVs resulted in fines totaling just over \$400,000. The remaining LOVs have not resulted in any fines or penalties and some were resolved with no violations identified. After receiving these LOVs, we conducted thorough reviews of the findings for actionable tasks, identified root causes and implemented improvement tools to prevent recurrence of the violations.

As a result of a multimedia inspection by the United States Environmental Protection Agency (EPA), EES Coke – the Michigan coke battery facility, a wholly-owned subsidiary of DTE Energy – received two Findings of Violation (FOVs) related to: failing to repeat benzene sampling of waste streams due to a process change and use of calibration gas inconsistent with the applicable regulation; and alleged deficiencies in its oil pollution prevention measures and spill prevention, control and countermeasures plan. EES Coke is currently working with the EPA to address the alleged violations. At this time, DTE Energy cannot predict the impact of the final settlement.

We addressed two compliance related issues during 2016 at DTE facilities outside of Michigan:

- After closure of the Shenango coke battery plant, the Allegheny County Health Department in Pittsburgh, Pa., issued a demand for \$482,000 to resolve alleged Clean Air Act violations. Shenango filed an appeal of such demand on Aug. 19, 2016. In November 2016, the parties reached a settlement and Shenango agreed to pay \$231,000.
- At Woodland Biomass Power in California, a renewable wood-fired power generation facility, the plant's ash management practices are under investigation – specifically whether some of the ash generated at the facility should have been characterized and handled as hazardous waste under California regulations. Woodland is cooperating with the investigation and has committed to remove or remediate any ash improperly characterized.