



# CEFIC RESPONSIBLE CARE<sup>®</sup> KEY PERFORMANCE INDICATORS 2020



## Performance reporting is at the heart of Responsible Care®

### Executive Summary

The Responsible Care 2020 Key Performance Indicators (KPIs) reports ongoing stabilised figures across most reporting areas, including employees in the chemical sector and many emission areas to air and water. Over the past 10 years, almost all KPIs have reported significant reductions: Sulphur Dioxide to the air fell by 60%, GHG direct emissions in CO2 equivalent dropped by 20%, Nitrogen Oxides and Non-Methane Volatile Organic Compounds to the air reduced by 40% and Chemical Oxygen Demand returned to the environment saw a reduction of 15%. Companies have also reduced the quantity of nitrogen in water by around 30%.

Safety is our industry's number one priority. Since 2020 it has been mandatory to report process safety incidents. The reported fatalities can include non-related work incidents directly onsite and commutes to work, for example. National federations encourage continuous improvement across member companies by sharing best practices and providing training. The 2020 data shows Lost Time Injury Rate for Employees has continued to steadily decline since 2011 (still 25% decrease).

### About the Responsible Care Key Performance Indicators

Responsible Care is the global chemical industry's commitment to safe chemicals management and performance excellence in environment, health, safety and security. The voluntary programme has been implemented by 62 chemical associations across more than 70 countries around the globe, including 30 countries across Europe. Within this programme, chemical companies report openly on their performance, achievements and shortcomings based on KPIs.

The annual data collection is the result of a lengthy and complex process. The team, comprising of the Responsible Care companies, nation associations, Cefic and International Council of Chemical

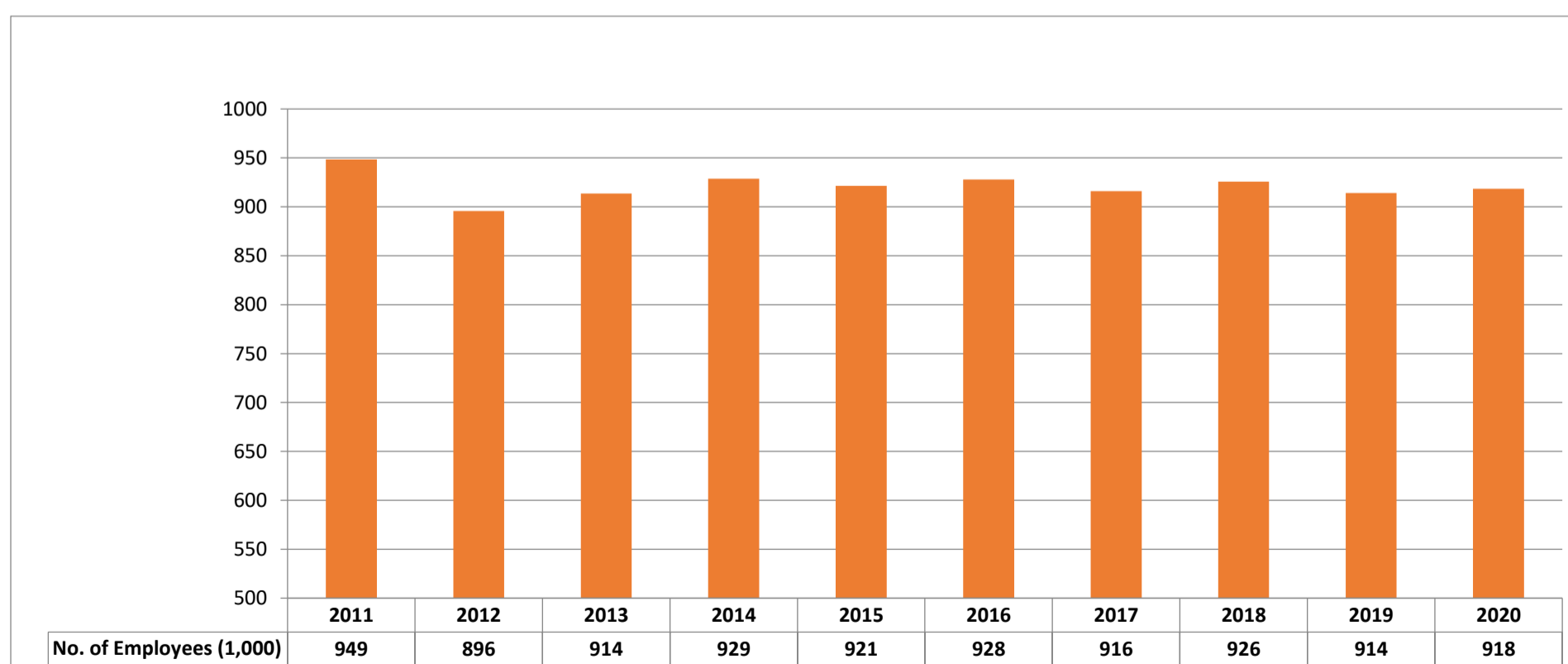
### Employees

The diversity of our sector is reflected by the variety of the skilled employees in the chemical sector. According to Eurostat data, employment in the EU chemical industry is particularly high across five subsectors – consumer chemicals, petrochemicals, other chemicals, paints and coatings and plastics.

### Chemical Sector Employees Participating in Responsible Care

Since 2011, the total number of employees of companies participating in Responsible Care has remained relatively stable, standing at 918,000 in 2020.

Total number of employees of RC Companies stable over 2011-2020:  
**918,000**



This figure represents the sum of employees in Responsible Care companies across Europe participating in the survey.

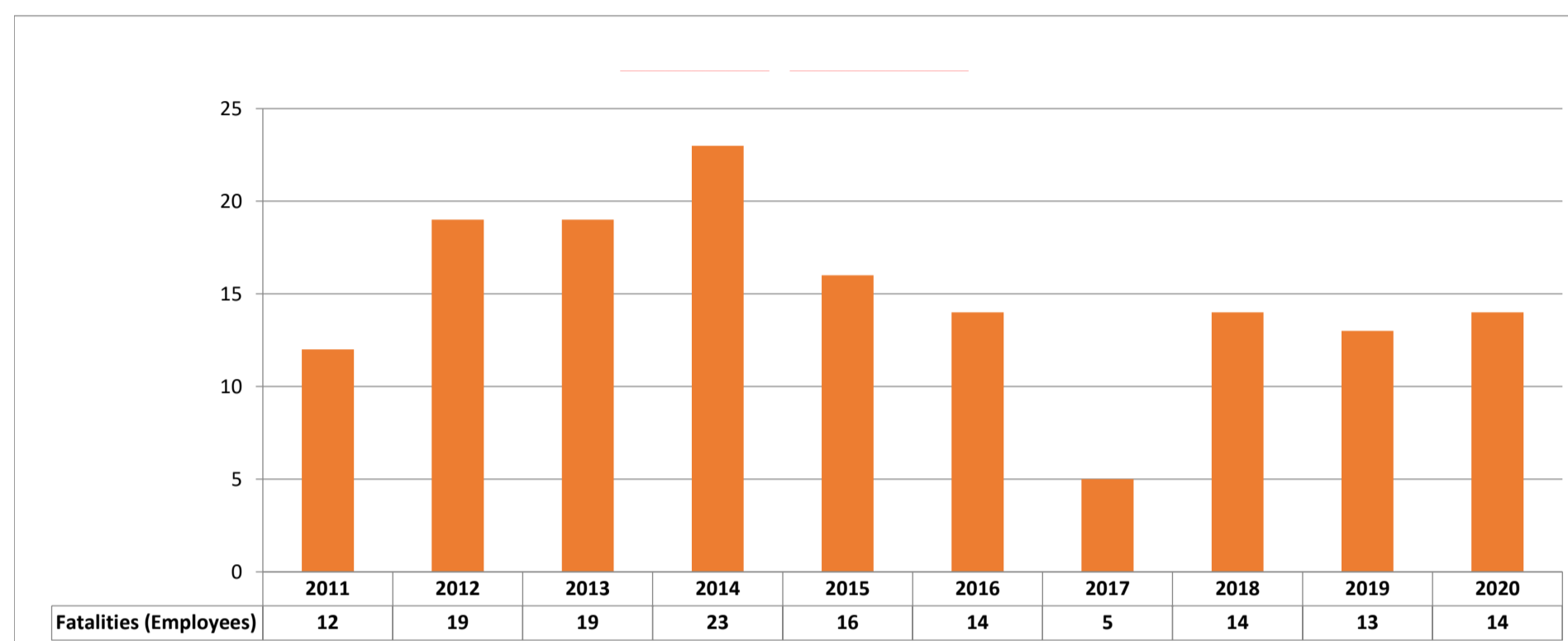
## Safety at Work

### EMPLOYEE FATALITIES

Safety of workers is an utmost priority for the chemical industry and the only acceptable target is zero. Fatalities can include non-related work incidents directly onsite and commutes to work, for example. National federations participating in Responsible Care encourage continuous improvement across member companies by sharing best practices and providing training. It has been mandatory to report process safety incidents as a KPI since 2020.

#### Employee fatalities

In 2020, fourteen fatalities occurred across six of the twenty participating countries.



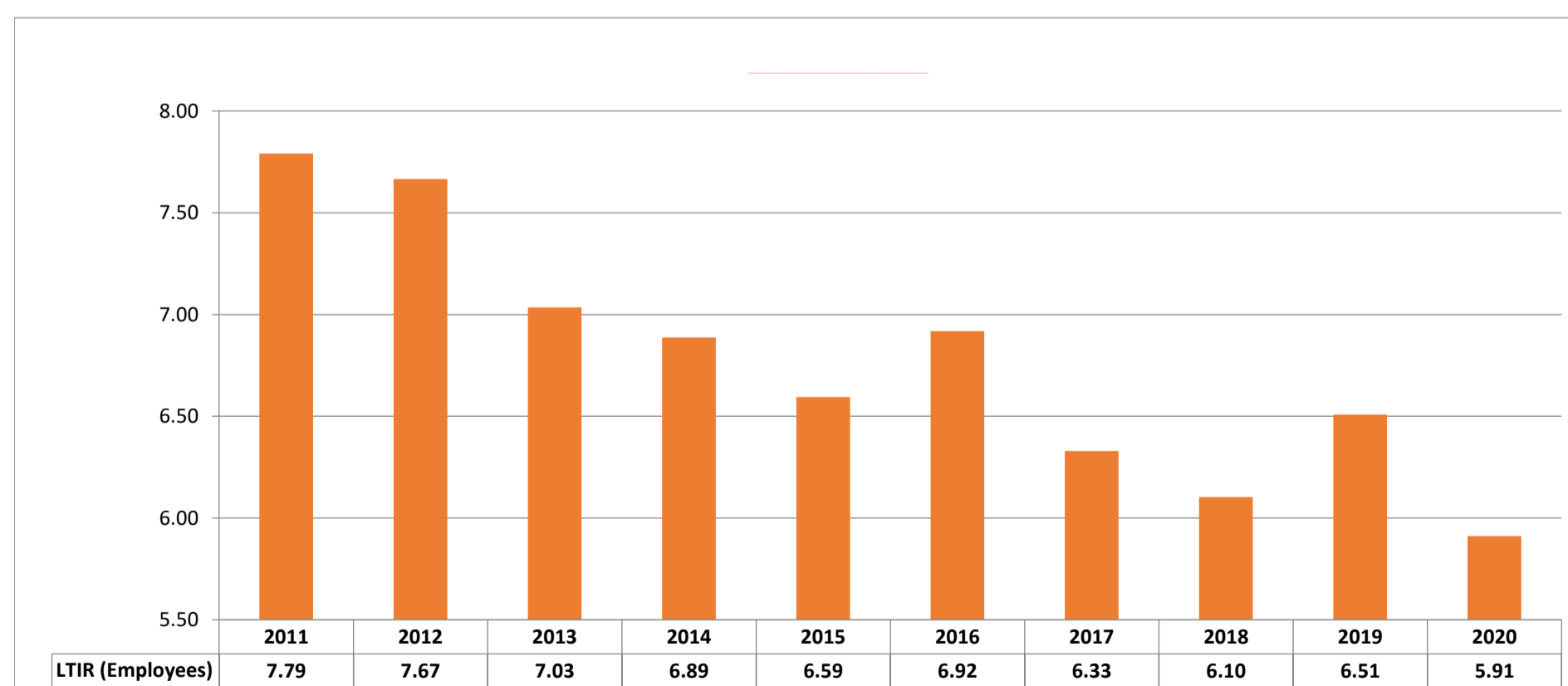
This figure represents the sum of fatalities in Responsible Care companies across Europe participating in the survey

### LOST TIME INJURY RATE (LTIR)

For the chemical industry, safety, in particular the safety of workers, comes first.

#### Lost Time Injury Rate for Employees

Lost time injury rate (LTIR) is expressed as the number of lost time incidents per million working hours. A lost time injury is a bodily injury that renders the person physically or mentally unable to work, resulting in at least one day off work. A steady decline of 25% has been reported between 2011 and 2020 for LTIR for employees of participating companies.



This figure shows the weighted average of lost time Injury rate using the number of employees in companies across Europe practicing Responsible Care in this survey.

14 employee fatalities in 2020 across 6 of 20 participating countries

Steady 25% decline of LTIR across participating companies over 2011-2020

## Environment / Air

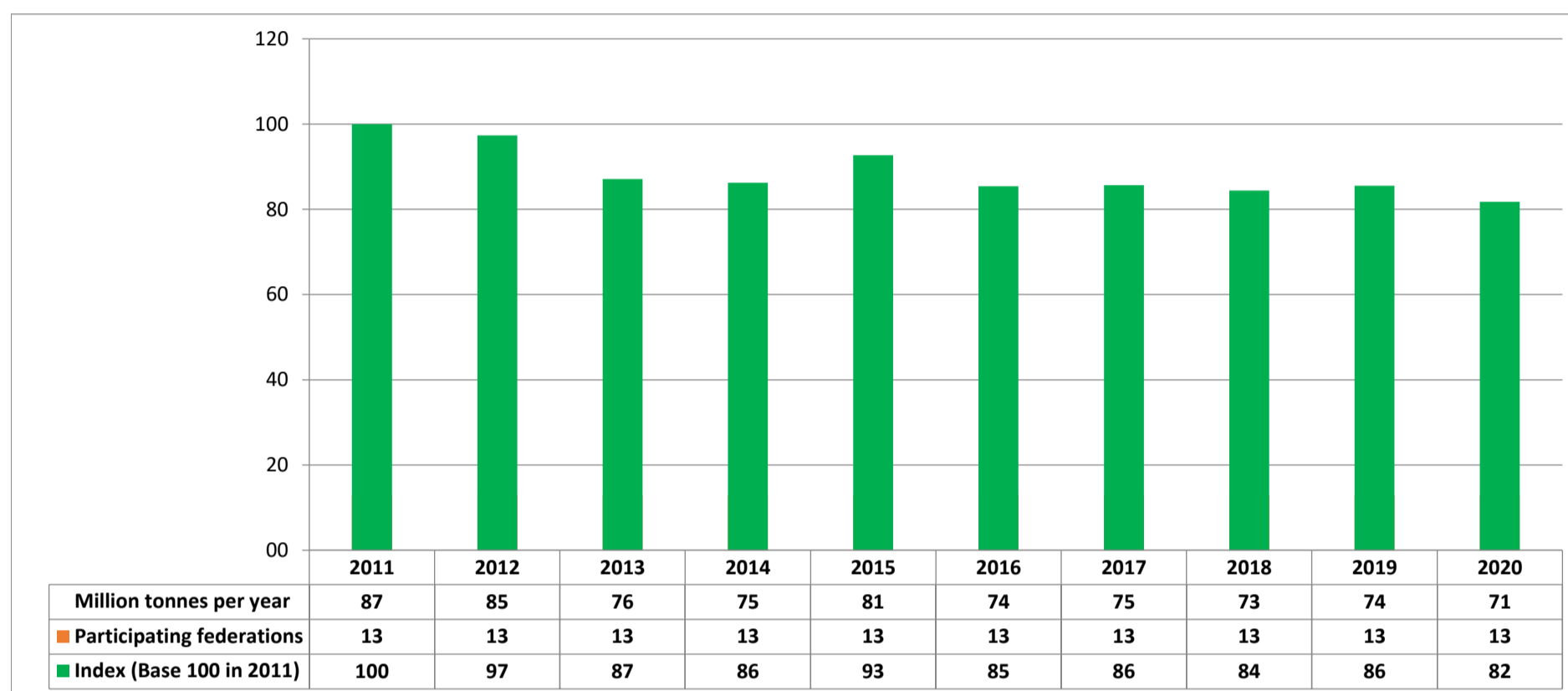
### EMISSIONS OF GREENHOUSE GASES (GHG) (CO<sub>2</sub>-EQ.)

Carbon dioxide, nitrous oxide and hydrofluorocarbons are the three major gases emitted by chemical plants with Global Warming Potential (GWP) as listed in the Kyoto Protocol. CO<sub>2</sub> is by far the most important GHG by quantity.

#### GHG direct emissions in Carbon Dioxide equivalent

Participating companies' GHG direct emissions in CO<sub>2</sub> equivalent have steadily fallen by 18% since 2011.

GHG direct emissions in CO<sub>2</sub> equivalent  
↓ by 18% since 2011



GHG direct emissions in CO<sub>2</sub> are reported in million tonnes and illustrated as an index comparing the yearly emissions to the level of 2011 (2011=100). This figure represents Responsible Care companies across Europe participating in the survey.

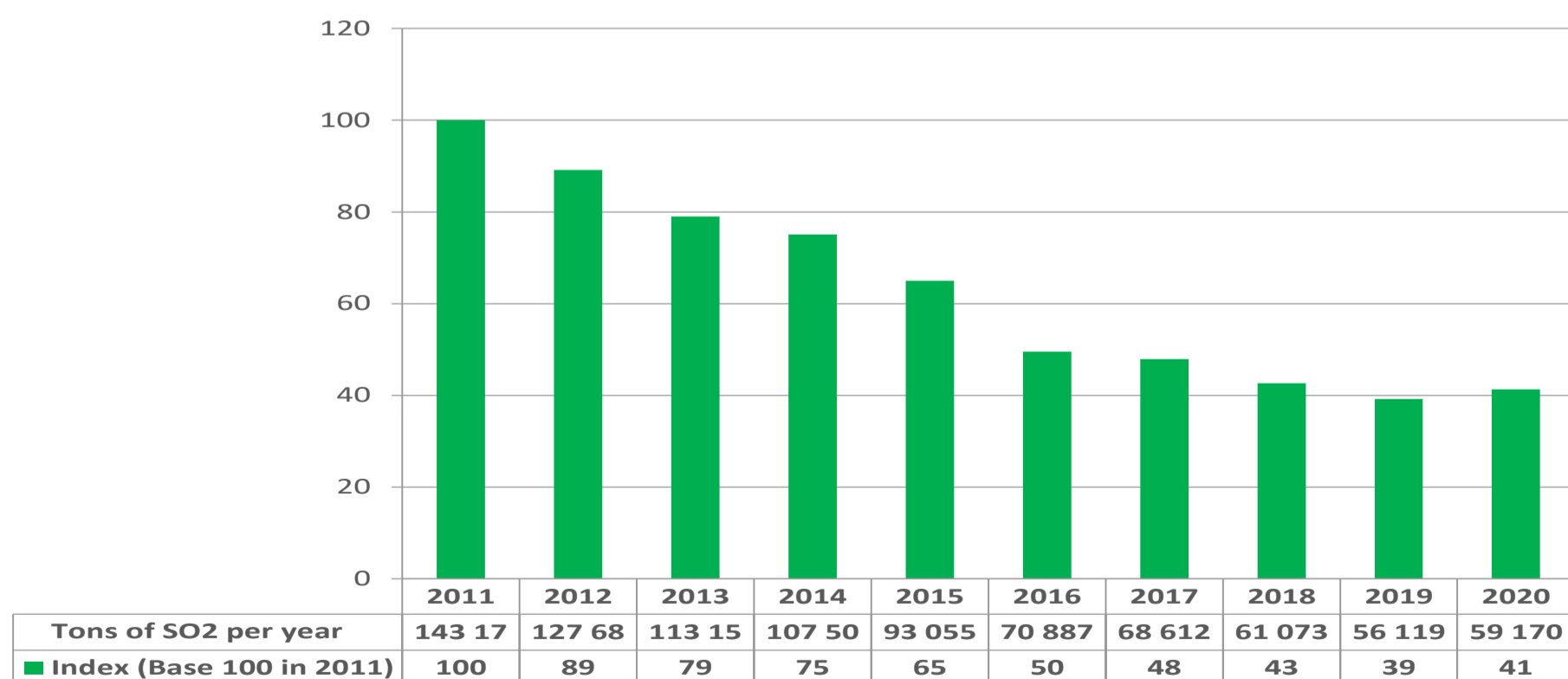
### SULPHUR DIOXIDE (SO<sub>2</sub>)

Sulfur Dioxide (SO<sub>2</sub>) is a major atmospheric pollutant responsible for acidification. The main emitters are combustion plants and refineries.

#### SO<sub>2</sub> emissions

From 2011 until 2020, participating companies have reduced their SO<sub>2</sub> emissions to the atmosphere by around 59%.

SO<sub>2</sub> emissions to the atmosphere  
↓ by around 59% since 2011



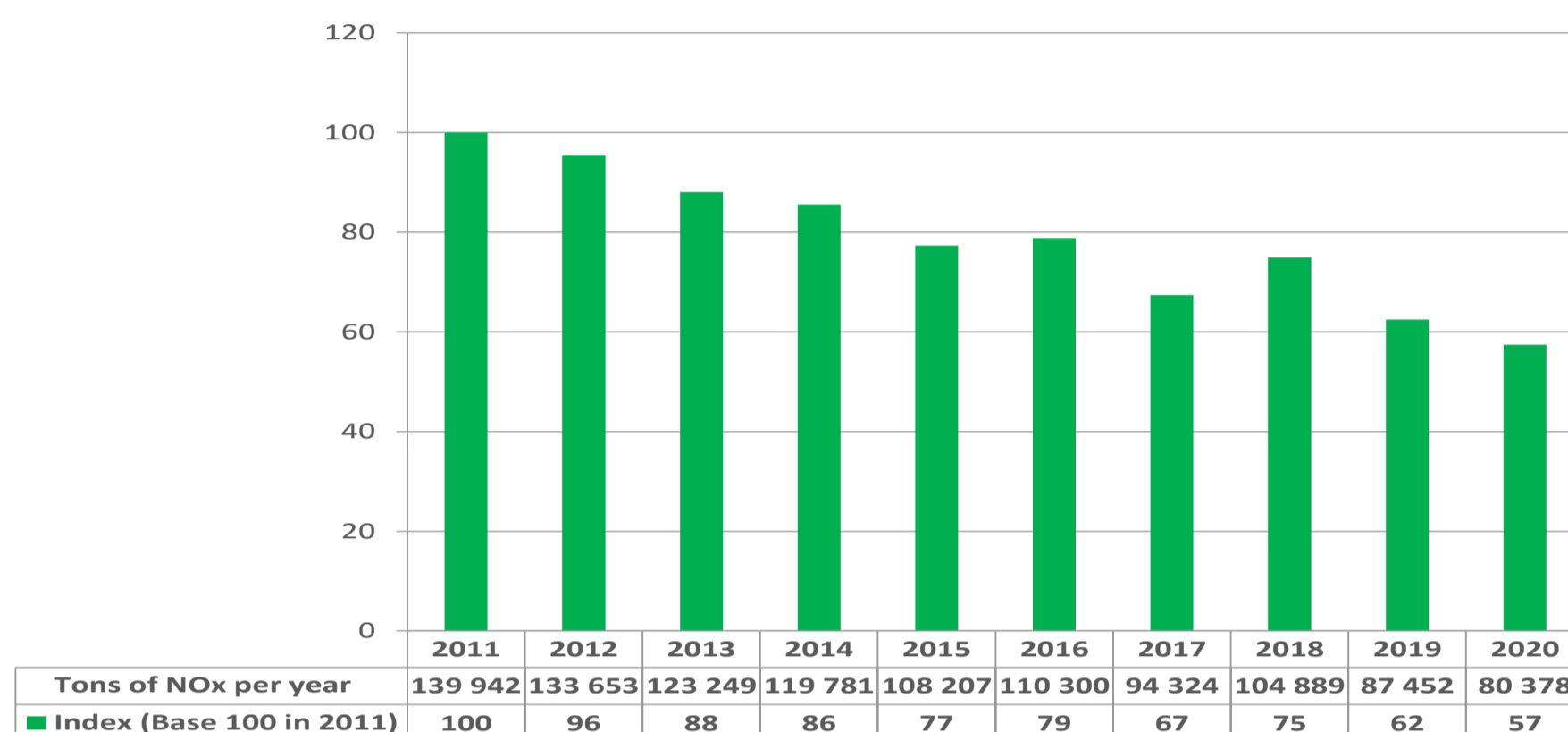
SO<sub>2</sub> emissions are expressed in tons and illustrated as an index comparing the yearly SO<sub>2</sub> emission levels to that of 2011 (2011=100). This figure represents Responsible Care companies across Europe participating in the survey.

## NITROGEN OXIDES (NO<sub>x</sub>)

Nitrogen Oxides (NO<sub>x</sub>) are responsible for atmosphere acidification and together with Non-Methane Volatile Organic Compounds (NMVOC), they have the potential to contribute to photochemical ozone creation that may cause respiratory problems for people living in highly urbanised areas, as well as ecological damage to nature.

### NO<sub>x</sub> emissions

Participating companies have reduced their NO<sub>x</sub> emissions to the atmosphere by around 43% since 2011.

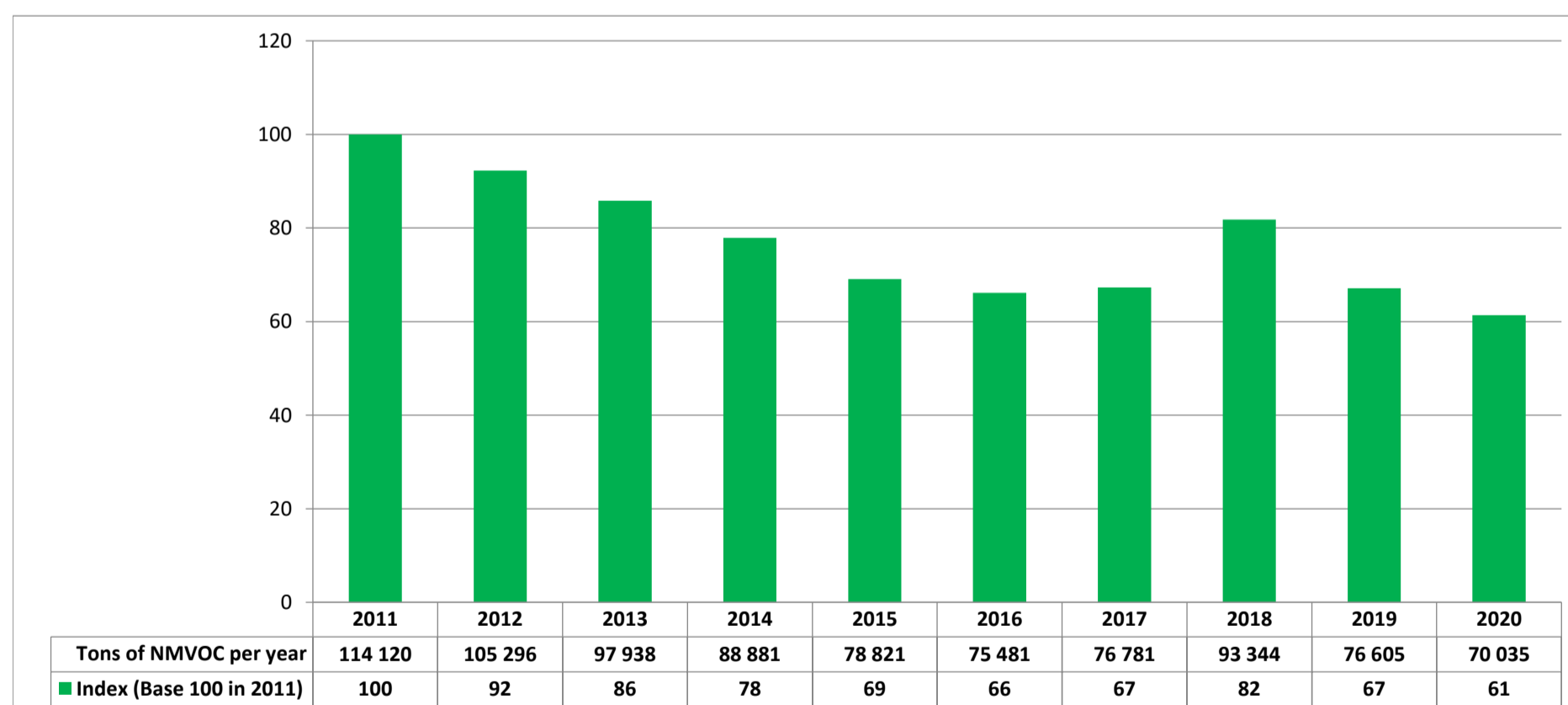


Both NO and NO<sub>2</sub> are combined in this measurement and reported as a single number. NO<sub>x</sub> emissions are expressed in tons and illustrated as an index comparing the yearly NO<sub>x</sub> emission levels to that of 2011 (2011=100). This figure represents Responsible Care companies across Europe participating in the survey.

NO<sub>x</sub> emissions  
to the atmosphere  
↓ by around 43%  
since 2011

### NMVOC emissions index

Participating companies have reduced their NMVOC emissions to the atmosphere by around 39% since 2011.



NMVOC emissions are expressed in tons and illustrated as an index comparing the yearly NMVOC emission levels to that of 2011 (2011=100). This figure represents Responsible Care companies across Europe participating in the survey.

NMVOC emissions  
to the atmosphere  
↓ by around 39%  
since 2011

## Environment / Water

### NITROGEN AND PHOSPHORUS

Nitrogen and phosphorus are nutrients that are natural parts of aquatic ecosystems. However, when too much nitrogen and phosphorus enter the environment, usually from a range of human activities, the water can become polluted.

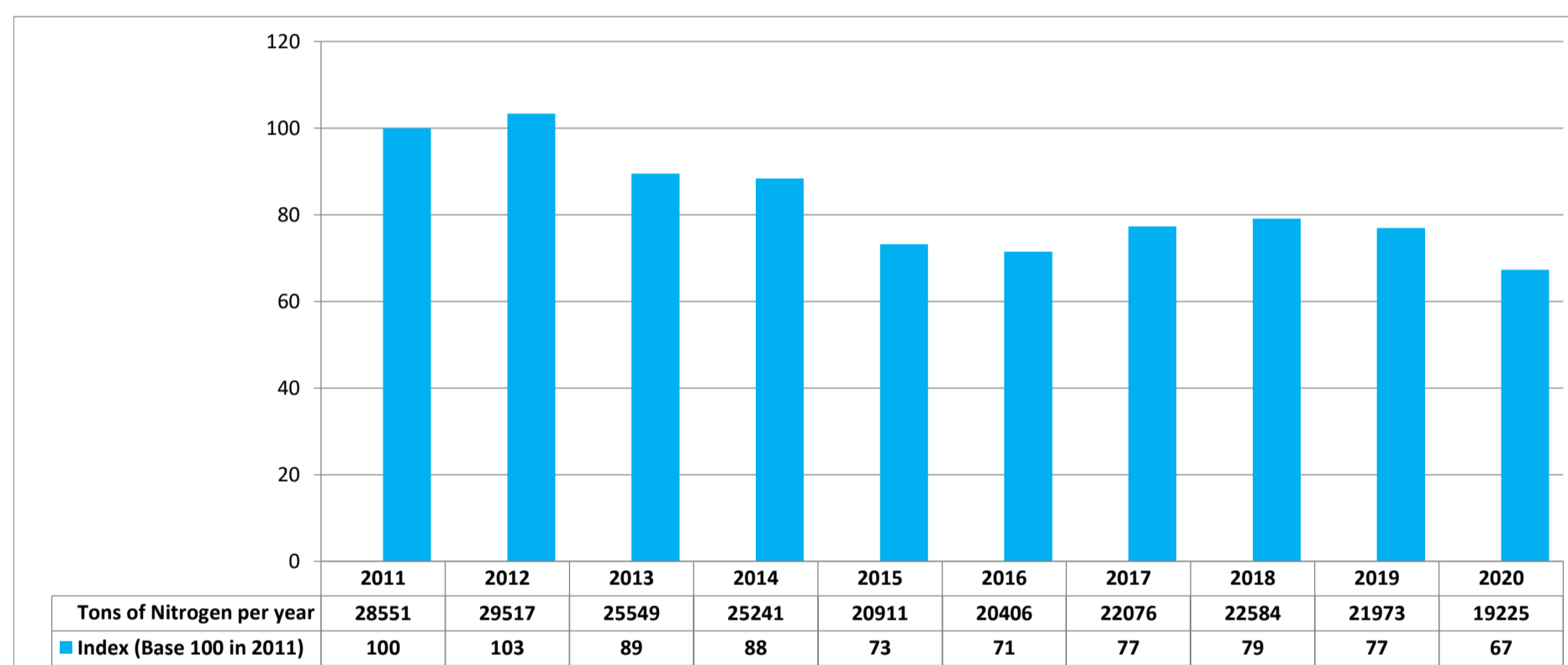
Too much nitrogen and phosphorus in the water causes algae to grow faster than the ecosystems can handle. Significant increases in algae harm water quality, food resources and habitats, and decrease the oxygen that fish and other aquatic life need to survive.

Some algal blooms are also harmful to humans because they produce elevated toxins and bacterial growth that can make people sick if they come into contact with polluted water, consume tainted fish or shellfish, or drink contaminated water. Nutrient pollution of water resulting from excess nitrogen and phosphorus is widespread. **Companies can continuously monitor the quality of water they return to the environment after the removal of impurities, by measuring the quantity of nitrogen and phosphorus compounds present in the water.**

#### Nitrogen present in the water returned to the environment

Participating companies have reduced the quantity of nitrogen in water by 33% since 2011, while reductions have stabilised over the last five years.

Nitrogen in water  
 returned to the  
 environment  
 ↓ by 33%  
 since 2011

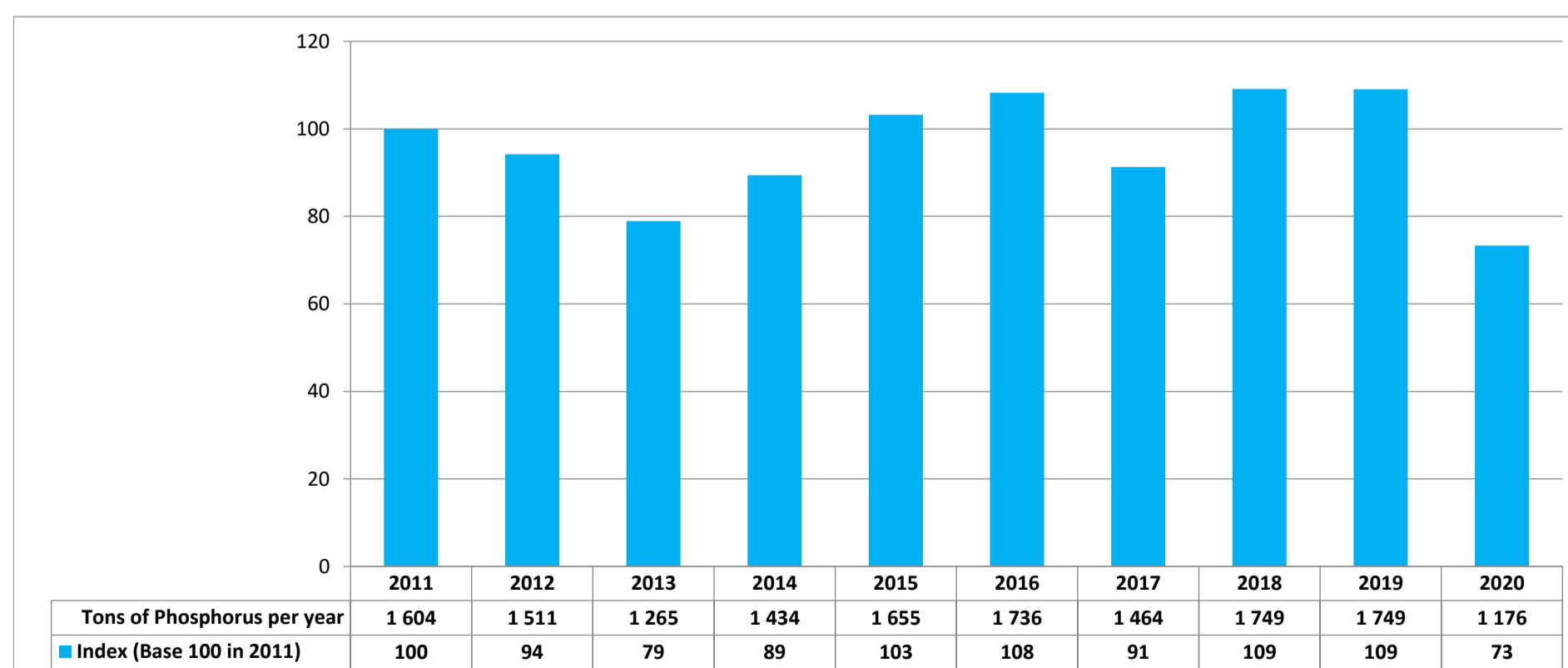


Nitrogen is expressed in tons and illustrated as an index comparing the yearly nitrogen level to that of 2011 (2011=100). This figure represents Responsible Care companies across Europe participating in the survey.

#### Phosphorus present in the water returned to the environment

Phosphorous present in the water of reporting companies has fluctuated since 2011 resulting in an overall decrease of 27%.

Phosphorus in water  
 returned to the  
 environment  
 ↓ by 27%  
 since 2011



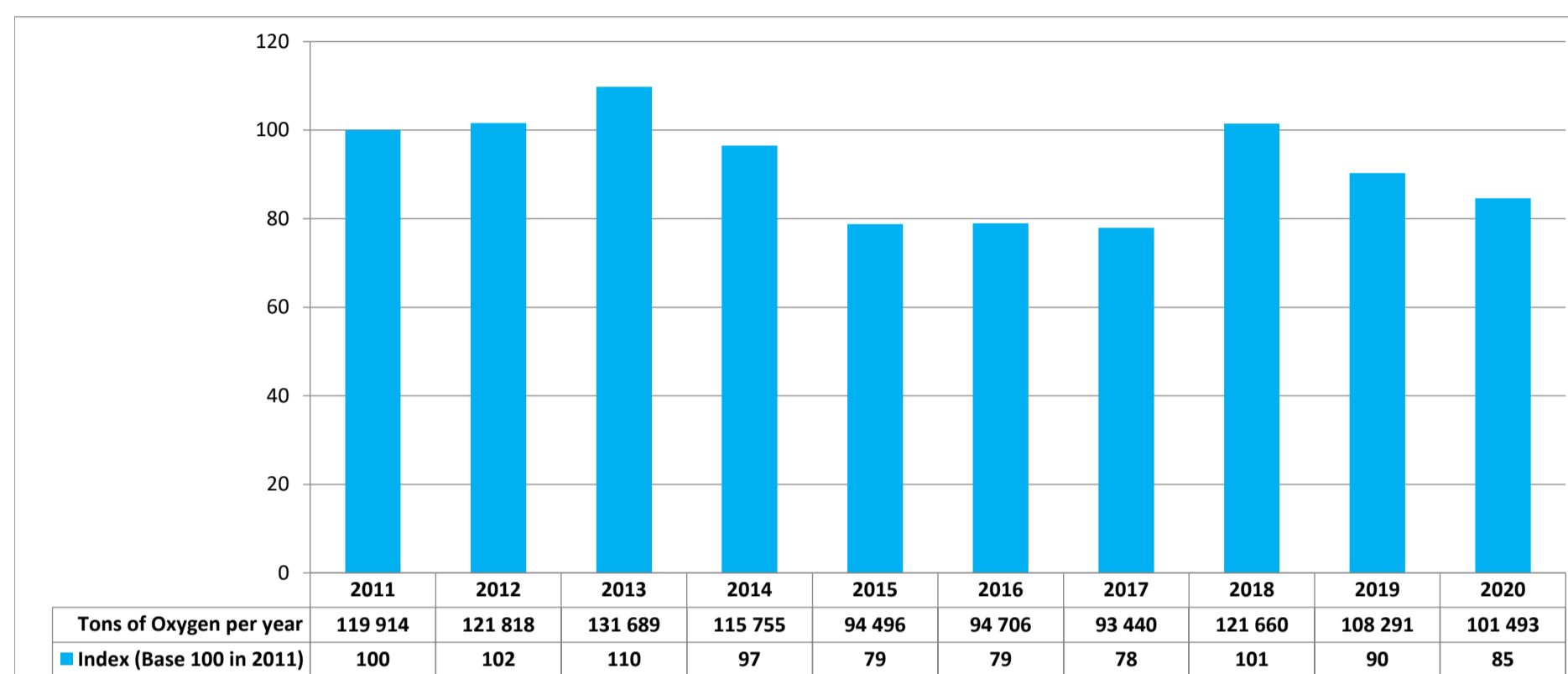
Phosphorus is expressed in tons and illustrated as an index comparing the yearly Phosphorus level to that of 2011 (2011=100). This figure represents Responsible Care companies across Europe participating in the survey

## CHEMICAL OXYGEN DEMAND (COD)

Oxygen is vital for underwater life. The quality of the water companies return to the environment can impact the environment and human health in different ways. That is why companies measure the Chemical Oxygen Demand (COD) of the water they return to the environment with COD measurement. COD gives an indirect indication of the amount of organic compounds in water.

### COD in the water returned to the environment

Participating companies have reduced the COD by about 15% since 2011.



COD is expressed in tons and is illustrated as an index comparing the yearly COD level to that of 2011 (2011=100). This figure represents Responsible Care companies across Europe participating in the survey.

COD in water  
 returned to the  
 environment  
 ↘ by about 15%  
 since 2011

## Annex

### Data Collection

The reported data originates from varying sources received by Responsible Care companies individually or compiled through national databases through national associations. The data is then reported to ICCA. For European members, Cefic converts national level data into a European overview, reflecting the overall performance of companies operating across Europe.

KPI reporting is published to showcase the status of the Responsible Care companies participating in the survey. The annual data collection is the result of a lengthy and complex process. The compiled data may vary from year to year, meaning that the baseline may also change. We strive to provide the most complete data for our industry, and we are committed to continuously improving the way we measure, report and engage in dialogue about our performance.

Performance reporting is at the heart of Responsible Care. While the initiative is voluntary, open reporting enables companies and associations to promote best practices and therefore help drive continuous improvements across the industry.

### 2020 Responsible Care Performance Data

20 European countries are covered in the 2020 Cefic Responsible Care performance data: Austria, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom. This year Greece has not reported the 2020 data. The environmental reporting of some associations is based on data published by authorities in the European Pollutant Release and Transfer Register (E-PRTR), rather than member surveys. The 2020 data reports on an increased number of participating Responsible Care companies compared to 2019. The data from several countries may not have been used for all indicators as the national association may not have the information or has yet to report on the data for enough years. Since last year report, Netherlands has not been included in this year's Direct CO<sub>2</sub> emissions. However, in this year's cycle, Netherlands has been included in the Chemical Oxygen Demand and Phosphorus Compounds – as has 10 years data reporting in these areas, Sweden has been included in this year's Nitrogen Compounds index. In addition, some countries amended the scope or perimeter of reporting fields which may have impacted the baseline.