Clean Algae 2Value

Circular Bio-based Europe Joint Undertaking

Bio-based Industries Consortium

Co-funded by the European Union


SOLMEYEA
inspiring CO_2 circularity


Magfi
SUSTAINABILITY IN ACTION


EURO-FUNDING


JUICY
MARBLES


ΔΕΛΤΑ


Bio Base Europe
Pilot Plant


Clean
Algae
2Value


cpi


CHALMERS
UNIVERSITY OF TECHNOLOGY


Ausolan.


CNTA


DTU


tecno tp
packaging


EROSKI

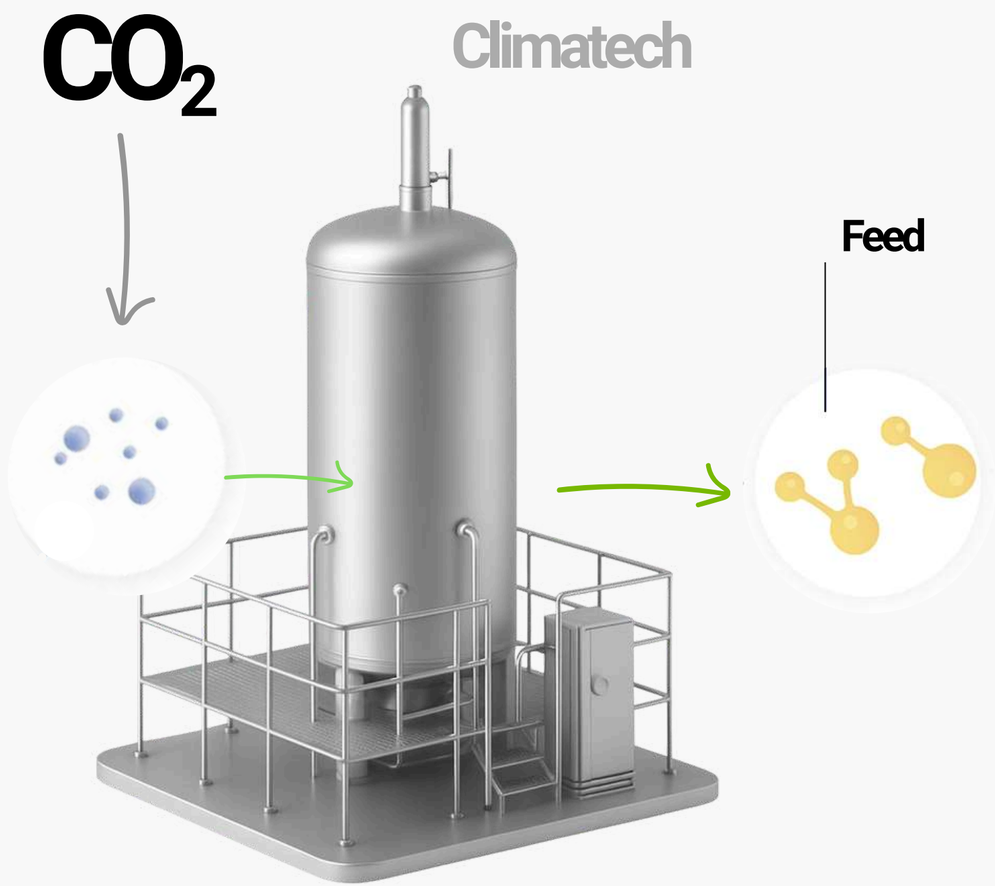
SOLMEYEA

inspiring CO_2 circularity

Making food out of CO_2

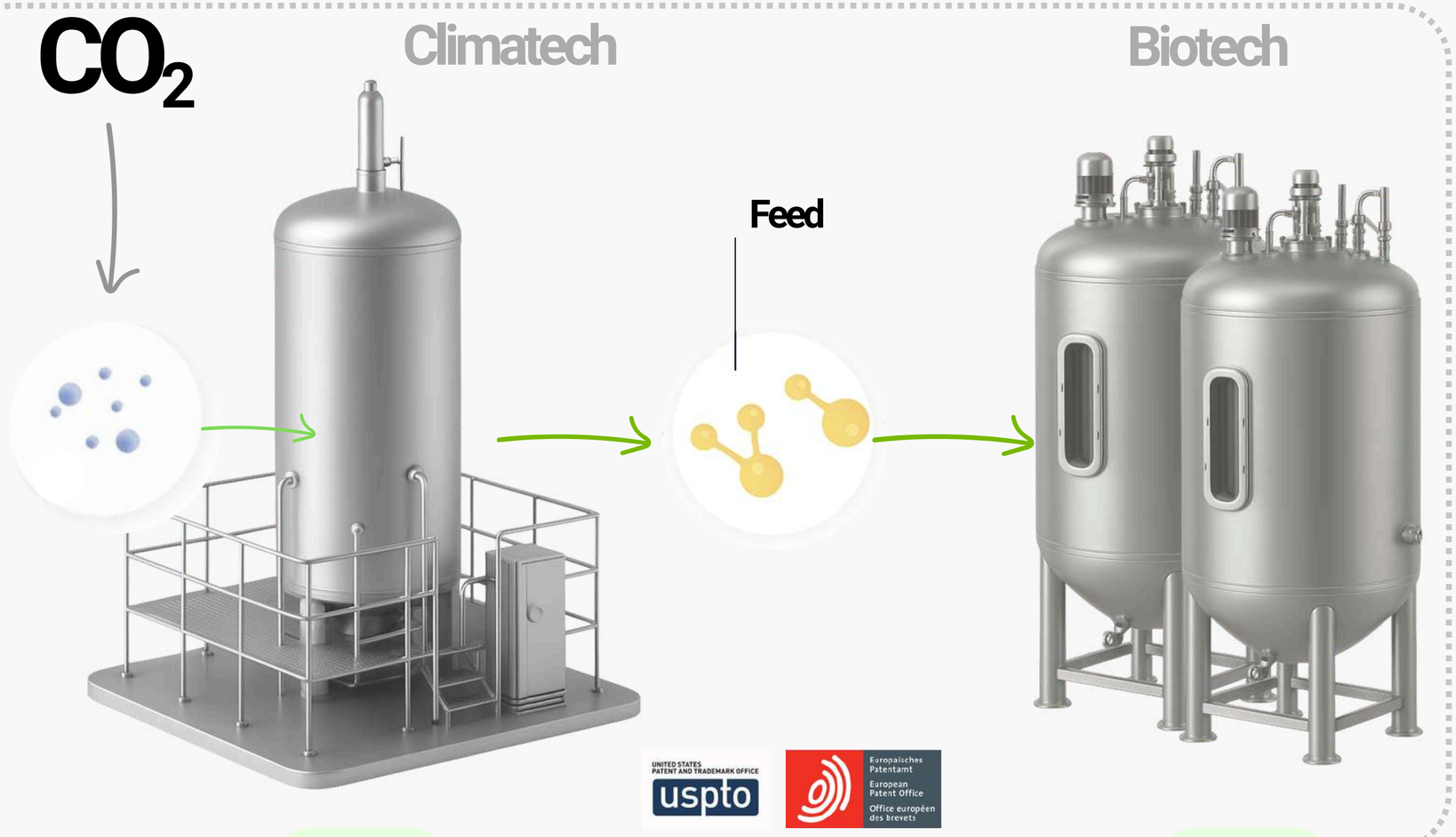
The only BioTech Company
producing at scale Non-GMO, Carbon-negative Proteins for Food from CO_2

Solmeyea’s Industrial CO_2-Utilisation, Advanced Bio-based Platform



Step 1

Solmeyea's Industrial CO_2-Utilisation, Advanced Bio-based Platform



Solmeyea's Industrial CO_2-Utilisation, Advanced Bio-based Platform

CO_2

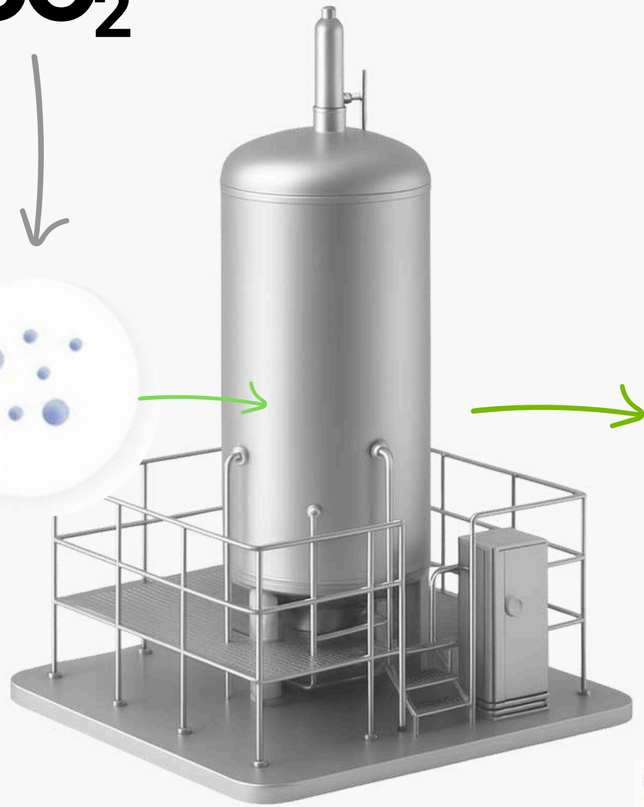
Climatech

Biotech

Foodtech

Feed

MEY™



UNITED STATES PATENT AND TRADEMARK OFFICE uspto

Europäisches Patentamt
European Patent Office
Office européen des brevets

Step 1

Patented steps

Step 2

Step 3

MEY™: The Only Scalable Food-Grade Protein

A scalable food-grade non-GMO white EFSA & FDA compliant microalgae protein platform

How did we move from idea to a concrete proposal ?

Circular Bio-based Europe Joint Undertaking

Bio-based Industries Consortium

Co-funded by the European Union

1,200m^2 Demo-Plant @ “NCSR Demokritos” Campus

Circular Bio-based Europe Joint Undertaking

eit Food

European Innovation Council

esa European Space Agency

GSRT GENERAL SECRETARIAT FOR RESEARCH AND TECHNOLOGY

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΥΠΟΥΡΓΕΙΟ ΑΝΑΠΤΥΞΗΣ

- **TRL 8 Process Operating**

100 tons of CO_2 are converted into 15 tons of Food proteins per year

- **Process under FSSC22000 Accreditation**

Clean Algae 2Value

Turning microalgae into sustainable ingredients with CO_2

cleanalgae2value.eu

Circular Bio-based Europe Joint Undertaking

Bio-based Industries Consortium

Co-funded by the European Union

Project Overview

Full description:	Demonstrating a cost competitive, sustainable, scalable intensified micro-algae bioprocess for the production of food-grade medium value, carbon negative Ingredients exceeding Market Standards
Acronym:	**CleanAlgae2Value**
Call / Topic:	HORIZON-JU-CBE-2024-IA-02
Funding scheme:	CBE-JU Innovation Action
Duration:	48 months
Start date:	October 2025
Coordinator:	Solmeyea (Greece)
Consortium:	15 partners from 9 countries

Circular Bio-based Europe Joint Undertaking
Bio-based Industries Consortium
Co-funded by the European Union

How was being a coordinator during proposal preparation, reaching out to potential partners, getting partners' contributions ?

Circular Bio-based Europe Joint Undertaking

Bio-based Industries Consortium

Co-funded by the European Union

Consortium

Category	Count	Partners
Academia	**2**	DTU (Denmark), Chalmers (Sweden)
RTOs	**4**	BBEPP (Belgium), CNTA (Spain), Tecnopackaging (Spain), CPI (UK)
SMEs	**5**	Solmeyea (Greece), Euro-Funding (Spain), MAGFI (Malta), HF (Sweden), JM (Slovenia)
Industry / Large companies	**4**	DELTA (Greece), KNOELL (Germany), ERO (Spain), AUS (Spain)

Genesis of the project

Problem

- Microalgae today are used **only in niche markets** (e.g., supplements).
- Production is **too costly** due to complex cultivation and processing.
- Traditional microalgae ingredients often have **green color, odor, and taste**, limiting use in food.
- As a result, they **fail to reach large-volume, cost-sensitive markets**

Our Breakthrough

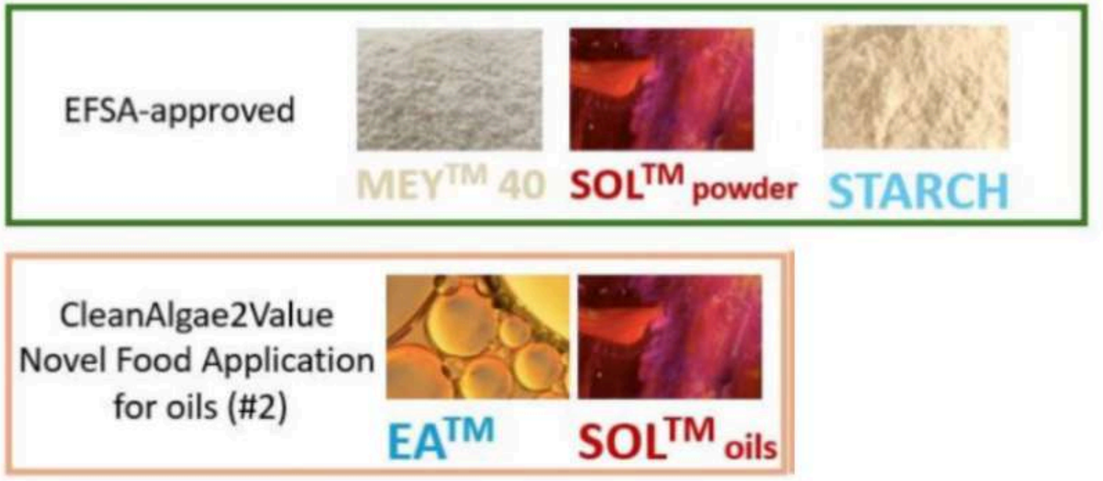
- Having an EIC-funded foundation, Solmeyea is the **first company worldwide to produce a white microalgae protein directly from captured CO_2**

Circular Bio-based Europe Joint Undertaking
Bio-based Industries Consortium
Co-funded by the European Union

CleanAlgae2Value novelty

- Takes the next step: **developing a variety of extracts and ingredients** (proteins, starches, oils) and opens **new applications** in **food** and **biobased packaging** — scaling from *niche to mainstream*.

- This innovation **reduces production costs** dramatically and focuses on improving **organoleptic properties** and **functionality** of bio*ingredients* suitable for broad food applications.



Circular Bio-based Europe Joint Undertaking
Bio-based Industries Consortium
Co-funded by the European Union

Full value chain

Feedstock

Gas fermentation - bioconversion of **biogenic CO2** into **VFAs**

Biomass

Fermentation - production of **microalgae biomass**

Ingredients

Ingredients Extraction - treatment of microalgae

Final B2C product

Products – **food** and **packaging** applications

DTU

SOLMEYEA inspiring CO_2 circularity

Bio Base Europe Pilot Plant

cpi

SOLMEYEA inspiring CO_2 circularity

CNTA

CHALMERS UNIVERSITY OF TECHNOLOGY

SOLMEYEA inspiring CO_2 circularity

AEATA

HOOKED

JUICY MARBLES

Ausolan.

EROSKI

tecno tp packaging

EURO-FUNDING

Magfi SUSTAINABILITY IN ACTION

knoell

Circular Bio-based Europe Joint Undertaking

Bio-based Industries Consortium

Co-funded by the European Union

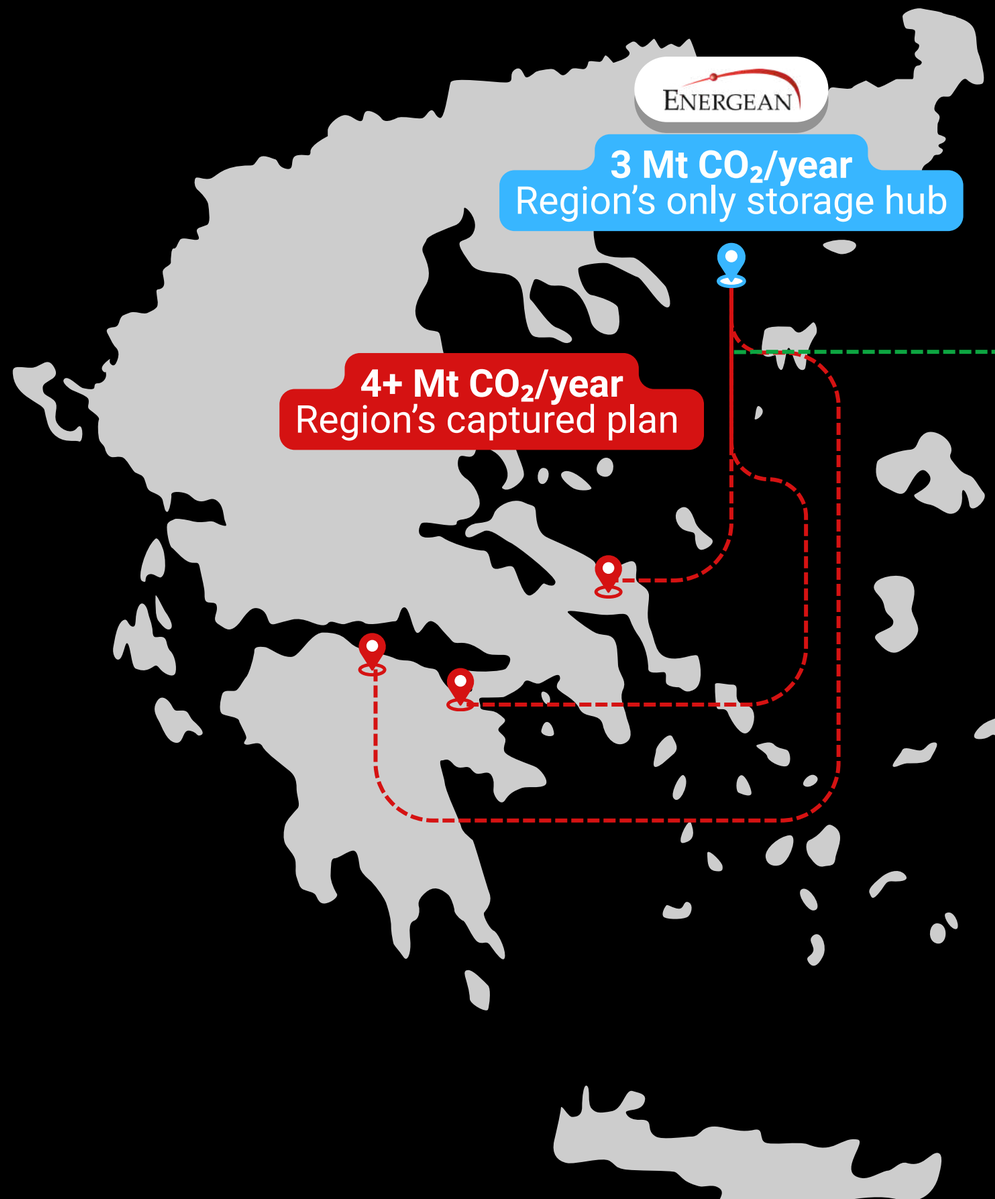
What are other key aspects to consider when applying to a CBE JU grant ?

Circular Bio-based Europe Joint Undertaking

Bio-based Industries Consortium

Co-funded by the European Union

Our CCU Factory is destined to utilize the non-storable CO_2



Storage cannot be the only solution

1 Mt excessive CO_2/year ---------- **Non-storable CO_2**

€100M/year*
de-risking opportunity
for the Bioeconomy
**based on 100€/ton penalty*

€470M in INNOVATION FUND *Deploying innovative net-zero technologies for climate neutrality* CCS projects currently underway in Greece

Our CCU Factory will utilize the excess of 1 million tons of CO_2

From Storage to Value

Solmeyea converts CO_2 into high-value bio-based products, creating revenue alongside storage.

- Technology de-risked through **European Innovation Council equity**
- Scale financing structured with **European Investment Bank**
- **This factory will be built.**
  The question is who anchors it.

European Investment Bank

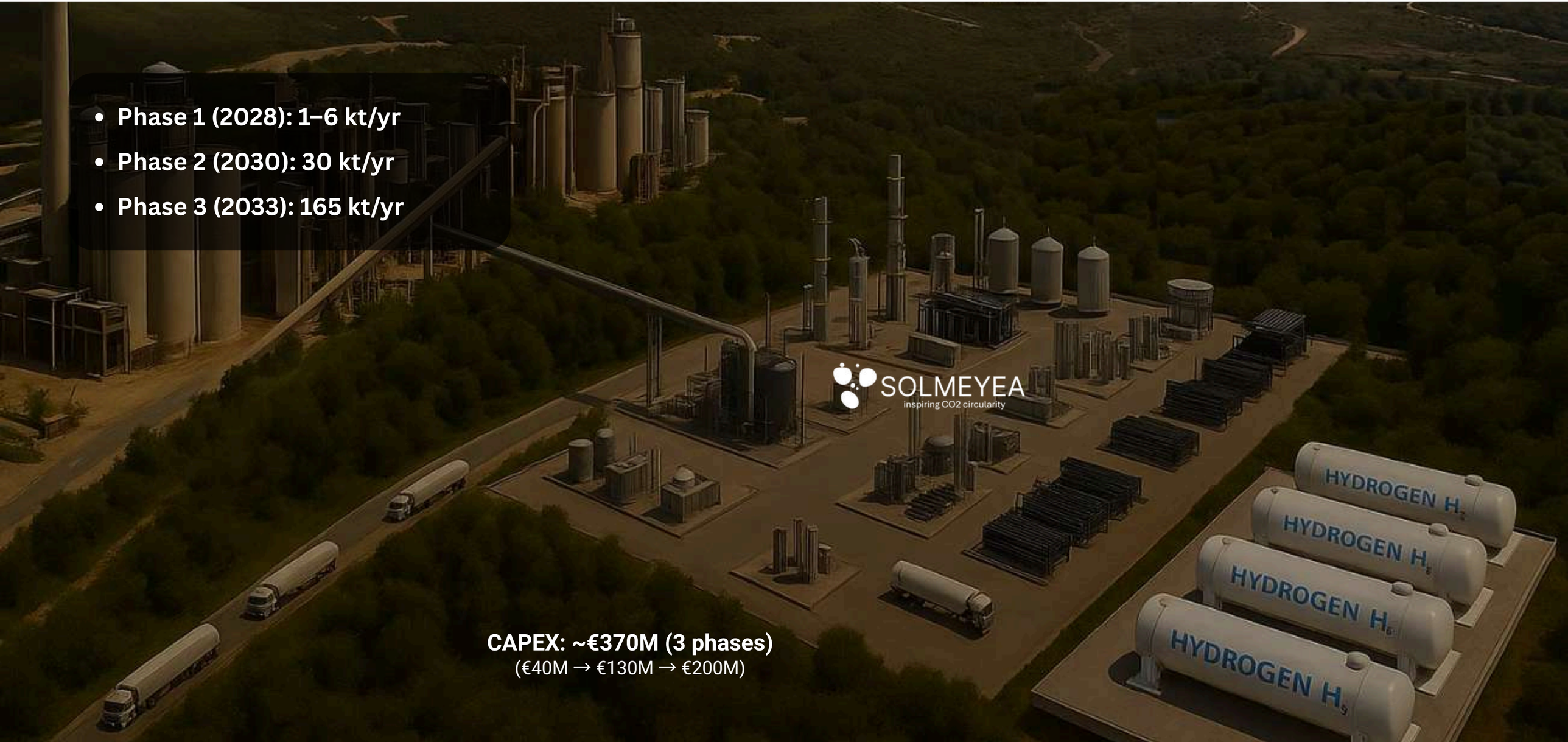
European Innovation Council

A conjoint Flagship CCU–CCS Industrial Project

A strategic European industrial Asset in Formation

Turning EU’s CO_2 into Strategic Sovereignty

FOAK (First Of A Kind) CCU-to-Food Flagship: Scaled in 3 Phases



- **Phase 1 (2028): 1–6 kt/yr**
- **Phase 2 (2030): 30 kt/yr**
- **Phase 3 (2033): 165 kt/yr**

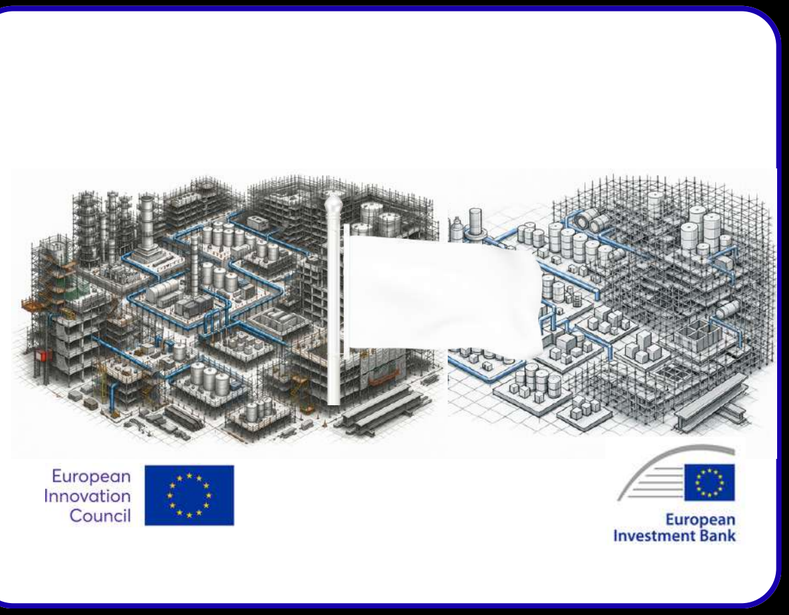
CAPEX: ~€370M (3 phases)
(€40M → €130M → €200M)

FOAK ready before 2029

- Fundraising
- Technical Due Diligence
- CO_2 Emitter Agreement
- EIB Agreement

- CAPEX: €40.0M
- CO_2 utilised: 6,000 tons / year
- MEY™ proteins produced: 1,000 tons / year

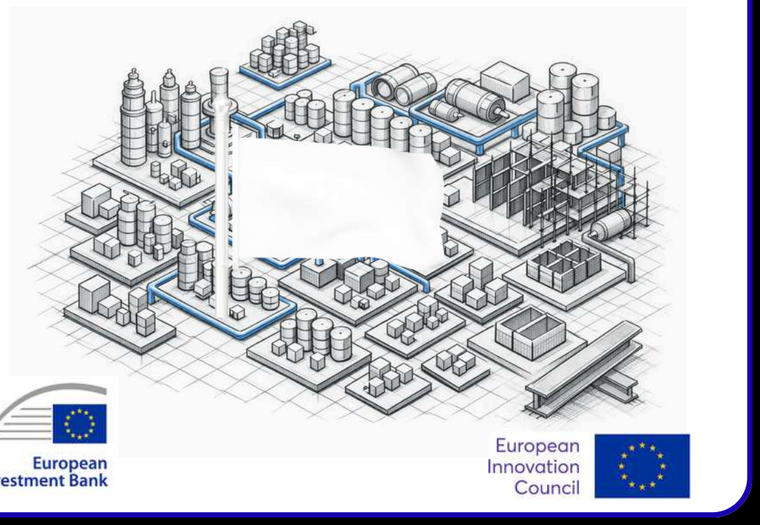
2026 2027 2028 2029 2030 2031 2032 2033 2034



FOAK CCU integrated Biorefinery and advanced Fermentation Facility

- **FOAK Ignition Phase & Dry-runs**
- **PPA pre-agreements**

2026 — 2027 — 2028 — 2029 — 2030 — 2031 — 2032 — 2033 — 2034



FOAK interconnection with CO_2 provider - derisks the CCS scenario

INNOVATION FUND
Deploying innovative net-zero technologies for climate neutrality

TITAN
iFESTOS
LAFARGE
OLYMPUS

2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034

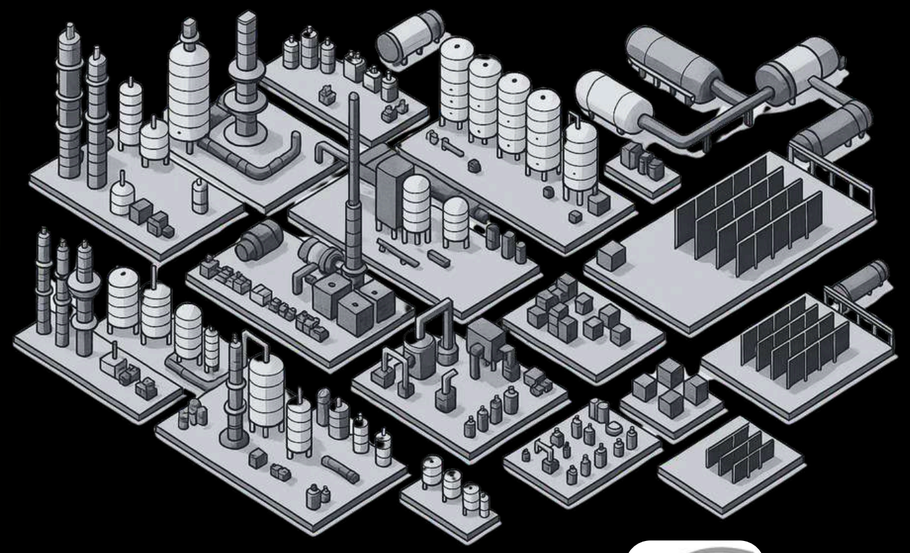
- FOAK interconnection with one of the two CO_2 providers, with projected savings €70M+/year
- FOAK interconnection with RES PPA
- FOAK 3 months dry-runs

FOAK's 1st Expansion

- CAPEX: €130.0M
- CO_2 utilised: 100,000 tons / year
- MEY™ produced: 28,000 tons / year

2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034

- €150.0M Series B close-out
- H_2 Valley Project Development (€170,0M)
- FOAK 1st Expansion Design, Cost- & Process Engineering



INNOVATION FUND
Deploying innovative net-zero technologies for climate neutrality

European Investment Bank

Knowhow Export: Technology Transfer / Licensing across the EU

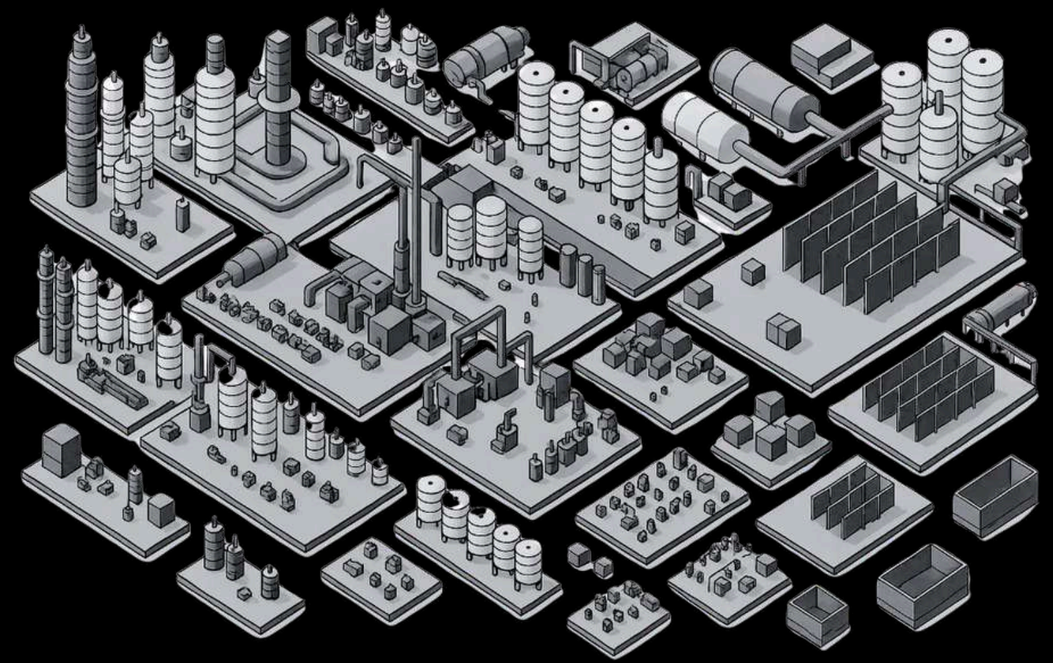
2026 2027 2028 2029 2030 2031 2032 2033 2034

- Tech-transfer & Licensing
- €220.0M Series C Close-Out
- FOAK's 2nd Expansion Design, Cost- & Process Engineering

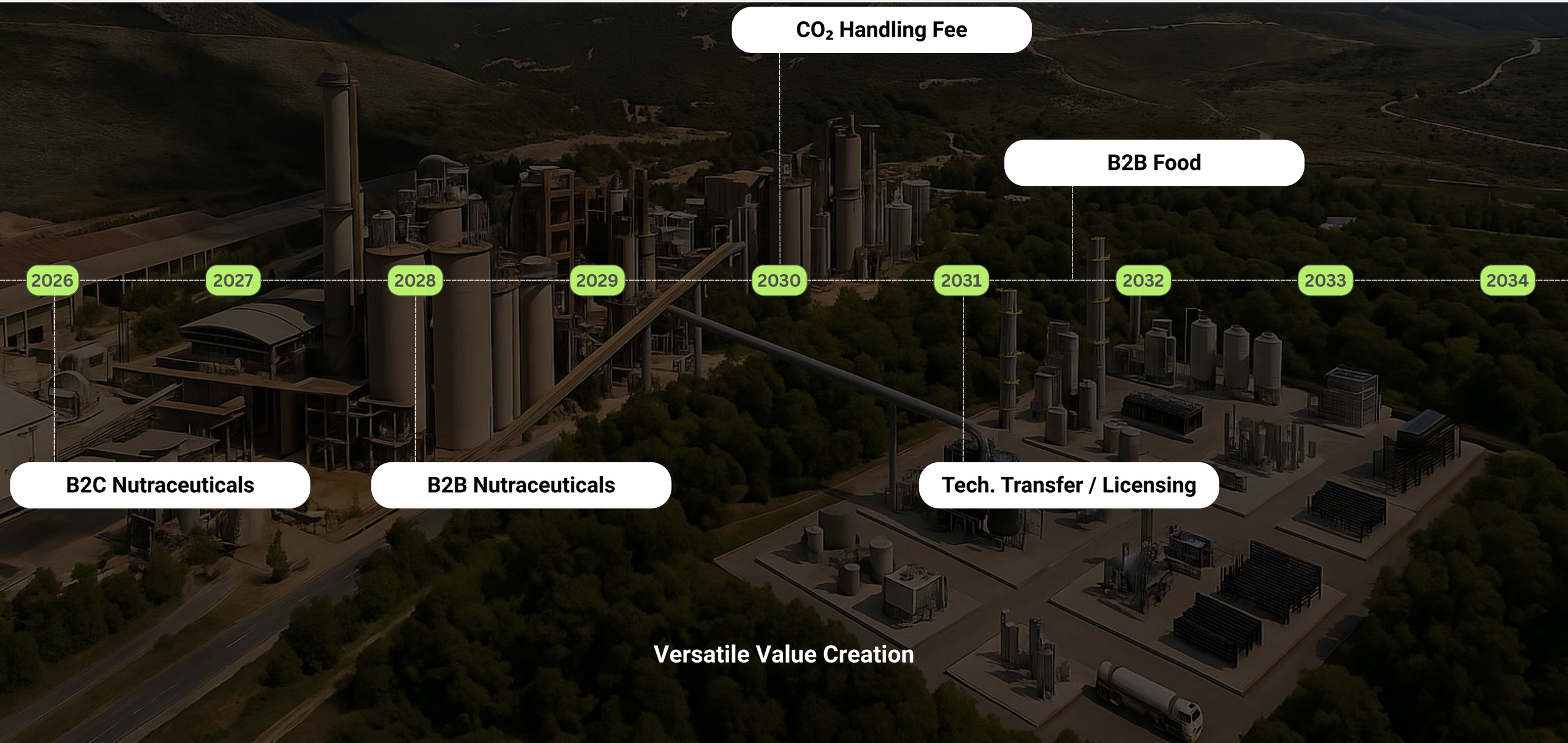
FOAK's 2nd Expansion

- **CAPEX: €220.0M (Project / Debt. Financing: 220.0M)**
- **CO_2 utilised: 500,000 tons / year**
- **MEY™ produced: 160,000 tons / year**

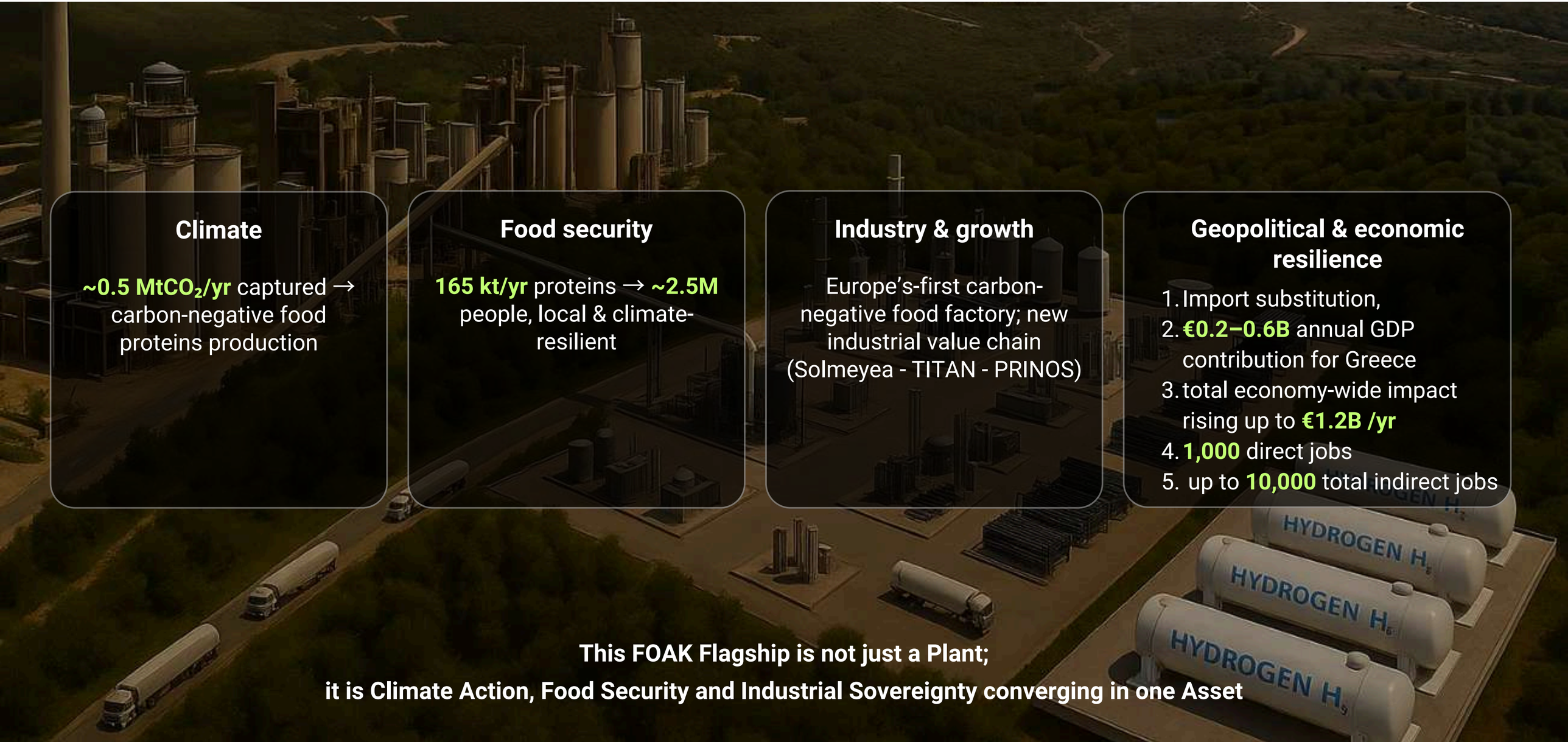
2026 — 2027 — 2028 — 2029 — 2030 — 2031 — 2032 — 2033 — 2034



Industrial Bioeconomy Platform with multiple monetisation Layers



Why this Flagship matters for Europe



Climate

~0.5 $MtCO_2$/yr captured → carbon-negative food proteins production

Food security

165 kt/yr proteins → **~2.5M** people, local & climate-resilient

Industry & growth

Europe's-first carbon-negative food factory; new industrial value chain (Solmeyea - TITAN - PRINOS)

Geopolitical & economic resilience

1. Import substitution,
2. **€0.2–0.6B** annual GDP contribution for Greece
3. total economy-wide impact rising up to **€1.2B /yr**
4. **1,000** direct jobs
5. up to **10,000** total indirect jobs

This FOAK Flagship is not just a Plant;

it is Climate Action, Food Security and Industrial Sovereignty converging in one Asset

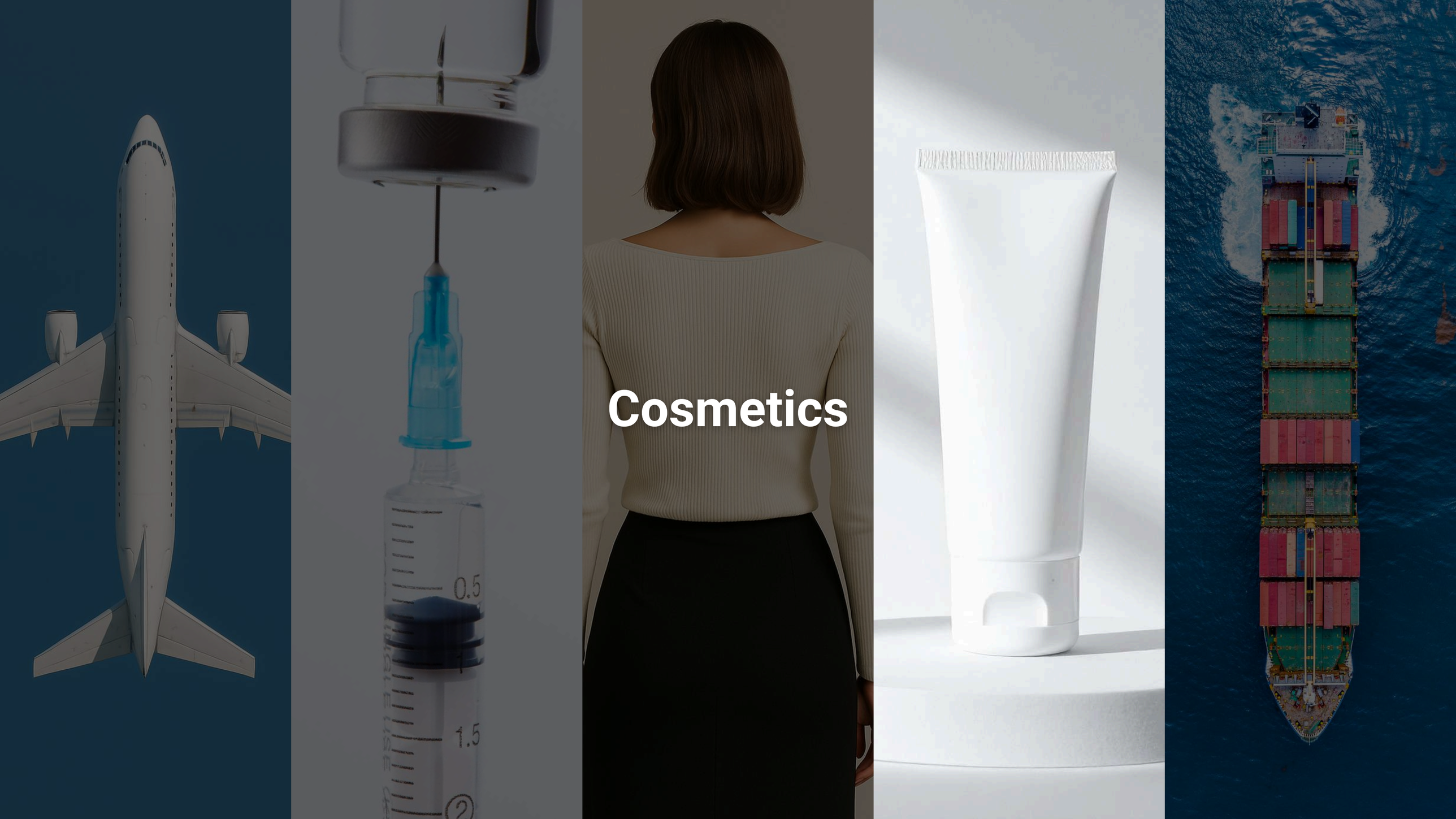

The engine that makes bio-based solutions affordable, competitive and deployable at industrial scale
industrial biotech
decarbonisation
resource security
SOLMEYEA
inspiring CO2 circularity
biomanufacturing
bio-based materials & ingredients
nature-positive growth
strategic autonomy


Decarbonize one sector at a time


Aviation


Pharma


Fashion


Cosmetics


Maritime

Industrial CO_2-Utilisation, Advanced Bio-based Platform