

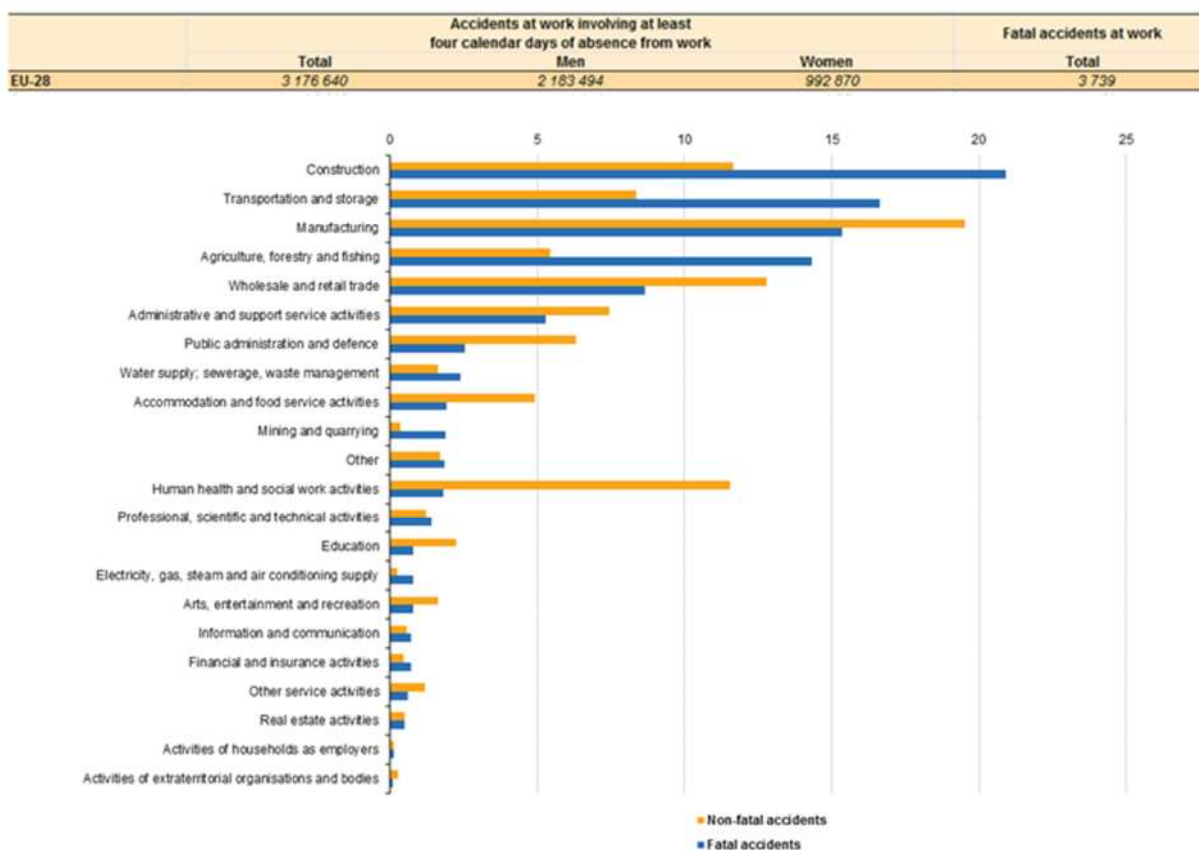
## **Occupational Health and Safety Performance of the European Gas Industry: 2010-2015**

## 1. Introduction

In most countries, data concerning work related incidents are collected in line with national legislation. In the literature, these data are grouped by major industry sectors (e.g. oil, chemicals, agriculture...). MARCOGAZ collects data on occupational safety for the gas industry at European level, specifically from the member companies of its health and labour safety working group. The restrictive character of this information enables the working group to an in-deep analysis. In the future, it is the intention to collect data from all MARCOGAZ members.

Although the intrinsic properties of gas are hazardous (flammable and conveyed at high pressures), the safety records of the gas industry world-wide remain comparable to other industries.

The following table ([Figure 1](#)) includes figures of 2014 accident at work statistics from Eurostat.



*Figure 1: Fatal and non-fatal accidents at work by economic activity, EU-28, 2014  
(% of fatal and non-fatal accidents) – Source: Eurostat*

However, there is no room for complacency and the industry firmly believes that it is important that data should be collected and analysed on those incidents that do occur, so that trends can be identified and lessons learned for the future.



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The MARCOGAZ working group is share information on health and safety for comparing, exchanging, analysing and standardizing this information on a European level.

Recognising the widespread use of contractors in the industry, the working group has started to collect information relating to incidents involving the employees of contractors, although near misses or non-lost time incidents involving contractor's employees are not routinely reported. Available data of contractors working for member companies are published for the first time in this report.

It is important to stress that the information received from individual companies has been dealt with confidentially, and data are reported anonymously.

Please note that one company had a big influence on the results.

## 2. Definitions

**Hazard:** the effects that have or could have caused the accident.

**Direct cause:** deviation that makes the accident occur.

**Own Staff Number / Contractor Staff Number:** the number of employees (own Staff / Contractor) active at the end of the benchmarking year.

**Total Worked Hours (in million hours):** number of total working hours ((ordinary + extraordinary - absenteeism hours) \* # employees).

**Working Days Lost due to Injuries and Relapses (Own Staff):** working days lost due to injuries and relapses. Note: relapses are not accounted as injuries, but the lost days are. Relapses do not change the injury frequency rate but only the severity rate (from the day following the event to the day previous back to work).

**Near Misses:** any event which has the potential to result in LTI or Non-LTI. This includes all events that are reported in the safety system as "near misses", "high potential events", "unsafe acts", etc.

**Non-Lost Time Incidents (Non-LTI):** any event resulting in an injury to staff with the need for first aid or medical treatment; but which did not result in an absence at work for more than one day.

**Lost Time Incidents (LTI's):** events resulting in inability to work for at least one day following the day of the event. In this analysis injuries occurring in commuting time (home to work) are excluded but traveling between different worksites are included.

**Frequency rate (LTIF):** number of lost time incidents (LTI's) occurred during a period of time divided by the sum of the hours worked by the workers of the company (expressed as millions of hours worked) during the same period of time.

**Severity rate:** number of workable days lost during a period of time due to lost time incidents (LTI's) divided by the sum of the hours worked by the workers of the company (expressed as millions of hours worked) during the same period of time.

**Mean duration rate:** average of working days lost by lost time incident (LTI) during a period of time.

### 3. Results of the survey

For reasons of confidentiality, data of individual companies are not shown.

#### 3.1 Frequency rate (LTIF)

The mean 'Lost Time Incident Frequency' (LTIF) of MARCOGAZ TSO members for 2010 – 2015 is shown in the graph 'Figure 2' below.

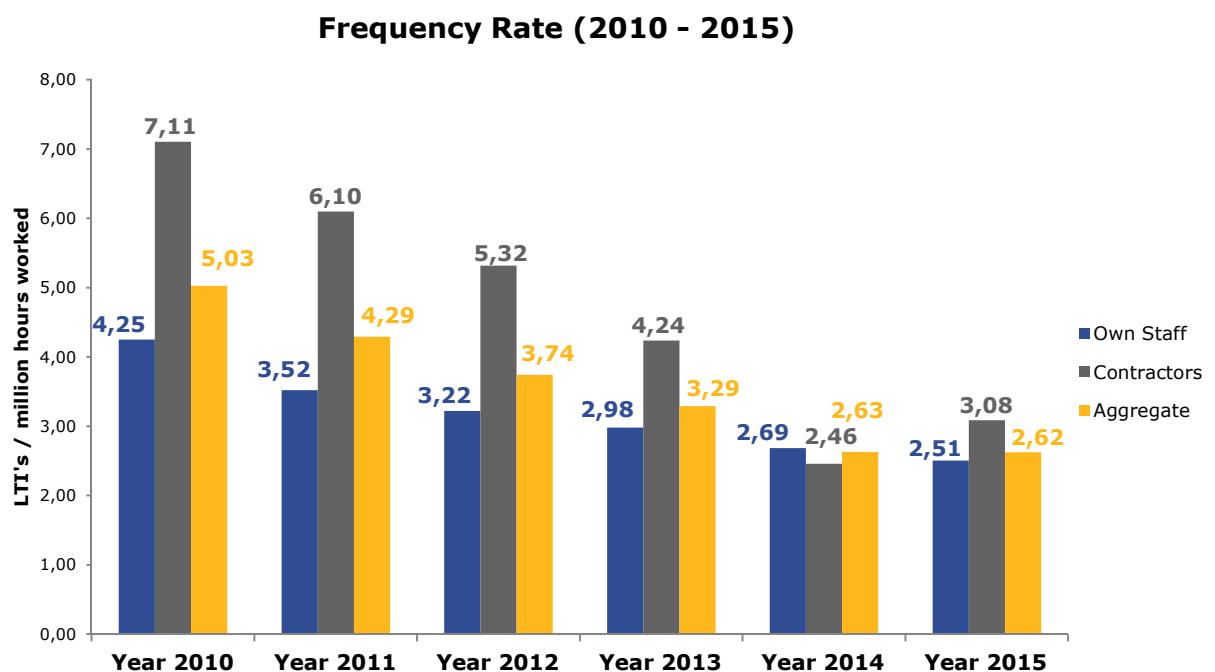


Figure 2: LTIF Lost Time frequency rate average 2010 – 2015

Note: Aggregate = own staff + contractor staff

This graph shows clearly that the LTIF has dropped continuously over the last five years. Since we didn't identify a specific explanation for this trend, it can be explained by an increasing safety culture within the own staff as well as within the contractors.

#### 3.2 Severity rate

Over the years the severity rate is decreasing, as shown in the graph 'Figure 3' below. However, the rate of 2011 breaks the trend, lowering more than usual (lost time incidents were less severe, since their number was higher than in 2012): see [Table 1](#), p7.

### Severity Rate (2010 - 2015)

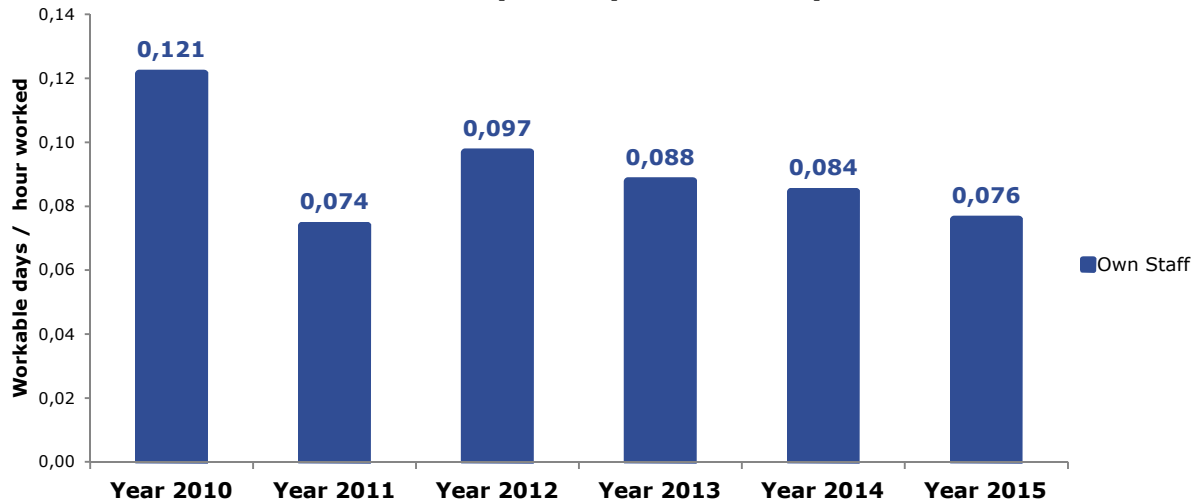


Figure 3: Severity rate

### 3.3 Mean duration rate

Mean duration rate is the average of lost working days per lost time incident during the same period (total number of workable lost days divided by total number of lost time incidents during the period). The data over the period 2010-2015 shows some variations and it is difficult to draw any significant conclusions regarding deviations in this area. The results don't follow any specific trend.

### Mean Duration (2010 - 2015)

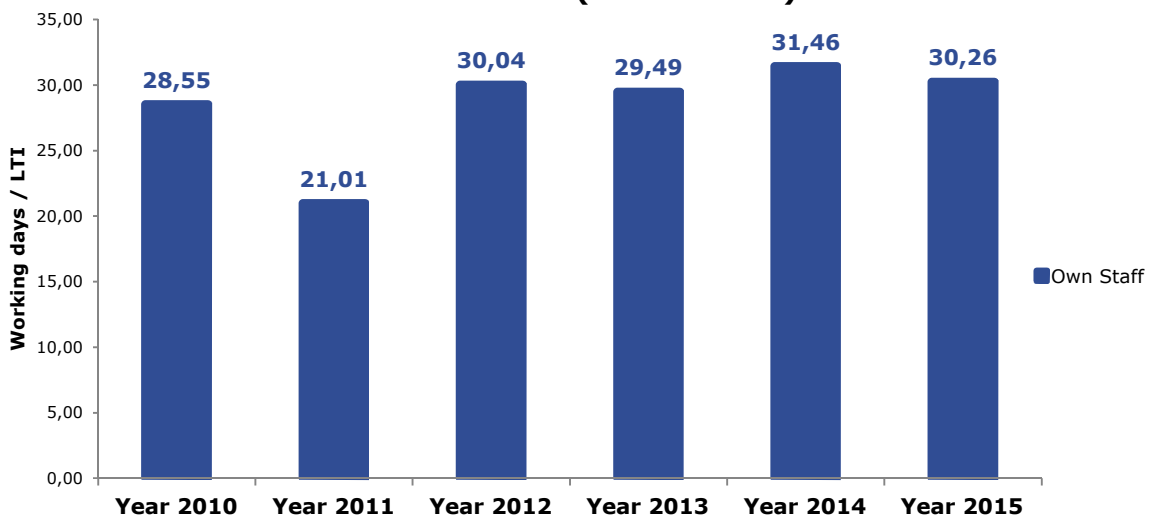
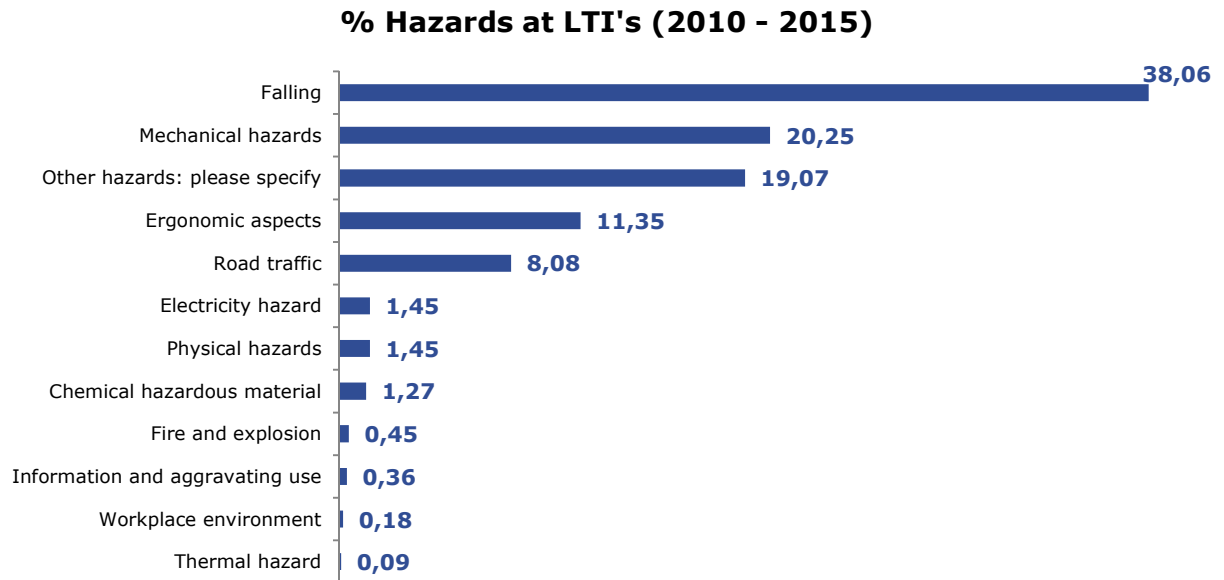


Figure 4: Mean duration rate

Data provided by Member companies also indicates the type of hazard associated with Lost Time Incidents (LTI). In figure 4, the number of incidents caused by a specific hazard is shown. Based on these numbers, a ranking of hazards is made in 'figure 5'.

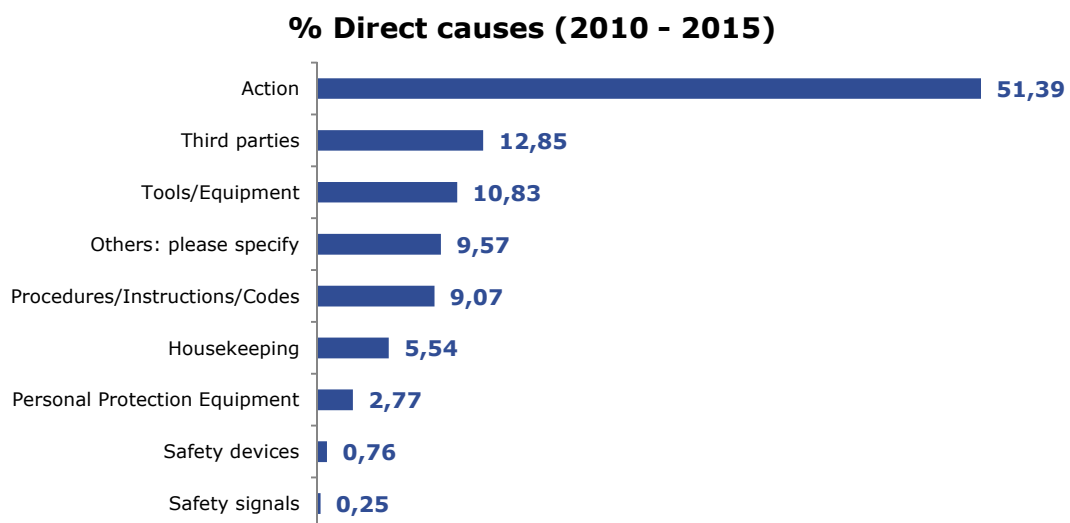


*Figure 5: Hazards at time of incident (2010-2015)*

Mechanical hazards and falling cause more than 50% of all lost time incidents in the gas industry. To note that almost 20% (19,07%) of the hazards couldn't be included in a specified category and are classified in the category "Other hazards".

### 3.4 Direct causes (at the time of LTI)

An overview of direct causes of incidents is shown in figure 6:



*Figure 6: Direct causes at the time of the LTI (2010-2015)*

Most of the incidents happened as a result of a wrong action showing human failure as an important direct cause.

The category "others" needs further details to draw conclusions.

## 4. Health & Safety Performance Indicators

The Table 1 below shows an overview of the Health & Safety performance based on the received data. This includes data for "own staff" of transmission companies, distribution companies and integrated companies.

	Unit	2010	2011	2012	2013	2014	2015
Number of responding companies	-	7	8	8	8	8	6
Number of employees	-	35.095	34.298	40.382	37.011	40.912	39.557
Total worked hours	10 <sup>6</sup> hours	54	53	62	59	63	66
Number of LTI's	-	231	185	200	175	168	166
Number of fatalities	-	4	1	0	0	0	3
Total lost time	days	6.596	3.886	6.008	5.161	5.286	5.023
LTIF	LT/10 <sup>6</sup> hours	4,25	3,52	3,22	2,98	2,69	2,51
Severity rate	LT*1000/ hours	0,121	0,074	0,097	0,088	0,084	0,076
Mean duration rate	LT/LTI	28,55	21,01	30,04	29,49	31,46	30,26

*Table 1: Health and Safety Performance Indicators of the Gas Industry period 2010-2015*

## 5. Conclusions

The survey shows:

- A reduction over time of the Lost Time Incident Frequency Rate (LTIF) and the Severity Rate.
- The mean lost time per incident requires further data to establish more accurate long-term trends.
- Mechanical hazards and falling incidents account for over 50% of all lost time incidents in the gas industry.
- Ergonomic aspects account for over 11% of all lost time incidents in the gas industry.
- More than half of the incidents are 'behaviour related' (human mistakes).
- For the next analysis, it is important to consider other possible categories of hazards and direct causes, as more than 19% of hazards are included in the category Others, and almost 10% of the incidents were related to non-specified causes
- It should be interesting to establish a risk profile for every company (based as example on % of people working in office vs % of people working in production), in order to compare the incidents taking into account the specific activities of each company.