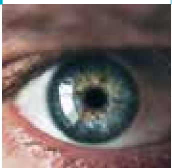
EIGA

THE EUROPEAN INDUSTRIAL GASES INDUSTRY



Facts & Figures 2023

May 2024

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EIGA's publications are subject to periodic review and users are cautioned to obtain the latest edition.

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“They are invisible, so you don’t see them. Nevertheless, you all know and use our products. It would be difficult not to, they are used everywhere: in manufacturing, chemicals, metals, food, electronics, space and healthcare - to name a few.”

Philippe Cornille, General Secretary

There are at the centre of the decarbonisation ambitions, they save lives, they help protect the environment, they make the food you consume safe.

So it is worth making them visible: for a better understanding of the Industrial Gases sector, EIGA has produced this “Facts & Figures” booklet.

IG = Industrial Gas.

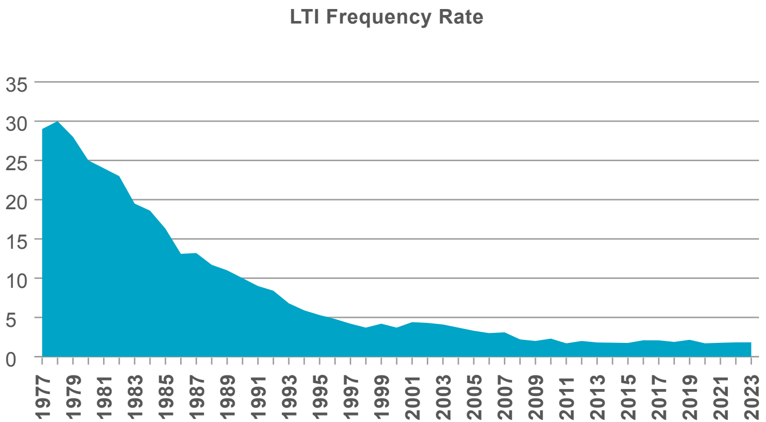
TPD = Metric Tonnes Per Day.

Data is for base **year 2022** and for EU27 unless specified otherwise.

The Association

IMPROVING SAFETY RECORD

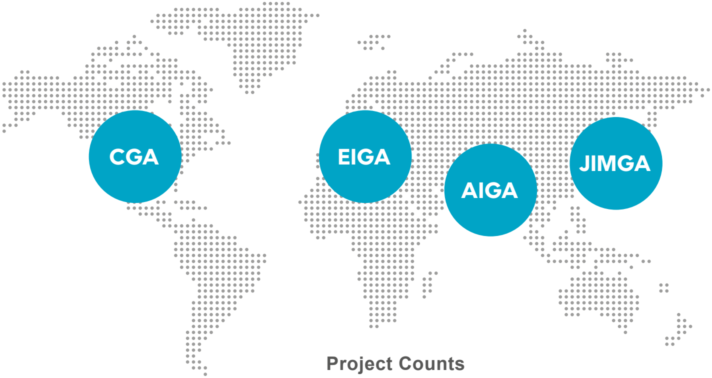
Lost Time Incidents (LTI) from across our industry show the effectiveness of our safety campaigns since the late 1970s with a tenfold reduction in LTI frequency.



Source: EIGA

74 PUBLICATIONS HAVE BEEN GLOBALLY HARMONISED

The American, Asian, European and Japanese IG associations form the International Harmonisation Council to develop and promote a globally unified industry best practices. These harmonised publications enhance safety consistently, wherever Industrial Gases are produced, distributed or used.



Project Counts

74 new
80 revisions

COMPLETED

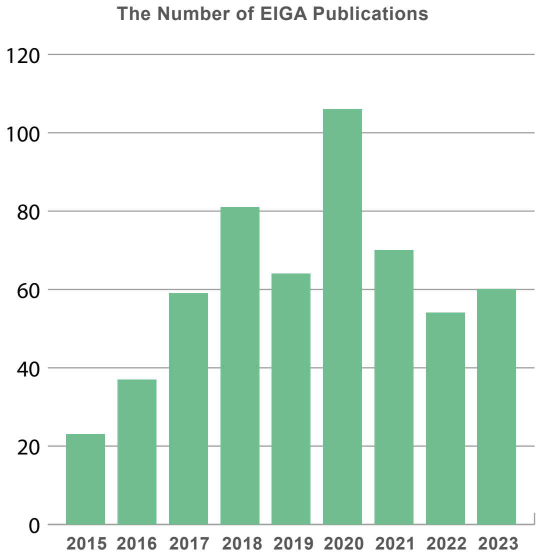
11 new
14 revisions

IN PROGRESS

Source: EIGA

ON AVERAGE, A PUBLICATION IS PUBLISHED EVERY WEEK

The combined expertise of EIGA members is captured in over 500 publications. The largest portion is made available for all on our website.



Source: EIGA

THE WORKING GROUP EXPERTS FORM EIGA'S BEATING HEART

Experts from all over Europe and beyond gather in EIGA working groups. On average such group comprises around 7 experts, and meets quarterly.

339
experts

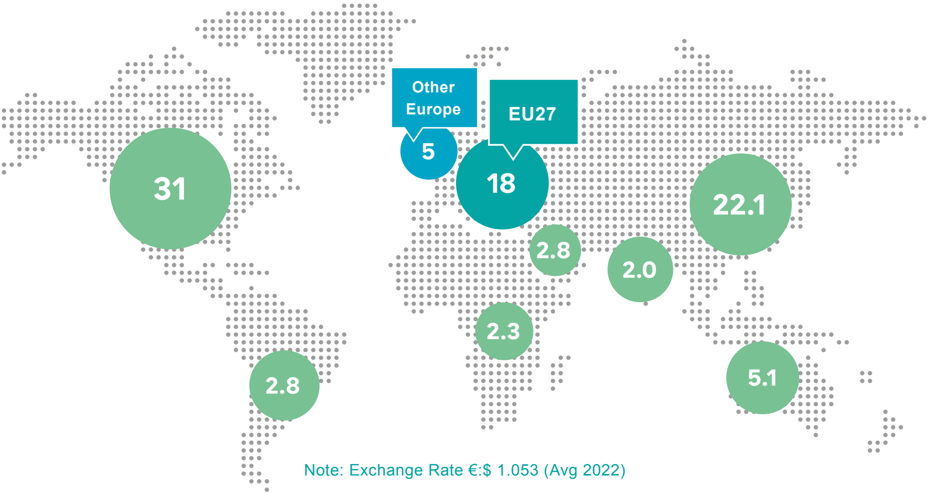
29
countries

67
groups

The Market

THE EU IS THE THIRD LARGEST IG MARKET IN THE WORLD

In 2023, the global industrial gas market achieved a market size of €87 billion.



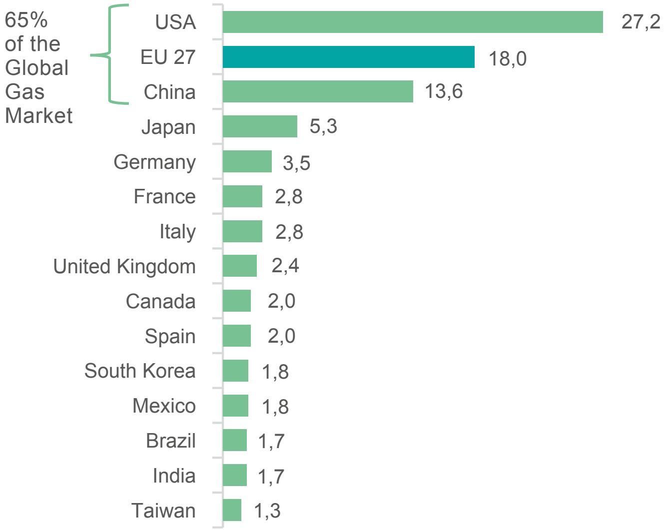
Note: Exchange Rate €:$ 1.053 (Avg 2022)

Source: gasworld Business Intelligence

THE EU27, USA AND CHINA ARE THE THREE LARGEST IG MARKETS

Germany, France, Italy and UK are the largest European Industrial Gas markets.

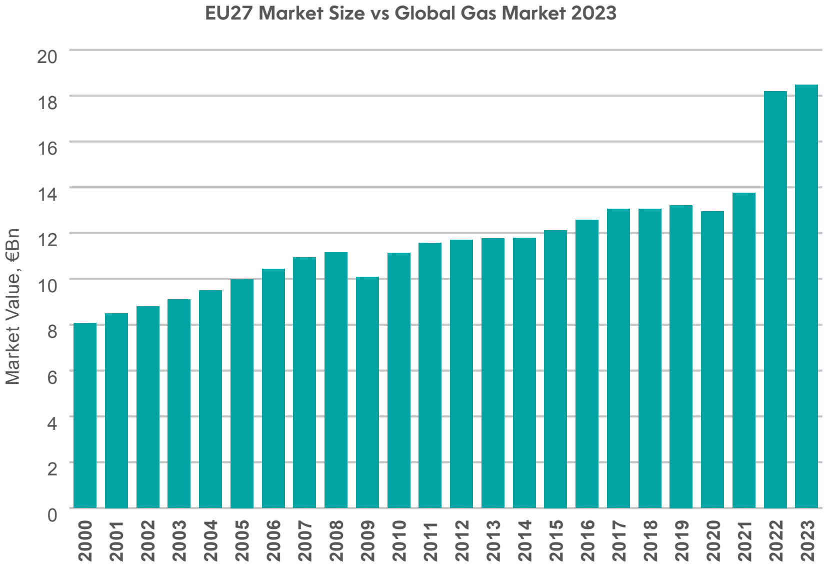
IG Market Size by Country (€Bn). 2023
Top 10 Countries by the Size of the Industrial Gas Market



Source: gasworld Business Intelligence

EU27 MARKET GROWTH AVERAGED 4.4% PER YEAR IN 2012-2023

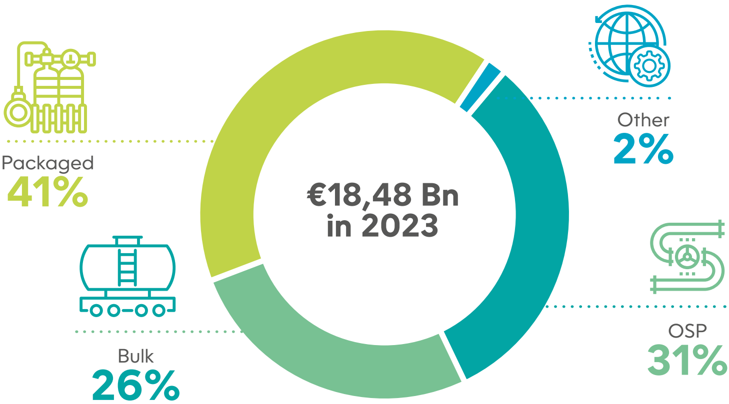
The EU market has witnessed a steady increase in value over the past decade. In 2023, this growth was moderate at 2%, compared to the significant 32% surge observed in 2022.



Source: gasworld Business Intelligence

THE MODE OF SUPPLY, IN PERCENTAGE TERMS, HAS BEEN STABLE OVER THE LAST 20 YEARS

The EU gas market (by value) appears mature with packaged gases remaining the largest mode of supply.

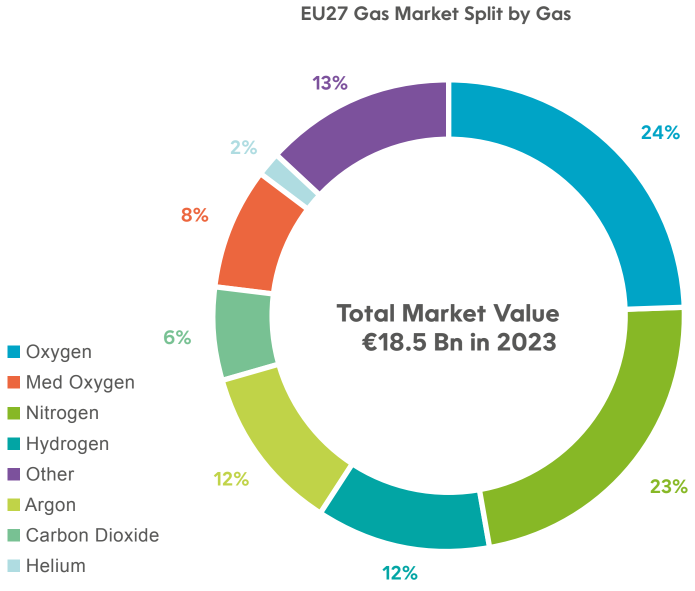


- **OSP** – onsite or pipeline gas supply;
- **Bulk** – gas supplied in liquid form to customers (incl. microbulk and tube trailer business);
- **PG** – compressed gas supplied in cylinders/bundles;
- **Other** – any other delivery of gas not covered by the above methods. This includes dry ice and revenues generated from licences and special chemical gases.

Source: gasworld Business Intelligence

OXYGEN AND NITROGEN REMAIN THE MOST WIDELY USED GASES IN THE EU27

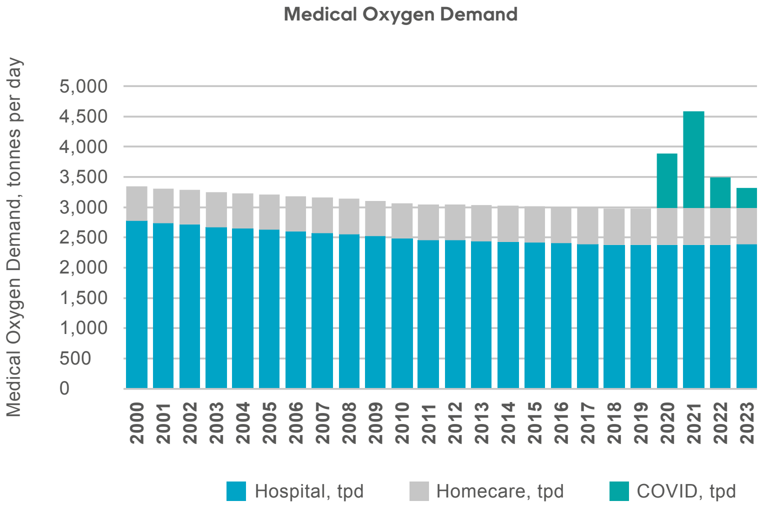
Altogether O_2 (including medical) and N_2 account for about 55% of the gas market.



Source: gasworld Business Intelligence

WITH COVID, AVERAGE MEDICAL OXYGEN DEMAND SIGNIFICANTLY INCREASED

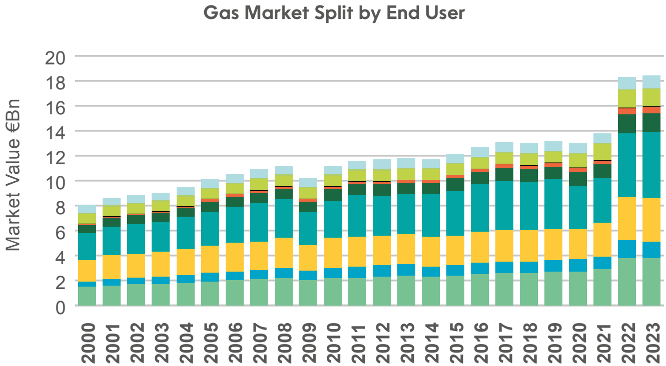
The COVID pandemic significantly influenced the rise in demand in 2020/21. Homecare oxygen continues to grow versus hospital uses.



Source: gasworld Business Intelligence

FOUR INDUSTRIAL SECTORS ACCOUNT FOR OVER 70% OF THE IG MARKET

Chemicals, Refining/Energy, Metallurgy and Food sectors have all driven growth in the EU over the past 20 years. Electronics sector is a new driver, which potentially will be stronger than the traditional sectors of growth.

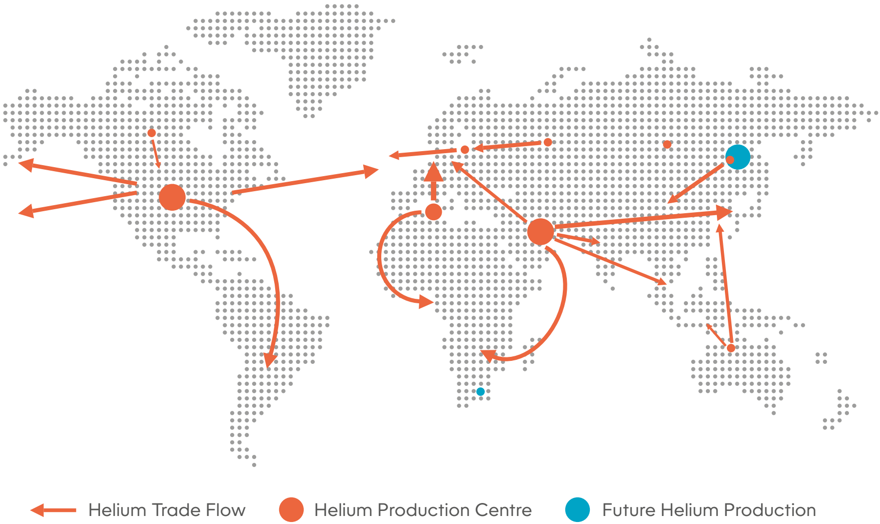


Source: gasworld Business Intelligence

- **Chemicals** – basic chemicals, plastics, rubber, petrochemicals, pharmaceuticals;
- **Refining & Energy** – refineries, nuclear energy;
- **Metallurgy** – ferrous, non-ferrous metals manufacturing;
- **Manufacturing** – fabricated metal products, machinery, vehicles, trains, aerospace etc;
- **Food** – food, drinks, tobacco;
- **Electronics** – electronic products/elements manufacturing;
- **Pulp & Paper** – pulp and paper manufacturing;
- **Healthcare** – mostly medical oxygen for hospitals (liquid and gaseous);
- **Glass** – glass manufacturing;
- **Others** – waste & water treatment, fire extinguishers, R&D.

INTERNATIONAL HELIUM TRADE

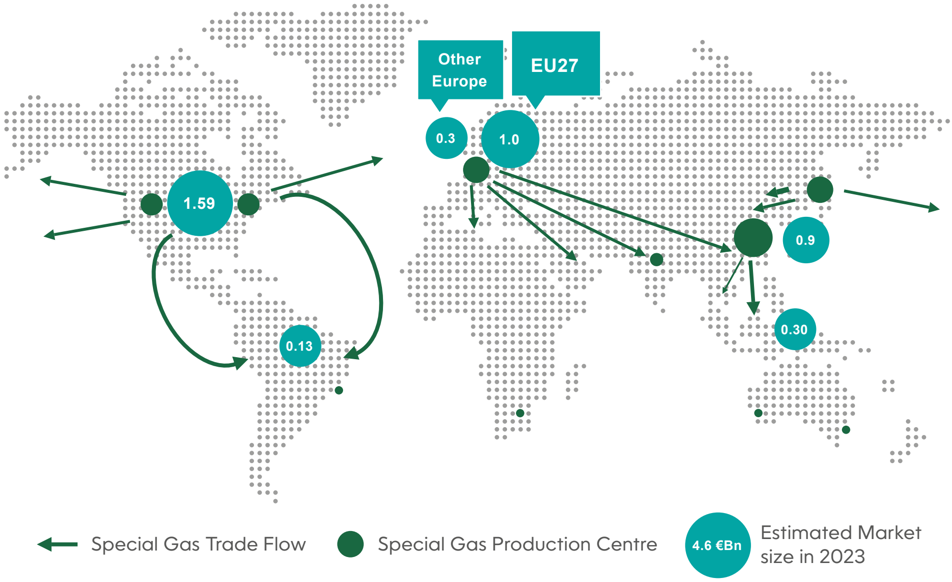
Total worldwide demand is approximately 182 m Nm^3 in 2023 of which Europe accounts for about 34%. New large capacity (55 Nm^3) due on-stream by 2025 is expected to change the flow/trade in Helium.



Source: Spiritus Consulting

TRADE IN SPECIAL GASES

There are many types of special gases and electronic gases traded across the globe. The EU both manufacturers and trades special gases and is the second largest special gases market in the world.



Source: Spiritus Consulting

Decarbonisation

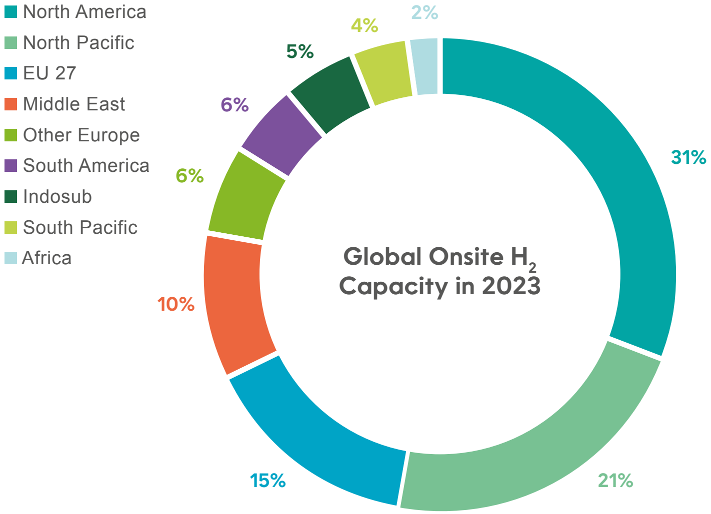

H2
HYDROGEN


H2

HYDROGEN PRODUCTION CAPACITY IN EUROPE

The EU27 traditional hydrogen business is currently the 3rd largest market worldwide. Current low carbon & renewable installed capacity in EU27 is 15%.

Installed Capacities 2023

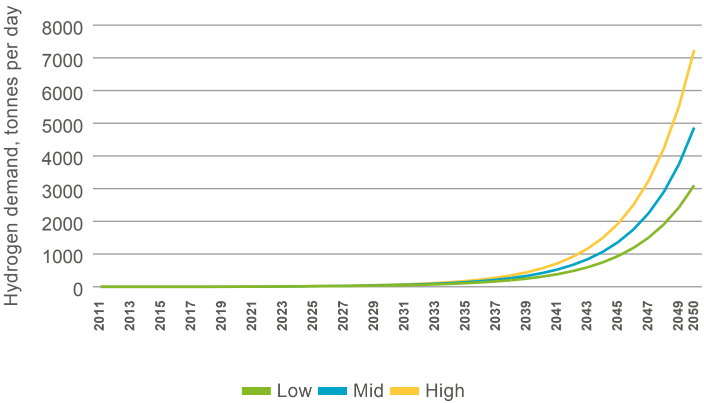


Source: gasworld Business Intelligence

THE HYDROGEN ECONOMY – THE NEW OPPORTUNITY

The EU is speedily embracing the energy transition and hydrogen is expected to play an ever-increasing role – especially in mobility within Europe. The transition has already begun but the most growth is expected to take place post 2030.

Hydrogen Demand in Mobility & Material Handling

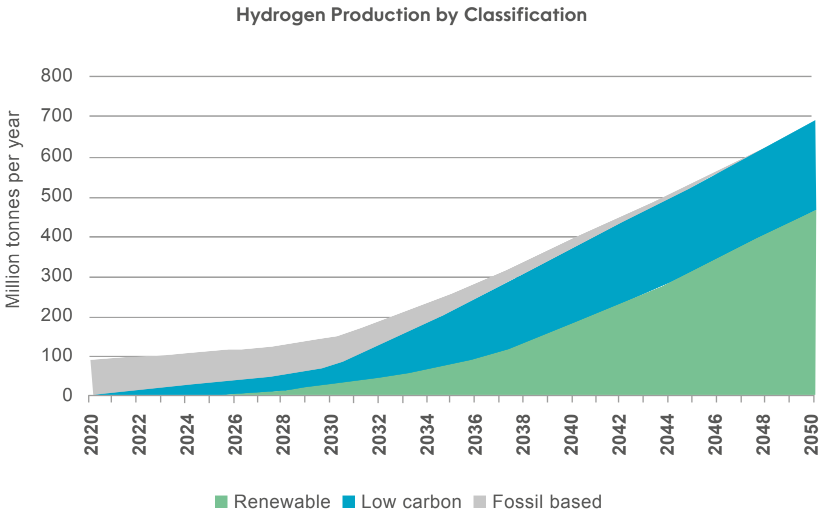


Scenarios of the hydrogen demand growth

Source: gasworld Business Intelligence

HYDROGEN PRODUCTION WILL SWING FROM FOSSIL BASED TO RENEWABLE

Aiming for Net Zero by 2050 – Europe will invest in alternative and cleaner hydrogen production methods over the next 3 decades.

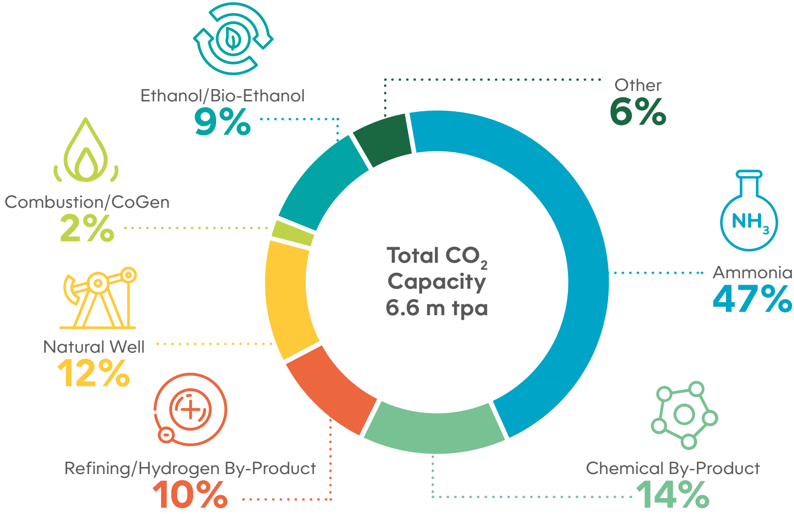


Source: Hydrogen Council McKinsey Report, Insight 2021

SOURCING OF QUALITY CO_2 IS A GROWING ISSUE

There is a demand for over 3.6 million tons of CO_2 in many different applications across the EU. While there is an apparent over-capacity, the demand at peak times and reliance on ammonia has resulted in tight supply markets. Share of bio-ethanol as a source has grown in 2022, while ammonia share dropped.

CO_2 Product By Source 2023

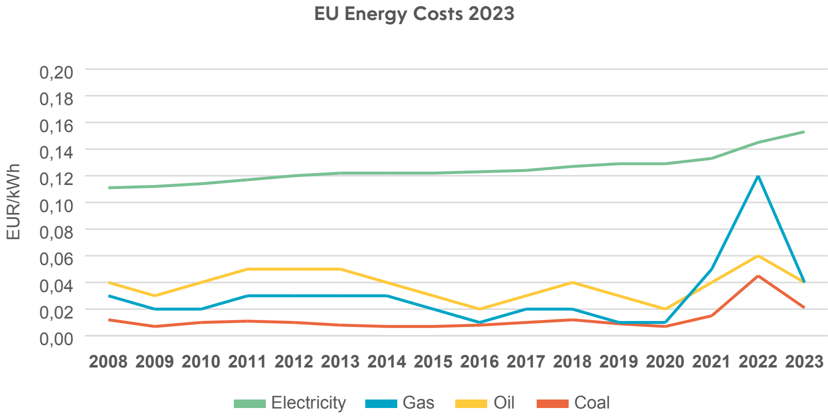


Source: gasworld Business Intelligence

Energy

THE IG INDUSTRY IS ENERGY INTENSIVE

Higher energy costs are impacting on the industrial gases sector within the EU.

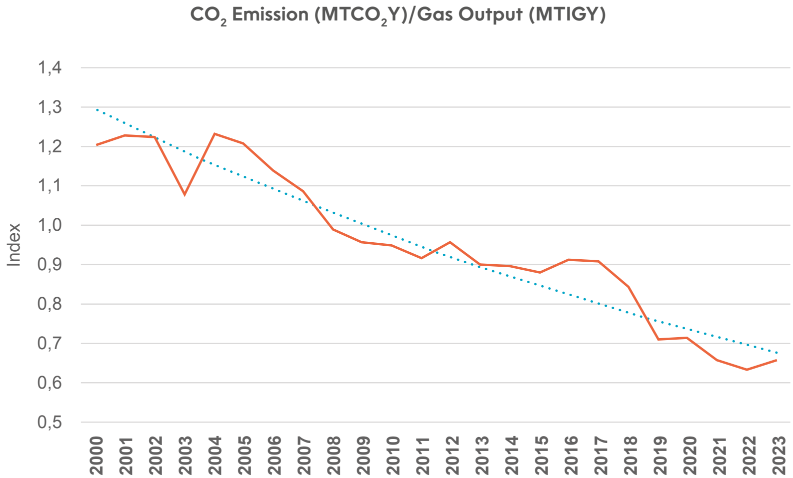


Note: The natural gas and electricity prices are for Europe, but the oil and coal prices are global.

Source: gasworld Business Intelligence

LOWERING OUR CARBON FOOTPRINT

Likewise, our industry is increasing efforts to lower their own carbon footprint – cutting emissions since 2000 with the further with a downward trend.



Note: Emissions reported for Air Liquide, Air Products, Linde and Nippon Gases.

Source: Company Reports/gasworld Business Intelligence estimates

Our Members

- AIR LIQUIDE
- AIR PRODUCTS
- BARIT MADEN TÜRK A.S.
- BUSE GAS B.V.
- BUZWAIR INDUSTRIAL GASES FACTORIES
- CARBO KOHLENSÄUREWERK HANNOVER GmbH
- FREYCO KOHLENSÄURE SERVICE GmbH & Co.KG
- GAS TECNICI FOLIGNO SRL
- HABAS Sinai Ve Tibbi Gazlar Ist. End. AS
- IJSFABRIEK STROMBEEK NV
- IRISH OXYGEN COMPANY LTD
- LINDE
- MAXIMA – AIR SEPARATION CENTER Ltd
- MESSER
- NIPPON GASES
- MULTIGAS Ltd.
- OY WOIKOSKI AB
- SHELL GLOBAL SOLUTIONS INTERNATIONAL B.V.
- SIAD
- SN SEIXAL – SIDERURGIA NACIONAL S.A.
- SOL
- STRANDMÖLLEN A/S
- TYCZKA AIR AUSTRIA GMBH
- UAB GASCHEMA
- WESTFALEN AG

- ASIA INDUSTRIAL GASES ASSOCIATION (AIGA)
- AUSTRALIA NEW ZEALAND INDUSTRIAL GAS ASSOCIATION (ANZIGA)
- Austria – ÖIGV
- Belgium – BELGIAN INDUSTRIAL & MEDICAL GASES ASSOCIATION – c/o ESSENSCIA ASBL
- Bulgaria -BULGARIAN INDUSTRIAL GASES ASSOCIATION c/o SIAD BULGARIA EOOD
- COMPRESSED GAS ASSOCIATION, INC. (CGA)
- Czech Rep. – CATP
- Denmark – PCG – c/o STRANDMÖLLEN A/S
- Finland – FINNISH INDUSTRIAL GASES INDUSTRY – c/o OY LINDE GAS AB
- France – AFGC
- Germany – IGV
- Greece – HELLENIC ASSOCIATION OF INDUSTRIAL AND MEDICAL GASES (HAIMG)
- Hungary – MIGSZ (Hungarian Industrial Gases Association)
- INTERNATIONAL OXYGEN MANUFACTURERS ASSOCATION, Inc. (IOMA)
- Italy – ASSOGASTECNICI
- JAPAN INDUSTRIAL AND MEDICAL GASES ASSOCIATION (JIMGA)
- Latvia – LATVIAN INDUSTRIAL GAS ASSOCIATION (LIGA) – Division of LAKIFA (Assoc of Latvian Chemical and Pharmaceutical Industry)
- MIDDLE EAST GASES ASSOCIATION (MEGA)
- Norway – NORSK INDUSTRIGASS FORENING (NIGF) c/o LINDE GAS AS
- Poland – PFGT (Polska Fundacja Gazów Technicznych)
- Portugal – APQUÍMICA – Associação Portuguesa da Química, Petroquímica e Refinação
- Romania – INDUSTRIAL GAS ASSOCIATION OF ROMANIA (IGAR)
- Slovakia – SAVDTP – c/o Messer Tatragas
- Slovenia – GIZ TP c/o MESSER SLOVENIJA d.o.o.
- South Africa – SOUTHERN AFRICA COMPRESSED GASES ASSOCIATION
- Spain – AFGIM – ASOCIACIÓN DE FABRICANTES DE GASES INDUSTRIALES Y MEDICINALES
- Sweden – SVENSKA INDUSTRIGASFÖRENINGEN (SIGA)
- Switzerland – IGS – Industriegaseverband Schweiz
- The Netherlands – VFIG
- United Kingdom – BCGA

EIGA

European Industrial Gases Association - EIGA
Avenue de l'Astronomie 30 – B-1210 Brussels

Tel: +32 2 217 7098 ▪ info@eiga.eu

www.eiga.eu
h2safety.info