



# Hydrogen Energy

At the heart  
of the energy  
transition

Public - February, 2023

# Air Liquide in Brief

Air Liquide is a world leader in gases, technologies and services for Industry and Health

Key figures:

~67,100

EMPLOYEES

Present in

73

COUNTRIES

Revenue

€23.3

BILLION

2+ M

INDUSTRIAL  
CUSTOMERS  
GLOBALLY

1.9+ M

PATIENTS

Our ambition is to be a **leader in our industry**, to **deliver long term performance** and to **contribute to a more sustainable world**.



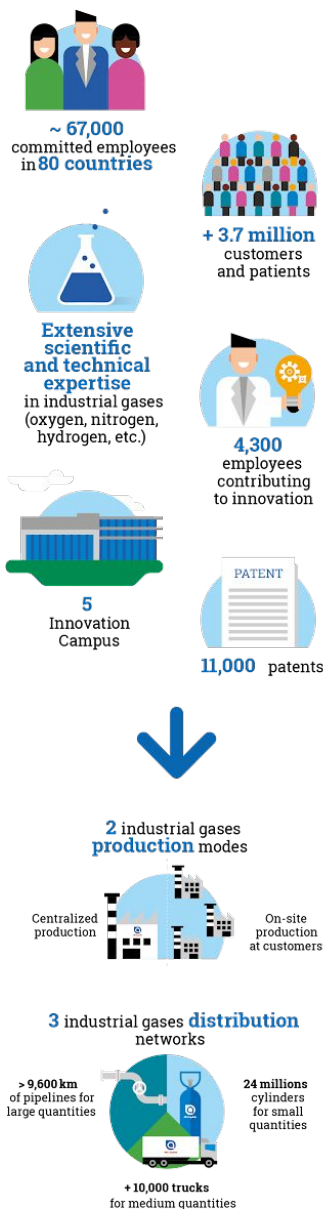


Air Liquide

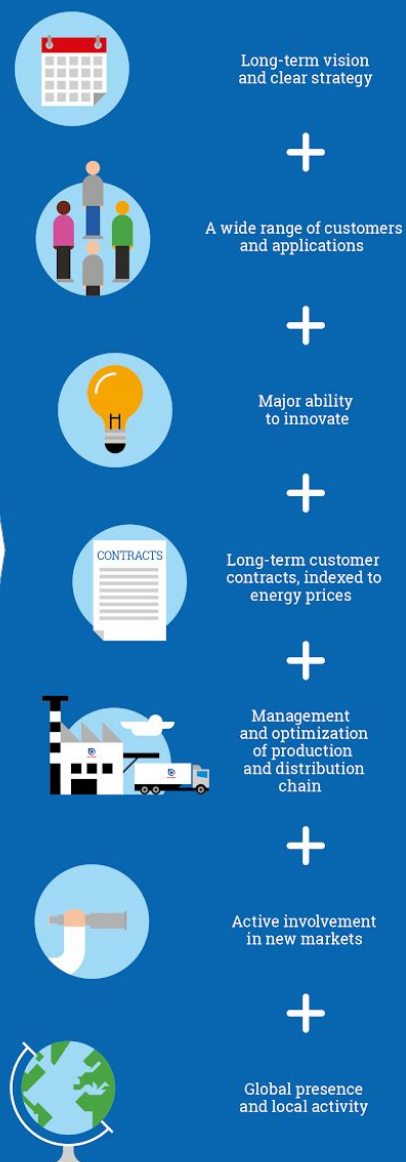
A world leader  
in industrial  
gases  
and related  
services

A unique  
model

## OUR PROFILE



## OUR BUSINESS MODEL



## OUR ACTIVITIES

### LARGE INDUSTRIES 26%<sup>(a)</sup>

Industrial gases in large quantities in the framework of long-term partnerships

### INDUSTRIAL MERCHANT 44%<sup>(a)</sup>

Industrial gases in small and medium quantities, applications, small equipment and related services serving a wide range of customers

### ELECTRONICS 9%<sup>(a)</sup>

Ultra-pure gases in large quantities and development of new molecules

### HEALTHCARE 17%<sup>(a)</sup>

Medical gases, products and services to support patients and clients in the hospital and at home

### GLOBAL MARKETS & TECHNOLOGIES 3%<sup>(a)</sup>

Molecules, equipment and services to support the markets of energy transition and deep tech<sup>(b)</sup>

### ENGINEERING & CONSTRUCTION 1%<sup>(a)</sup>

Plants and equipment for industrial gas production

## TO SUPPORT ALMOST ALL ECONOMIC SECTORS



- Chemicals
- Refining & energy
- Metals



- Materials & energy
- Automotive & manufacturing
- Food & pharmaceuticals
- Technology & research
- Entrepreneurs & distributors



- Semiconductors
- Flat panels
- Photovoltaic



- Hospitals
- Home healthcare
- Hygiene & specialty ingredients



- Energy transition
- Deep tech<sup>(b)</sup>



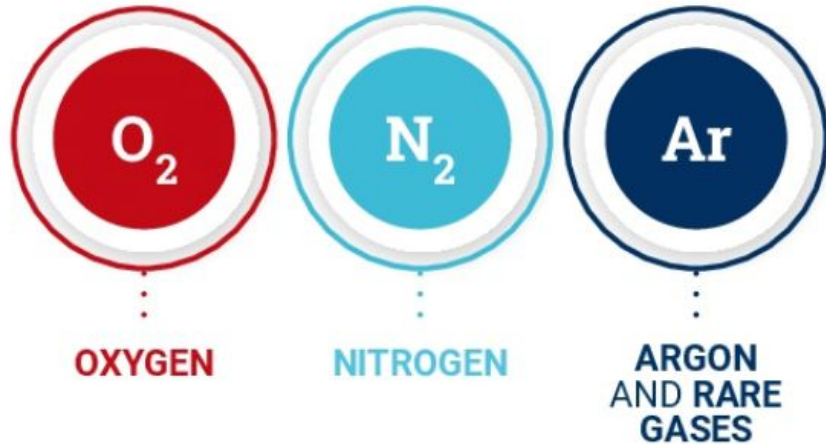
- Customers choosing to insource their industrial gas needs

<sup>(a)</sup> Percentage of 2019 Group revenue  
<sup>(b)</sup> Disruptive technologies based on scientific breakthroughs that can fundamentally change design and production methods.

# Our scientific territory: Essential small Molecules

Oxygen, nitrogen and hydrogen are essential small molecules. They embody Air Liquide's scientific territory and have been at the core of the company's activities since its creation in 1902.

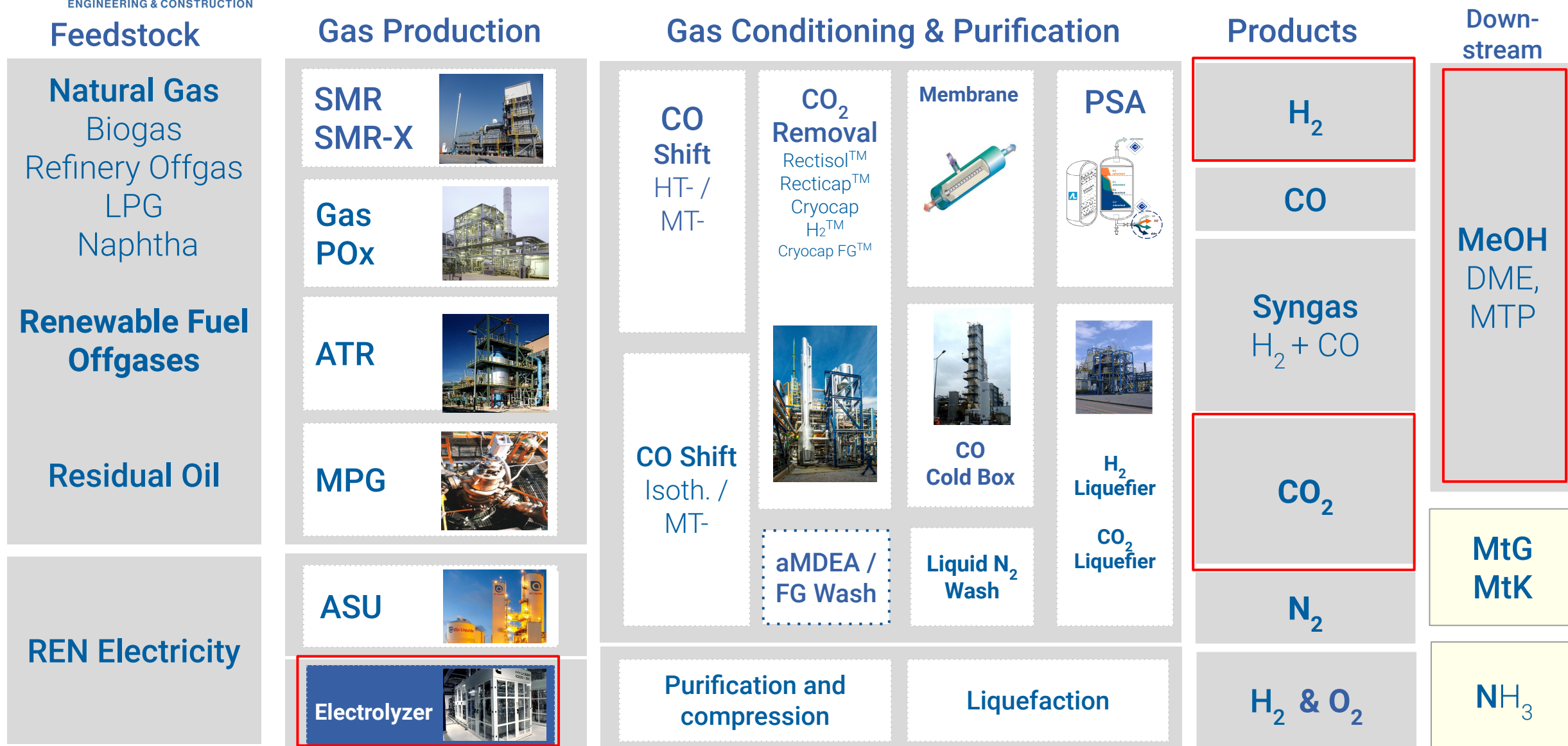
Separating the components of **air**  
to take advantage of their properties



Producing molecules from the  
**natural resources** of the planet



# Air Liquide Technology Portfolio





**Investment Studies,  
Conceptual Design &  
FEED**

**Licensing Engineering  
Services &  
Proprietary Equipment**

**Integrated Solutions**

**Technical Service &  
Spare Parts**



**Process Technology**



**High-end Engineering  
& Design Capabilities**



**Engineering, Supply,  
Project Management &  
Execution Services**



**Start-up, Operations  
& Maintenance  
Support**

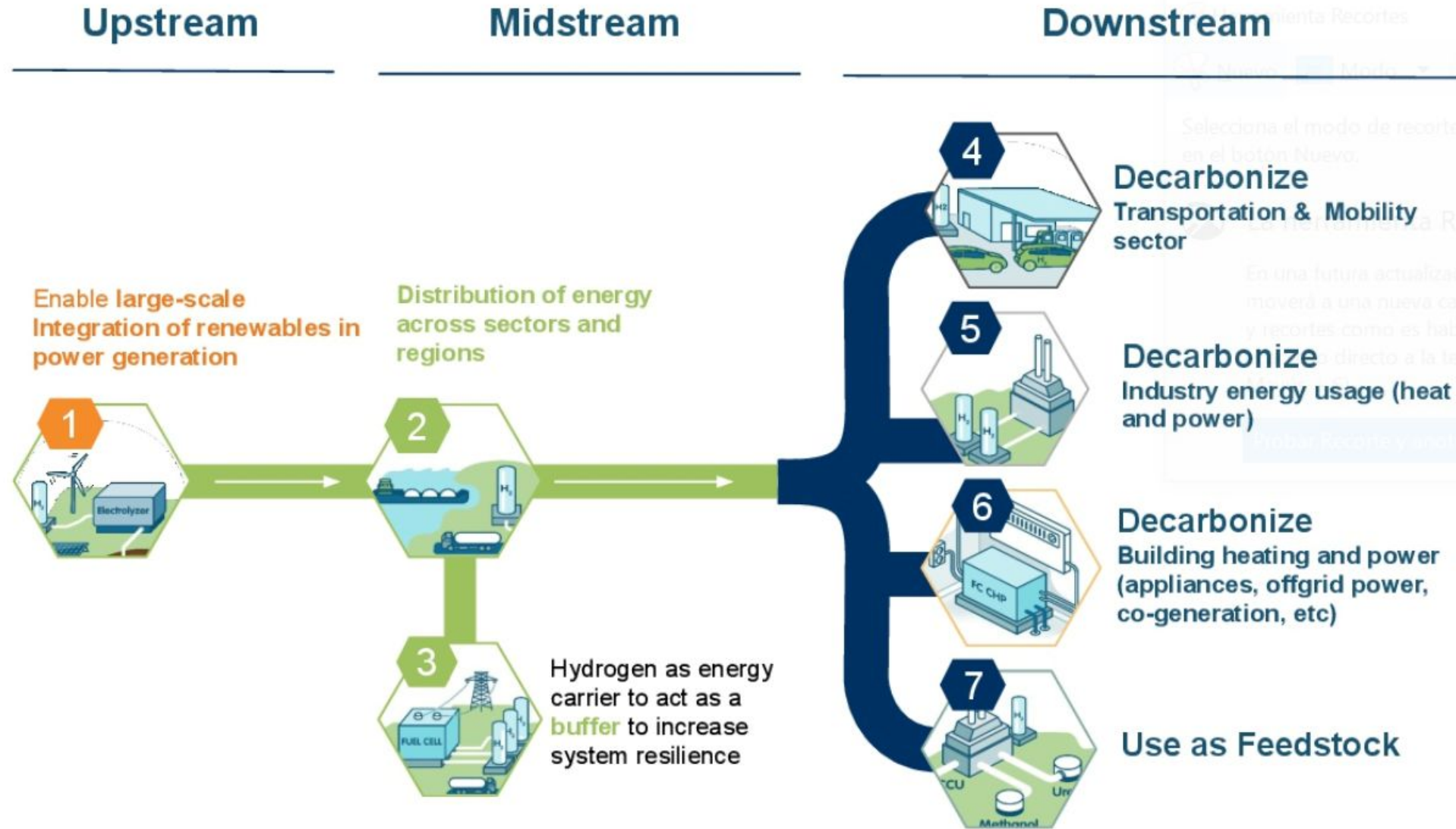


# Hydrogen

On the move .....

Air Liquide's partnership with Energy Observer....

# Seven Roles for H2 in the Energy Transition





# Hydrogen at the Cornerstone of ET





# CCS (Carbon Capture Storage)

Emerging CO<sub>2</sub> value chain .....

..... 65 CCUS projects in Europe



# CCS as key for accelerate ET



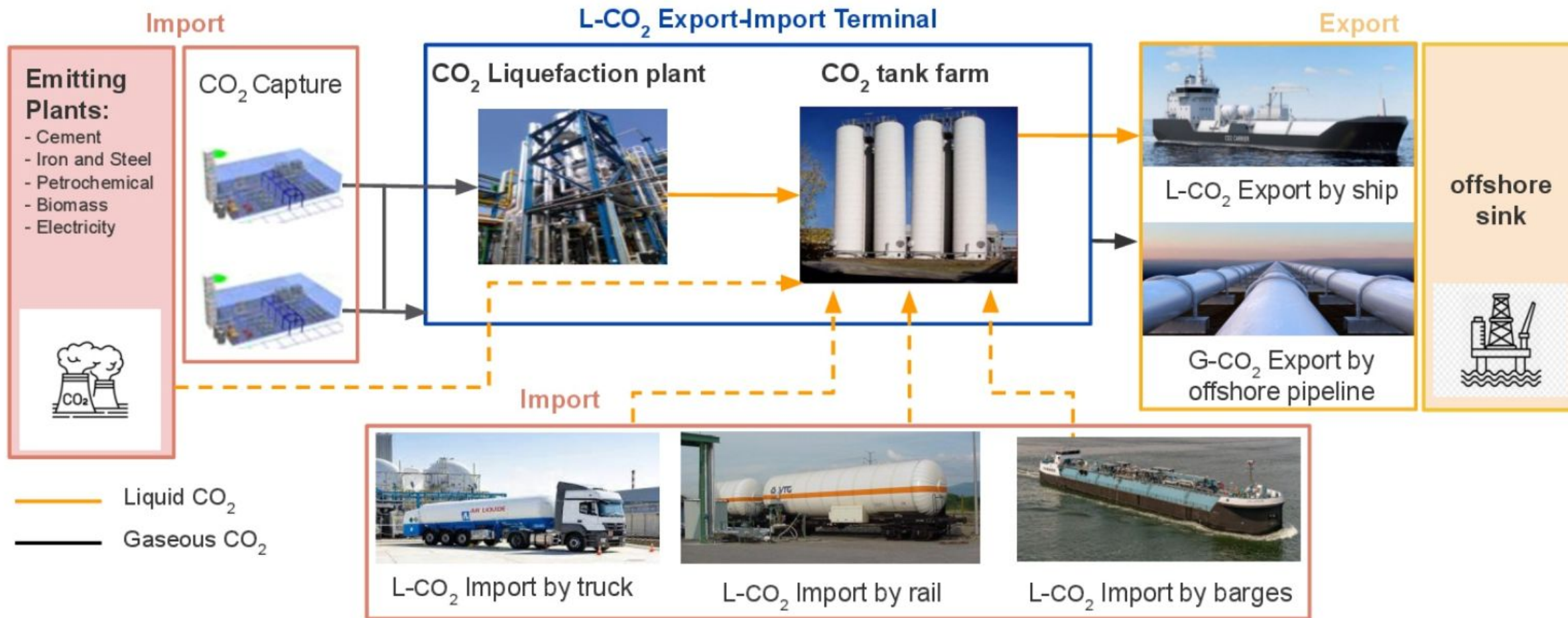
## Air Liquide expertise:

- Various CO2 capture technologies for different flue gas compositions (Cryocap FG/Oxy, Amine wash, Rectisol)
- CO2 compression, liquefaction and storage expertise
- Has CO2 pipeline experience
- Provides CO2 supply as service

## Key project examples:

- 🚩 **CRYOCAP™**, Port-Jérôme, Carbon Capture
- 🚩 **Antwerp@C**, Antwerpen, CO2 infrastructure
- 🚩 **Northern Lights**, CO2 infrastructure,

# General Concept of CO<sub>2</sub> hub





**CH<sub>2</sub>ANGE  
WITH  
HYDROGEN**



# Thank you