H₂ Energy
At the heart of the energy transition

Dave Edwards
Director and Advocate for Hydrogen Energy
Air Liquide
A world leader in gases, technologies, and services for...

Cleaner and sustainable solutions for a wide range of industrial processes of our customers: energy, metals, food, chemicals, automotive, pharmaceuticals, etc.

Patients at home
Hospitals
Specialty ingredients

~64,500 EMPLOYEES
PRESENT IN 78 COUNTRIES
+3.8 MILLION CUSTOMERS & PATIENTS
REVENUE €20.5bn
NET PROFIT (GROUP SHARE) €2.4bn
INVESTMENT DECISIONS €3.2bn
Air Liquide Commitment:
Creating value for a low-carbon society


ABATEMENT OF CO₂ EMISSIONS
SETTING A TRAJECTORY TO REACH CARBON NEUTRALITY

Air Liquide Commitments

CO₂ emissions start decreasing in absolute value

~2025
-30%
Carbon intensity in kg CO₂/€ EBITDA \( ^{(a)} \)
vs 2015

2035
Decrease scope 1 & 2
CO₂eq emissions in absolute value by
-33% \( ^{(b)} \)

2050
Reach Carbon Neutrality by 2050

(a) at 2015 exchange rate and excluding IFRS16 for greenhouse gas emissions scopes 1 and 2
(b) from 2020 Market based emissions of 32.5 million tonnes CO2eq (Scope 1+2)
Hydrogen, cornerstone of the energy transition
AIR LIQUIDE HYDROGEN MARKET TO MORE THAN TRIPLE BY 2035

Capturing demand:
- Low Carbon + Renewable H₂ offer
- New H₂ industrial applications
- Carbon Capture as a service
- H₂ mobility

Capturing additional value by decreasing customers CO₂ footprint

Investment in:
- CO₂ Capture plants
- Electrolyzers
- Supply chain for mobility
- Acquisitions

Today
Sales
~€2bn
At Least
3x
by 2035
Sales
>€6bn

Capex
+~€8bn

(a) Including 1 GW decided still under construction
LEADING THE HYDROGEN ECOSYSTEM DEVELOPMENT

**KEY FIGURES**

- 1.2 Mt of H₂/year
- 1,850 km H₂ pipeline
- 53 large H₂ / CO plants
- 20MW PEM Electrolyzer
- €2bn sales
- Co-founder of Hydrogen Council

**Electrolysis**
- Denmark
  - 1.2 MW
- Bécancour, QC
  - 1x 20MW
- Large scale electrolysis (In Devt.) H₂V France
  - 200 MW

**H₂ reduction in steelmaking**
- Germany

**Supply Chain**
- US West Coast
  - H₂ Liquefier
- (In Devt.) Norway
  - Liquid H₂ for ships

**CCU + Low-Carbon H₂**
- France
  - 1 CO₂ Capture “Cryocap”

**CCS + Low-Carbon H₂**
- (In Devt.) Antwerp / Benelux
  - CO₂ Capture

**H₂ Stations for Consumers**
- 70 HRS

**H₂ Network for trucks**
- France / Benelux / Germany
  - HyTrucks

**H₂ Bus & Taxi fleets**
- France / China / Korea

**H₂ Forklifts**
- US + EUROPE
  - 9 sites
Northeast: Bécancour, QC:
The world’s largest operating PEM Electrolyzer

$42 M additional investment to existing site with liquefier

20 MW PEM electrolyzer
Nearly 100% renewable H2 production

8.2 tons per day; increasing site’s total production by 50%

Strengthen supply to main industrial markets in Canada and U.S.
Western US: North Las Vegas
Our first production facility dedicated to the Mobility Market

$200M Investment including production, liquefaction and distribution

30 TPD Production able to meet the needs of 40,000 FCEVs

Flexible production able to meet the renewable hydrogen needs of the market

Strengthen supply to mobility markets across western US
At Air Liquide, we are confident in the hydrogen market of the future because we have built the hydrogen market of today.