



# Deploying Industrial CO<sub>2</sub> Management



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April 3<sup>th</sup>, 2025

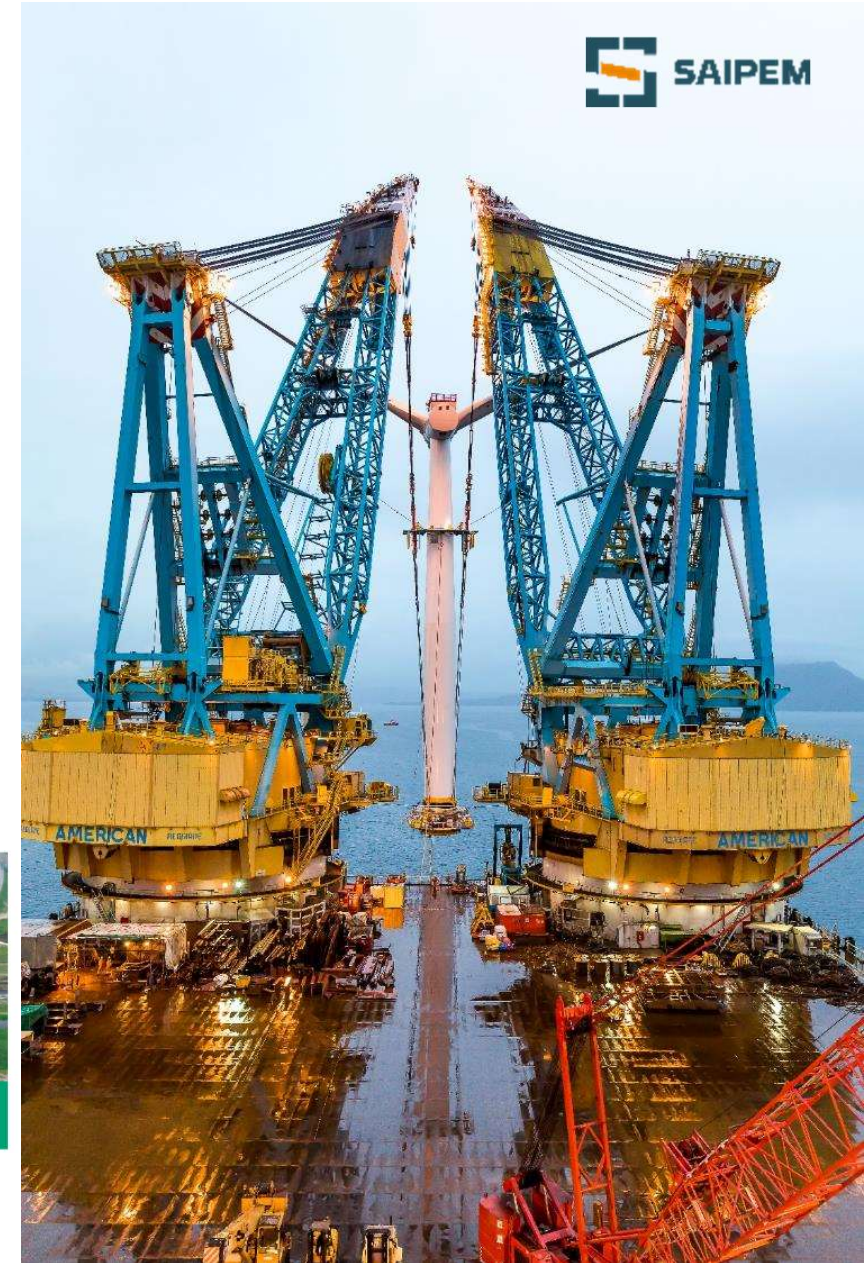
Silvia Gentilucci  
Technology Innovation Manager  
Saipem S.p.A.



# WHO WE ARE

We are a global leader in the engineering and construction of major projects for the energy and infrastructure sectors, both offshore and onshore.

We are a “one company” with distinctive competences, technological innovation capabilities and high-tech assets, able of identifying and developing multiple solutions to meet our clients’ needs for a sustainable business.



Asset based services

Energy carriers

Offshore drilling

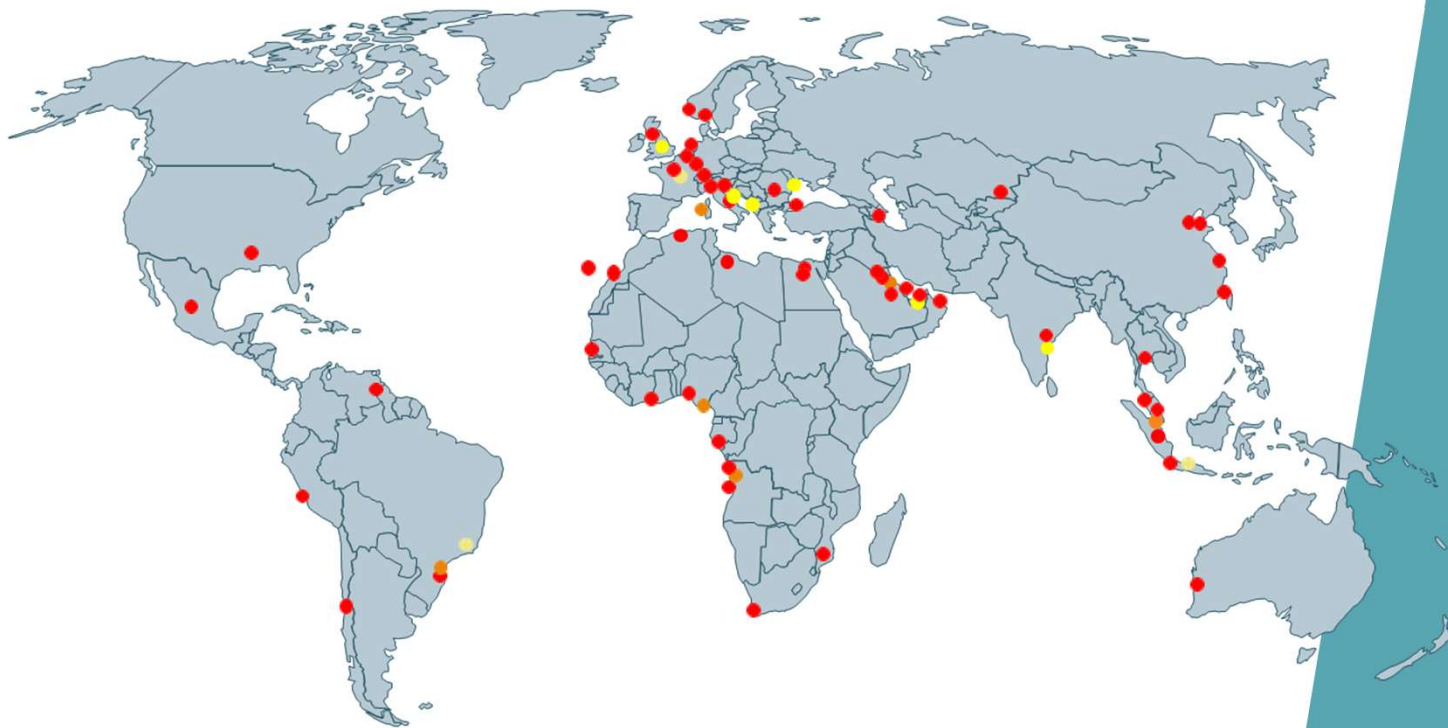
Robotics and industrialized solutions

Offshore wind

Sustainable Infrastructures



# SAIPEM IN THE WORLD



**● Engineering centres**  
Dedicated to research & development, business process management and information technology

**● Prefabrication yards**  
Focused on prefabrication, assembling and erection operations of large and complex manufactures such as offshore platforms, plant modules, subsea manifolds and components

**● Other relevant sites**  
headquarters, branches and subsidiaries

## Key figures

WE OPERATE IN **> 50** COUNTRIES

**> 30,000**  
EMPLOYEES WORLDWIDE

**> 120**  
DIFFERENT NATIONALITIES

**6** PREFABRICATION YARDS  
Arbatax (Italy), Guarujà (Brazil), Ambriz (Angola), Dammam (Saudi Arabia), Karimun (Indonesia), Rumuolumeni (Nigeria)

**14,549 M €**  
2024 REVENUE

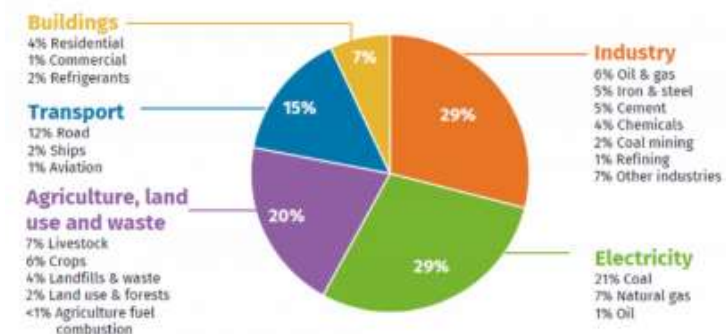
**1,329 M €**  
2024 ADJUSTED EBITDA

**337 M €**  
2024 CAPITAL EXPENDITURE

**2,639**  
ACTIVE PATENTS

# THE CONTEXT

## WHERE CO<sub>2</sub> COMES FROM?



Hard to abate industries are challenging for decarbonization

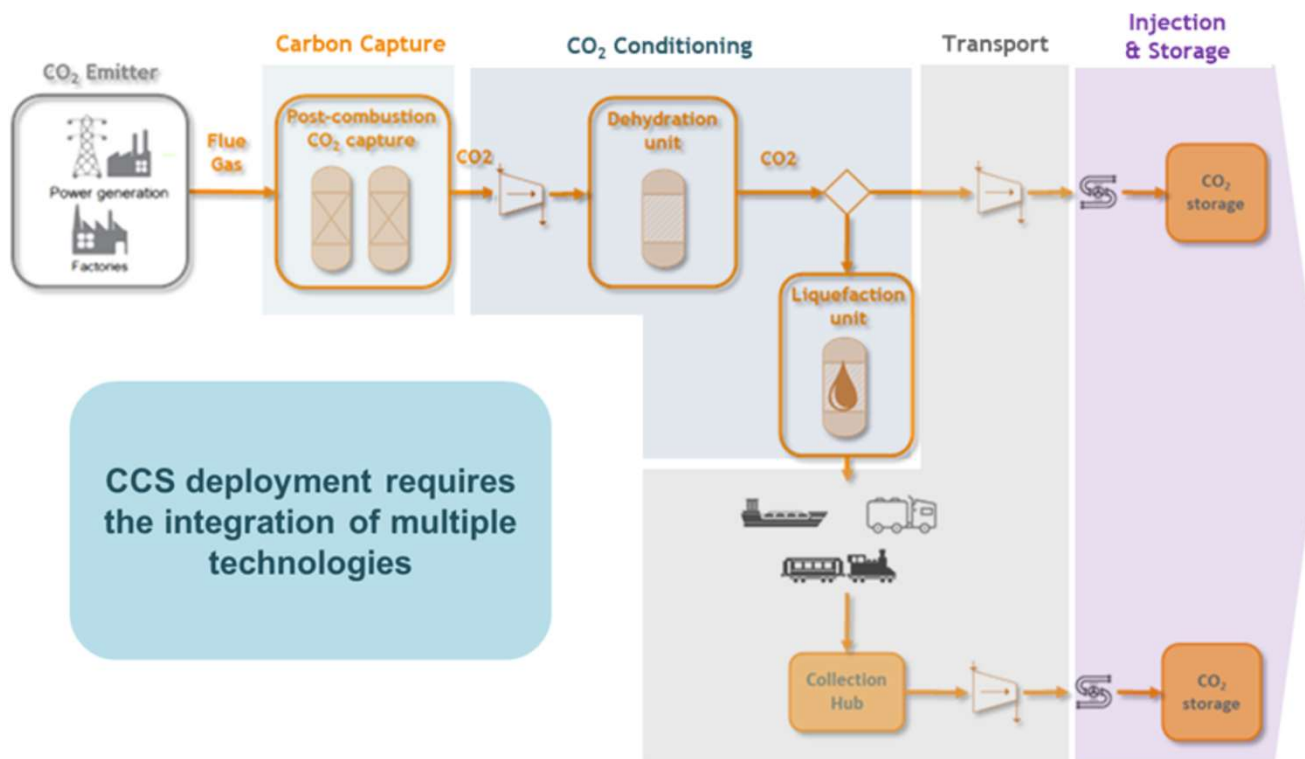
- Need of high-temperature heat generated by combusting fossil fuels
- CO<sub>2</sub> emissions directly from industrial processes and independent of the source of energy

Hard to abate sectors include aluminium and steel, paper, chemicals, concrete

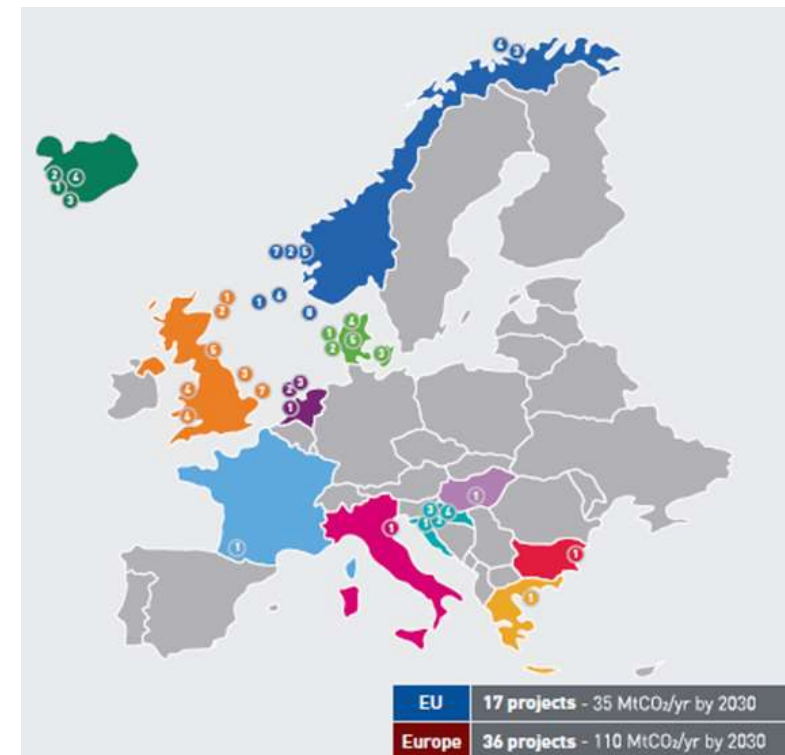


# THE CONTEXT

## CCS - Typical scheme



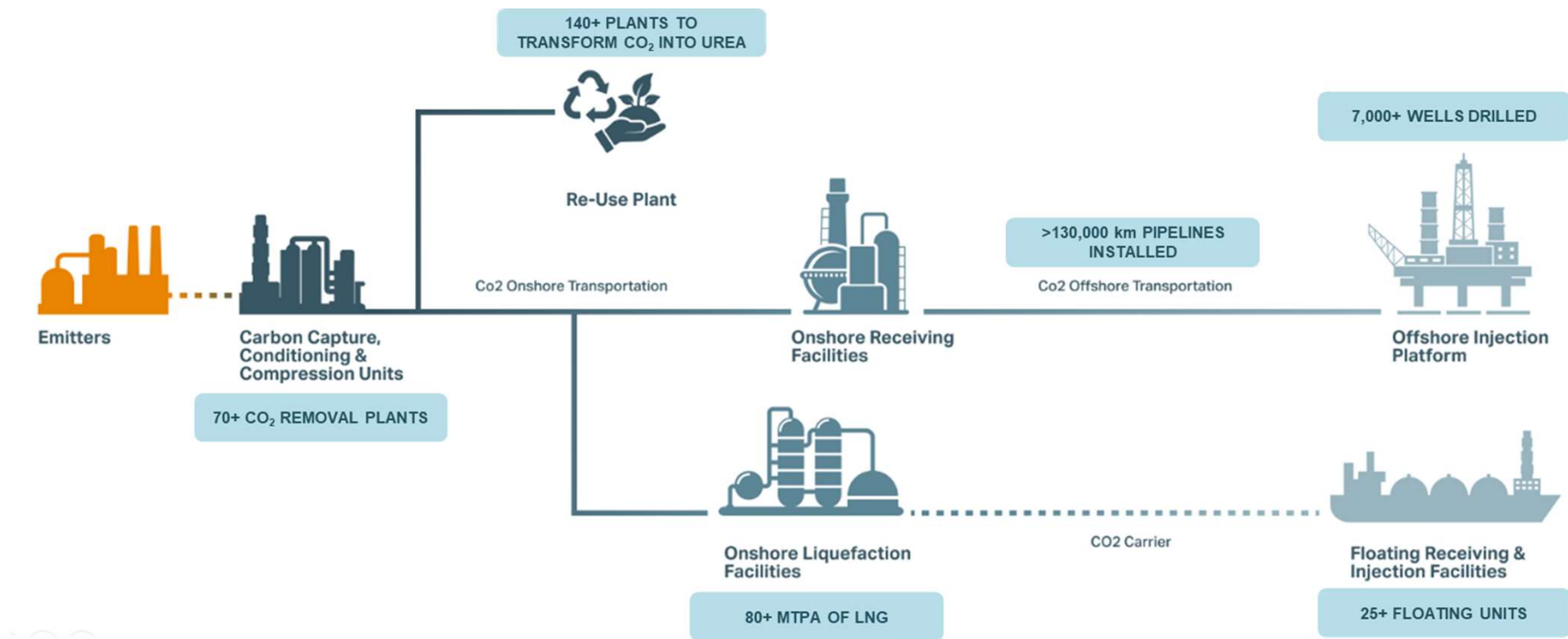
36 CO<sub>2</sub> storage projects in Europe



Source: IOGP

# SAIPEM CCUS APPROACH

Leveraging our EPC expertise across the entire CCUS value chain





# BLUENZYME™ 200 FOR CARBON CAPTURE

**EASY-TO-INSTALL, EFFICIENT AND SUSTAINABLE  
ENZYME-BASED SOLUTION**

BluEnzyme 200 is an **innovative solution** developed by Saipem engineers for carbon capture. This standardized and **modular plug-and-play system** is **easy to install, efficient, and sustainable**. For one objective: **net zero**.



## FEATURES

### EASY TO INSTALL

- > Plug & Play system
- > Dedicated supply chain
- > Fast **18-month** delivery and **5-month** installation

### EFFICIENT

- > High CO<sub>2</sub> capture rate
- > Low complexity process
- > Fast absorption rate
- > Low grade energy use

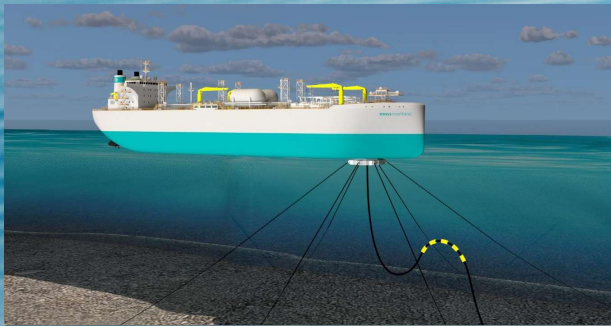
### SUSTAINABLE

- > A natural enzyme solution
- > Low-temperature regeneration
- > Propels path to net zero
- > No toxic waste

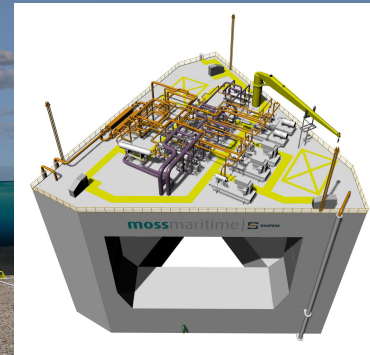


# FLOATING SOLUTIONS

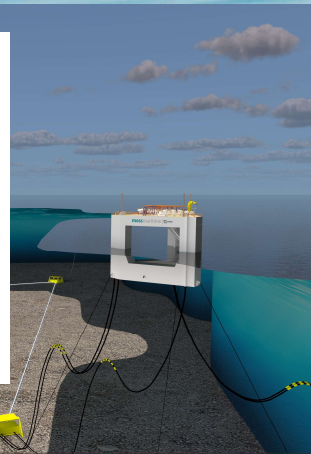
mossmaritime



Intermittent direct injection of CO<sub>2</sub> from ship  
Liquid CO<sub>2</sub> ship fitted with the necessary process equipment for injection



Floating Injection Unit  
Injection via permanently moored small floating injection unit (for continuous injection)



Integration of systems for Onboard Carbon Capture



Liquid CO<sub>2</sub> debunkering vessel to pick up LCO<sub>2</sub> from ships/offshore units/intermediate storage tanks and transporting its cargo to a LCO<sub>2</sub> receiving facility for sequestration



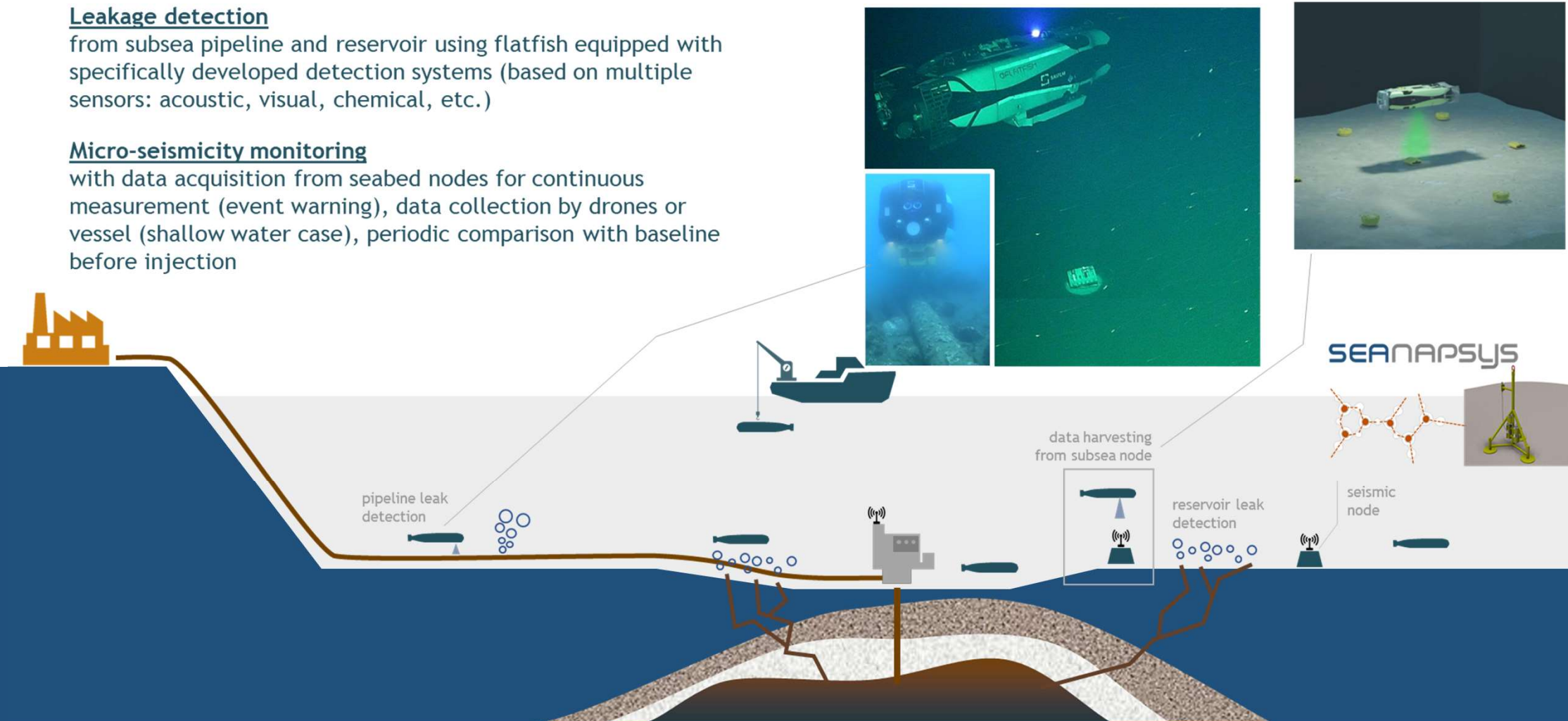
# INNOVATIVE SUBSEA MONITORING SYSTEMS FOR CO<sub>2</sub> STORAGE

## Leakage detection

from subsea pipeline and reservoir using flatfish equipped with specifically developed detection systems (based on multiple sensors: acoustic, visual, chemical, etc.)

## Micro-seismicity monitoring

with data acquisition from seabed nodes for continuous measurement (event warning), data collection by drones or vessel (shallow water case), periodic comparison with baseline before injection



## KEY MESSAGES



CCUS is essential to ensure the long-term competitiveness of Italian industry



CCUS requires a significant effort to address the persistent technology gap for economical sustainable CO<sub>2</sub> reuse



CCUS market is strongly influenced by local legislation and related investment financing instruments

# Q&A

