DTE Energy®


# 2018 METHANE EMISSIONS REPORT

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DTE Energy is leading the energy sector in a period of transformational change that is being driven by multiple factors, including internal and external stakeholder recognition of the need to reduce climate impacts from the emissions of greenhouse gases. In 2017, DTE Energy announced a broad sustainability initiative to reduce carbon emissions from its operations by more than 80 percent by 2050. While much of this carbon reduction goal is focused on transforming our electric generation fleet from predominantly coal to a balanced mix of renewables, natural gas and nuclear over the next 25 years, DTE's natural gas businesses will also be playing an important role in meeting our carbon reduction goal. DTE Gas has stepped up efforts to reduce methane emissions from its transmission and distribution systems, including reducing leaks at natural gas compressor stations and an accelerated infrastructure program that will replace aging steel and cast iron distribution pipeline. These initiatives will result in an 80 percent reduction in natural gas methane emissions over the next 20 years.

In response to increased interest from stakeholders regarding fugitive methane emissions from our natural gas operations, DTE Energy has put together the attached Methane Report Q&A document to provide information on DTE's efforts to control and reduce methane emissions. We recognize that methane emissions from the natural gas sector is a growing area of concern for stakeholders that are focused on climate impacts of the energy sector. DTE Energy is at the forefront of improving our disclosure of natural gas emissions and we are working with the Edison Electric Institute and the American Gas Association to provide standardized platforms for disclosure of methane emissions to the investment community. We specifically thank As You Sow for raising these questions and providing us this opportunity to share our efforts in this area. Please visit our website to read more about our climate related emissions as well as more general information about DTE Energy's sustainability activities:

https://empoweringmichigan.com/dte-impact/performance/

Please visit this website in the future as we continue to provide additional methane related information.

## Q *What technologies does DTE use to detect methane leaks and monitor its infrastructure?*

**A** DTE Energy utilizes the instrumentation listed below for leak detection, monitoring and leak repair prioritization. The use of this instrumentation by DTE may change over time due to technological advancements in the oil and gas industry. It is company practice to use the best available monitoring methods to protect the environment and to better serve our customers.

- Optical Gas Imaging cameras (OGI)
- Remote Methane Leak Detection (Laser based gas detector - RMLD)
- Flame Ionization Detector (FID)
- Combustible gas detector (Gas Scope)
- Optical Methane Detector (OMD)

DTE uses OGI cameras, RMLDs, FIDs and Gas Scopes to monitor compressor, booster & gathering stations, distribution gate stations, biomass sites, storage fields and wells. OMD is used to conduct mobile inspections of buried natural gas distribution, transmission, and gathering pipelines. Choosing the proper equipment to do a leak survey is dependent on several different criteria including but not limited to safety, weather, instrument capabilities, location, application and experience.

## Q *How frequently are pipelines monitored?*

**A** The frequency of monitoring the conditions on our right-of-ways (ROWs) is based upon DTE's Pipeline Integrity Management program that has been established in conjunction with federal and state regulations. Inspection and maintenance work is performed regularly, such as leak surveys and corrosion control. Pipeline segments are replaced if necessary. This program enhances preventive and mitigative measures DTE Energy already has in place to maintain the safe and reliable operation of our transmission pipeline system. Selected segments of the pipeline are known as high consequence areas (HCA). HCAs along the pipeline are typically densely populated areas or rural areas containing identified sites adjacent to the pipeline. Identified sites may be churches, schools, hospitals, day-care centers, assisted-living facilities, campgrounds or other buildings and outside areas where people congregate. The Pipeline Integrity management program includes risk modeling that takes into account both the risks posed upon our pipeline systems and the potential impacts of those risks. Our responses to those risks are tailored to address the most significant risks and ensure a minimal impact upon public safety. More on our commitment to pipeline safety is located on the DTE Energy website at: https://www.newlook.dteenergy.com/wps/wcm/connect/dte-web/home/problems-and-safety-landing/common/gas-safety/pipeline-Safety.

Monitoring frequency of pipelines is determined by codes & standards and DTE policy. The technology used to complete a pipeline leak survey is determined by best

available monitoring methods and state/federal requirements. It is a DTE practice to use the instrument that is not only the most accurate but the safest to complete pipeline surveys. We typically use the best leak detection instrumentation suitable for the application. A brief summary of the frequency of leak surveys of our transmission, distribution and gathering systems is provided below.

## 1. Transmission pipelines:

- Transmission main pipelines are visually surveyed twice per month using aircraft to look for oxygen starved vegetation, right-of-way encroachment, erosion, landslides & possible security threats.
- DTE Technicians leak survey all pipeline road crossings monthly using either an RMLD or Gas Scope.
- DTE Energy also completes an annual visual vegetation/leak survey on all transmission mains using a trained technician.
- In 2019 DTE Energy will begin triennial aircraft surveys of all statewide pipelines using Aerial Leak Methane Assessment (ALMA) equipped with an optical laser. Prior to then the entire system will be flown in 2018 to establish a baseline for future surveys.

## 2. Distribution pipelines:

- Distribution mains located outside of business districts are surveyed on a 3-year cycle using either OMD or RMLD technology. For distribution pipelines located within business districts a survey is required and completed annually.
- MAC – Meter Assembly Checks are leak surveys completed on meters located inside residences or businesses. Residential meters are surveyed on a 3-year cycle and business meters are surveyed annually using a gas scope.
- Gate Stations are surveyed bi-annually using a flame pack and on a 5-year cycle using optical gas imaging cameras.

## 3. Gathering pipelines:

- Most of our gathering pipelines are in Pennsylvania & West Virginia. These lines are in Class 1 areas which require no regulatory monitoring. However, DTE treats Class 1 areas as if they were Class 2 areas. Class 2 areas require annual leak surveys at intervals not exceeding 15 months, but at least once each calendar year. These surveys are contracted to be performed using aircraft equipped with aerial optical imaging devices or FLIR GF320.
- For class 3 areas, annual leak surveys are conducted at intervals not exceeding 7-1/2 months, but at least twice each calendar year.
- For class 4 areas, annual leak surveys are conducted at intervals not exceeding 4-1/2 months, but at least four times each calendar year. *(Note that we do not currently have any class 4 areas.)*
- Our gathering pipelines located in New York are required to be monitored biannually using an FID by foot. Aircraft surveys are not yet approved in New York.

## Q *When a leak is detected, how is repair prioritized?*

**A** Leaks located by leak surveys on the DTE Gas distribution system must be investigated and graded in accordance with DTE's Procedure for Grading of Leaks for Repair. This procedure grades leaks into three grades:

- **Grade 1** – Leaks which represent an existing or probable hazard to persons and/or property. These leaks are addressed and repaired immediately.
- **Grade 2** – Leaks recognized as being non-hazardous at the time of detection, but having the potential to become a future hazard. These leaks must be scheduled to be repaired or eliminated within 1 year.
- **Grade 3** – Leaks that are non-hazardous at the time of detection and can be expected to remain non-hazardous. While these leaks are not considered hazardous, DTE Gas works to address all identified leaks. In 2017, 70% of the leaks repaired by DTE Gas were Grade 3 leaks. If not addressed promptly, Grade 3 leaks must be rechecked at least once each calendar year, and if there is any doubt that the leak is a Grade 3, they must be classified as Grade 2.

DTE Gas benchmarks its leak inventory against peer utilities. DTE Gas was a top performer at year end 2017 compared to its peers in the number of leaks per 1,000 miles of distribution main, which demonstrates DTE's commitment to aggressively repairing leaks on a timely basis.

At DTE Gas compressor stations, leaks are prioritized by size at the time of detection. A calibrated Bacharach Hi-Flow sampler is used by the inspector to quantify each leak located during the quarterly or annual compressor station leak survey. The Hi-Flow instrument determines the standard cubic feet per minute (scfm) of the leak by accurately measuring the flow rate of the sampling stream. Once the leak is measured and recorded it is then prioritized by leak rate. The top five leaks at each compressor station are repaired to zero scfm within 60 days of survey completion. This is not a regulatory compliance requirement and includes, but is not limited to, all leaks including Grade 3 non-hazardous leaks. This is part of the company's voluntary methane leak reduction efforts.

**Bluestone Gathering (PA)** – Requires ALL compressor station leaks to be repaired within 15 calendar days of leak detection.

**Midstream Gas (WV)** – Requires ALL compressor station leaks to be repaired within 30 calendar days of leak detection.

## Q *What are DTE's plans for replacement of leak-prone pipeline?*

**A** Over the next 18 years, DTE Gas Company's Main Replacement Program (MRP) will replace approximately 3,500 miles of cast iron and unprotected steel gas main on DTE's natural gas distribution system at a rate of around 200 miles per year. DTE Gas must seek rate recovery from the Michigan Public Service Commission

(MPSC) to pay for the MRP. A September 13, 2018 Order issued by the MPSC approved funding for DTE Gas to renew up to 206 miles of high-risk main annually starting in 2020 and concluding the MRP in 2035, nine years earlier than the program previously approved by the MPSC.

## Q *What practices and technologies does DTE use to prevent and reduce emissions during repair and replacement work?*

**A** DTE utilizes the following practices to prevent and reduce emissions during repair and replacement work on natural gas systems:

- Drawing down line pressure when repairing or working on lines to reduce natural gas released to the atmosphere.
- Leaving units at compressor stations in standby-pressurized mode to prevent unit blowdowns.
- Installing electric starters on turbine units with centrifugal compressors instead of gas starters.
- Surveying DTE Gas sites annually, and surveying DTE Midstream (Gas Storage and Pipeline) quarterly. Annually replacing top 5-7 Rod packings depending on leak volume.
- Using unit isolation valves to block in engine gas to avoid the need to blow down whole yard.
- Rerouting gas to prevent venting or blowdowns.
- Installing pipeline stopples and bypass as necessary to maintain operations and minimize extent of blowdown.
- Evaluating the use of a centrifugal turbine when the option is present instead of a reciprocating compressor.

## Q *What is DTE's methane emissions intensity rate?*

**A** The Company's methane emissions intensity rates for 2017 are as follows:

- **DTE Gas Company** – 0.3% based on the amount of natural gas received at city gate stations (23,940 MT CH4 total emitted in 2017).
- **DTE Gas Storage & Pipeline**s – 0.03% based on the amount of natural gas received by gathering and boosting facilities (4,423 MT CH4 total emitted in 2017).

The emission intensity is calculated using EPA-reported fugitive emissions data and company data of natural gas volumetric throughput. The EPA-reported emissions data is based on a combination of EPA emission factors and data calculated using the leak testing described above.



180760/PDF/09-18