Global Bioenergies

Fostering the environmental transition through biosciences

9 April 2024

Euronext Paris: ALGBE

Disclaimer

This presentation does not purport to be a complete or exhaustive description of Global Bioenergies nor to predict future events or circumstances. It is prepared solely for the information of investors.

It contains certain forward-looking statements relating in particular to Global Bioenergies' development prospects and strategy. Based on Global Bioenergies' assumptions, estimates and expectations as well as on the state of current knowledge, the information contained herein involves risks and uncertainties linked to various factors whose realization, non-realization or evolution in the future could have an impact on Global Bioenergies' activities, financial situation, results and performance, which could then differ from those indicated in this presentation. These risks and uncertainties include those set forth and detailed in Chapter 1.C "Risk Factors" of the universal registration document, approved by the French Financial Markets Authority (Autorité des Marchés Financiers) under number R.23-021 dated 28 April 2023. This universal registration document is available on Global Bioenergies' website (https://www.global-bioenergies.com/informations-reglementees).

Global Bioenergies makes no representation or warranty of any kind as to the completeness or correctness of the information contained herein or that the events contemplated will occur or that the objectives contemplated will be achieved. In no event shall Global Bioenergies, its officers, employees or advisors be liable for any loss or damage whatsoever, whether arising out of or in connection with the use of this presentation or the information contained herein.

Neither this presentation nor a copy hereof, or any information it contains, may be conveyed, disclosed or distributed, whether directly or indirectly, in the United States, Canada, Japan or Australia, or to any resident of those countries. The distribution of this presentation in other countries may be subject to legal restrictions and any person who may come into possession of it must inform itself of the existence of any such restrictions and comply therewith.

This presentation is promotional in nature and does not constitute a prospectus within the meaning of Regulation (EU) 2017/1129 of the European Parliament and of the Council of 14 June 2017 nor an offer or invitation to sell or purchase, or a solicitation of any offer to purchase or subscribe for shares of Global Bioenergies in any country.

Global Bioenergies undertakes no obligation to update the information contained herein, subject to applicable regulations, and any information contained herein is subject to change without notice.

Global Bioenergies

GBE at a glance

Our Company

- ✓ Founded in 2008
- ✓ ~50 employees in the Paris area
- ✓ IPO in 2011 - listed on Euronext Growth

Our Bio-Isobutene Process

- ✓ A unique & disruptive gaseous fermentation process
- ✓ Synthetic Biology x Green Chemistry = Deeptech
- ✓ Aim to significantly contribute to cutting CO_2 emissions
- ✓ Early commercial status

Our Purpose

'To foster the environmental transition through biosciences'

Our Products

First renewable isododecane and isohexadecane

Niche market in the cosmetics

Partnership with L'Oréal

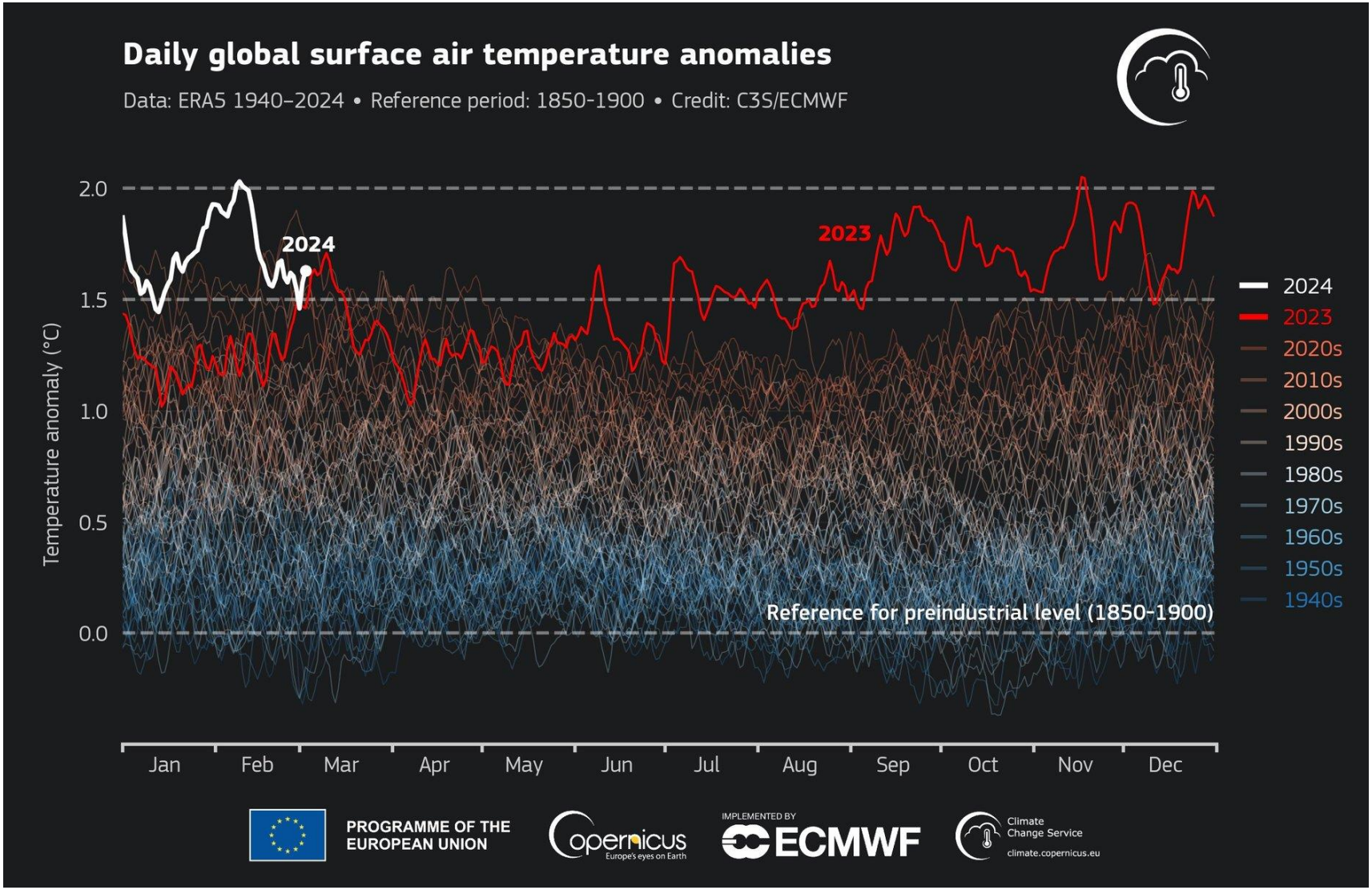
Sustainable Aviation Fuels

ASTM-certified

ASTM INTERNATIONAL

Global Bioenergies

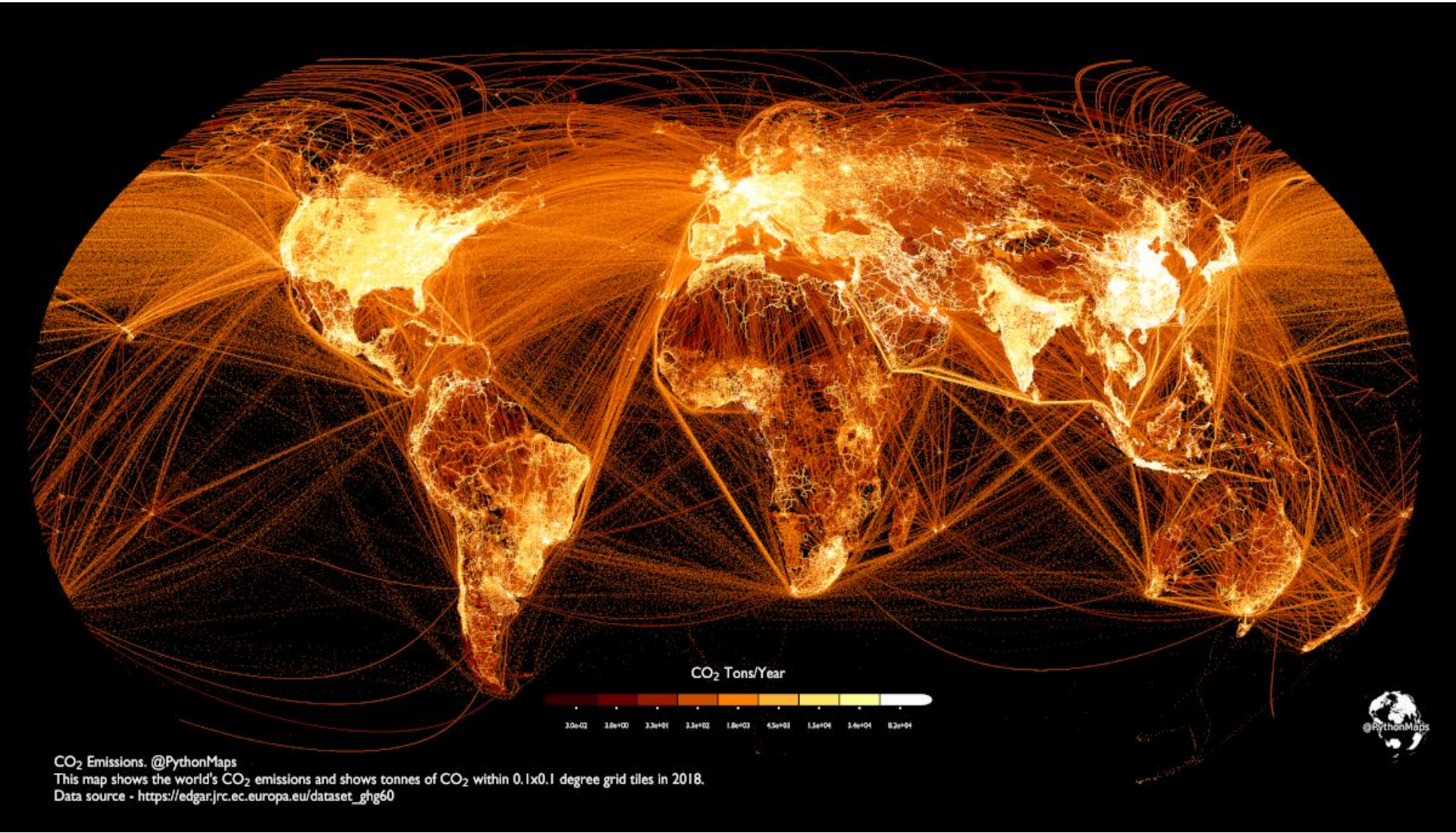
Global warming is accelerating



Air transportation is responsible for 5% of it

Where is the CO_2 emitted? Work by Adam Symington

https://www.visualcapitalist.com/cp/mapped-carbon-dioxide-emissions-around-the-world/

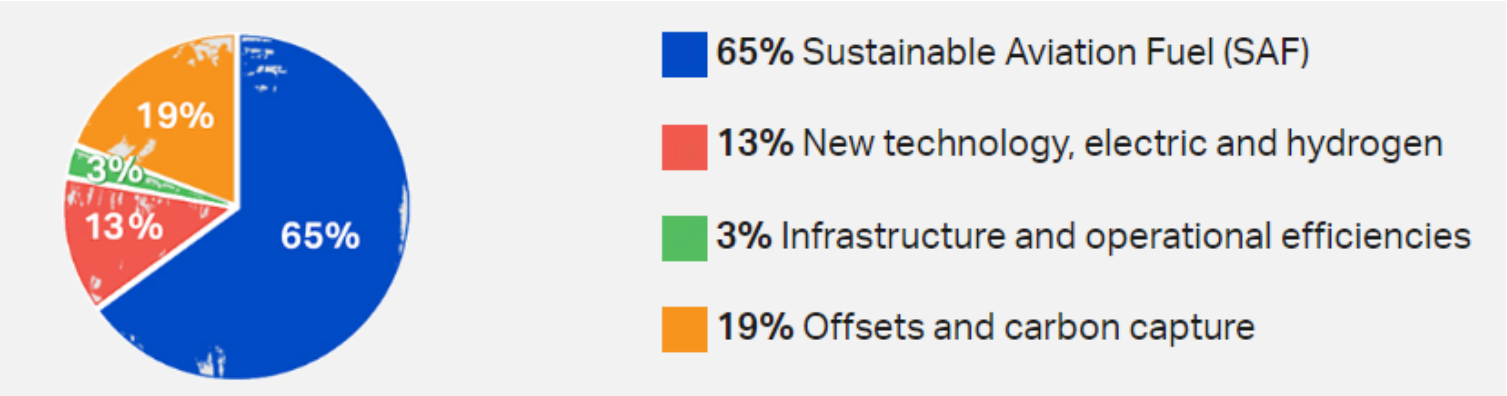


Sustainable Aviation Fuels are part of the solution

- Electric commercial airplanes will never happen (batteries too heavy)
- Hydrogen commercial planes are very far away (and most hydrogen is produced from fossile hydrocarbons)

→ International Air Transport Association (IATA) :

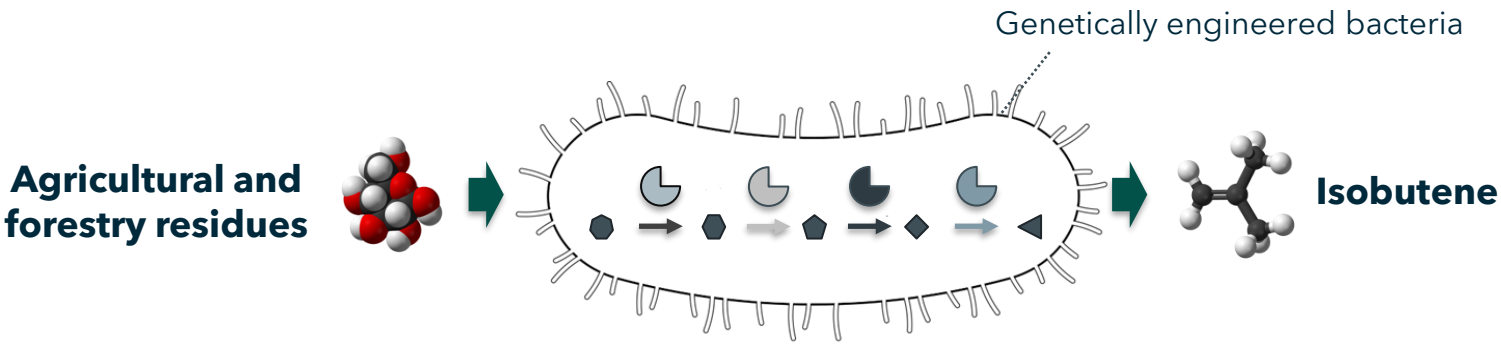
Sustainable Aviation Fuels (SAF) represent the main option for decarbonation of air transportation



Source : https://www.iata.org/en/programs/environment/sustainable-aviation-fuels/

Global Bioenergies

Our innovative biological process to Isobutene



No biological starting point because isobutene is not produced by Nature

→ **<u>unique artificial metabolic pathway</u>** - huge technology barrier overcome ; long R&D effort

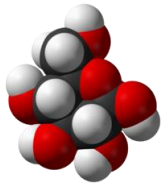
<u>First ever fermentation process to a gas</u>, with solid advantages translating in economics

IP : exclusive rights on a portfolio of >30 patent families

Global Bioenergies

Our process: global picture

Sugar residues

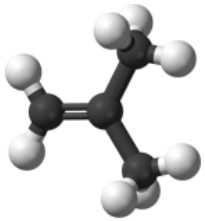


- 1G ressources: Sugar beet, sugar cane
- 2G ressources: Wheat, straw

fermentation → *purification*

Biology

Isobutene

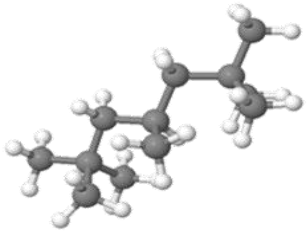


- Smallest branched molecule on Earth
- Chemical building block

oligomerisation → *hydrogenation* → *purification*

Chemistry

Isododecane & isohexadecane



- Key ingredient in cosmetics
- SAF approved by ASTM

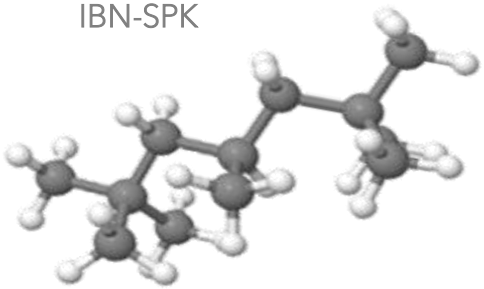
Global Bioenergies

Our solution: IBN-SPK a new, innovative SAF technology

Technology

- ✓ ASTM certified
- ✓ Technical feasibility proven
- ✓ Protected by >30 patent families
- ✓ Based on several feedstocks

IBN-SPK

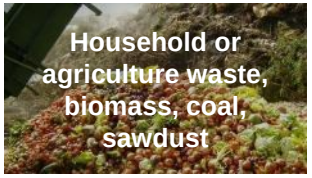


Product

- ✓ Cut CO_2 emissions & maintain performance
  - → *no compromise*
- ✓ Very good cold flow properties
  - → *Stays liquid at very low temperature*
- ✓ Very good combustion properties
  - → *Reduction in particles, meaning less contrails and thus less global warming*

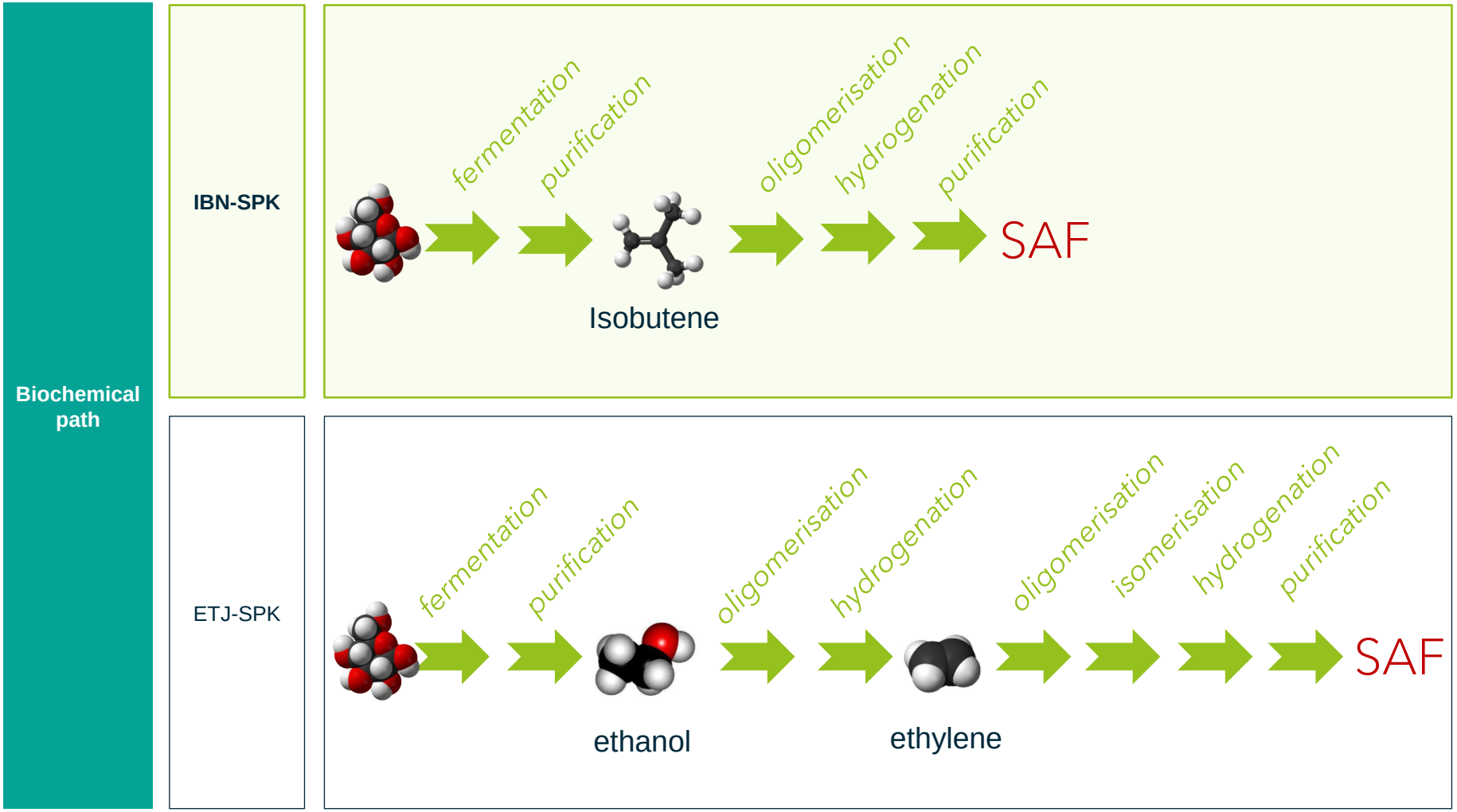
Global Bioenergies

IBN-SPK is one of the few SAF technologies

Pathway	Oleochemical path	Biochemical path		Thermochemical path	E-fuels
Technology	Hydrotreated Esters and Fatty Acids (HEFA)	Fermentation (ATJ-SPK)		Fischer-Tropsch (FT)	Power-to-Liquid (PtL)
		ETJ-SPK	**IBN-SPK** Global Bioenergies		
Feedstock	 **Used cooking oil, waste and vegetable oils**	 **1G (US only): corn, cane sugar** **2G: wood chips (e.g., birch trees)**		 **Household or agriculture waste, biomass, coal, sawdust**	 **CO_2, renewable electricity**
Maturity	2025 Technology already implemented at large scale	2030 First large-scale plant in commissioning phase	2030 Large-scale plant projects in preparation	2030 Several attempts at industrial scale, unsuccessful for now	2035 First small-scale pilot plants starting
ASTM certification	✓	✓	✓	✓	✗
	Insufficient feedstock availability to meet demand from 2030 onwards	**Expected to be the next generation in SAF with potential synergies to be leveraged between main SAF producers**		**Industrial and commercial scale-up difficulties**	**Costly process** (energy consumption) **unproven yet at industrial scale**

Global Bioenergies

Fewer steps than competitive technologies

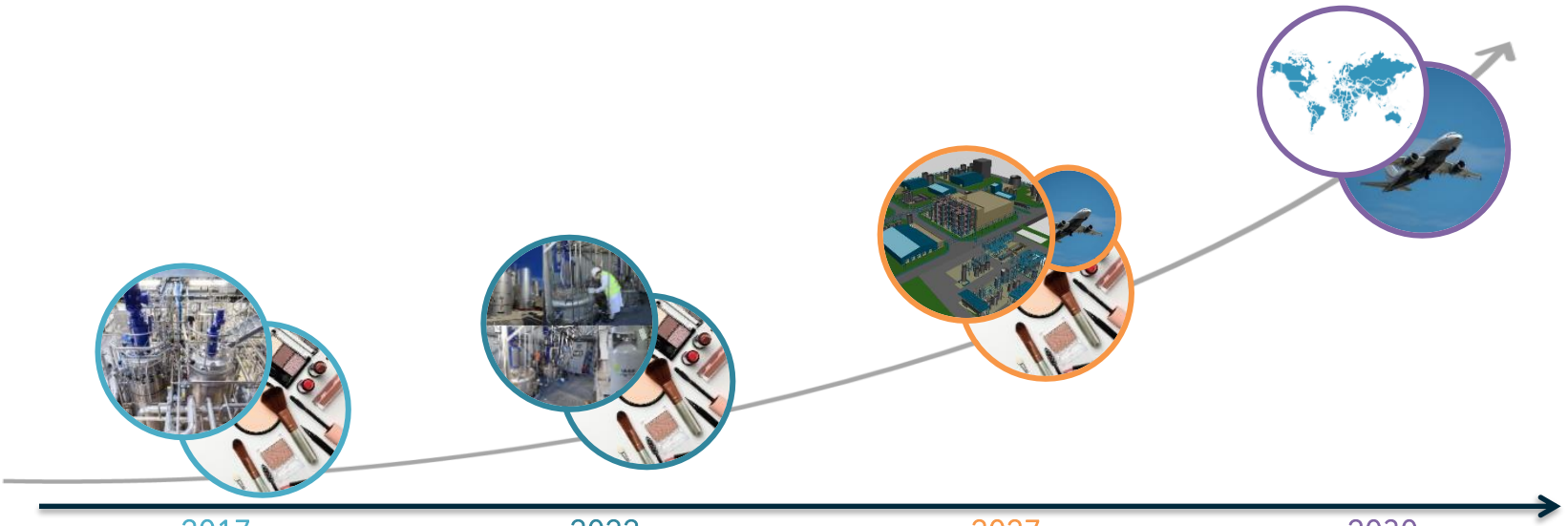


Shorter route = lower cost ?
To be validated at industrial scale…

Global Bioenergies

Roadmap

R&D	Industrialization	Ramp-up
Demonstrate technical and commercial feasibility	Generate revenues and transform the company into a full industrial player	Large-scale commercial deployment of GBE's technology



	2017	2022	2027	2030
	Horizon I : Demo plant	Horizon II : Semi-works	Horizon III : Industrial scale	Horizon IV : SAF
Capacity	Tons	Tens of tons	Up to 2,500 tons	> 100,000+ tons
Offtake	Internal R&D and make-up demo brand	Trial batches for premium cosmetics	Wider make-up and skin care market	Aviation fuels

Global Bioenergies

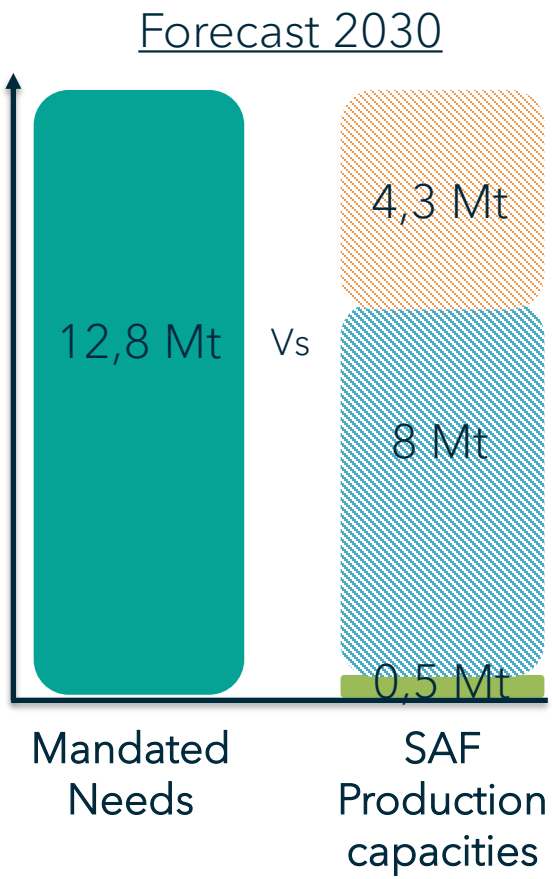
Horizon IV (1/3): several SAF plants in 2030

Project	Horizon IV.1	Horizon IV.2	Horizon IV.3	Horizon IV.4
	Large-scale replica of Horizon III	*Adaptation to 2G feedstocks*	*Integration through retrofit of existing plants*	
Location			TBD (likely to be in Europe or in the US)	
Tech readiness	✓✓✓	✓✓	✓	✓
Feedstock	1G resources (sugar cane)	2G resources (wood chips from birch leftovers)	1G/2G	1G/2G Biogenic CO_2
Conditions	■ Improve yield and productivity of existing GBE processes	■ Improve yield and productivity of existing GBE processes ■ Demonstrate availability and feasibility of feedstock at scale	■ Industrial partner ■ New technological setting ■ OPEX synergies	■ Industrial partner ■ New technological setting ■ Technical synergies

Note: (1) Assuming a SAF sales price of 5€/kg

Global Bioenergies

Horizon IV (2/3): A market in million tons building up



/!\ Unmet needs

New production capacities identified but left to implemented

Current production capacities

Source : SkyNRG – Sustainable Aviation Fuel Market Outlook, May 2023

Global Bioenergies

Horizon IV (3/3): positioning

IBN-SPK Global Bioenergies

As a **drop-in fuel,** GBE's biofuel can **safely be blended** with fossil jet fuel, **using the same airplanes and infrastructure** (no retrofit required)

up to 50%
GBE's SAF maximum share in blend(1)

100% derived from natural sources, GBE's SAF **emits significantly less CO_2 than the fossil fuels it replaces** and contributes to the decarbonization of transport

Up to 70%
reduction in CO_2 emissions

GBE's biofuel has **cleaner combustion properties,** reducing **particles emissions in contrails** (a key driver of global warming) and in turn **improves fuel efficiency**

Level of reduction to be measured

Among SAF technologies, GBE's jet fuel boasts the lowest **freezing point** and has **better cold flow**

Acting as
antifreeze

Due to its unique qualities, GBE's SAF may be used as a **performance booster to complement other SAF solutions**

Compatibility
with HEFA and other SAF

GBE's biofuel, having **passed the ASTM certification,** is among the **few solutions in the world** that have obtained **approval to fly**

1,400+
experts' approval

Global Bioenergies

Horizon III : a 2,500t/yr plant to address niche markets

IDD and IHD are key ingredients in cosmetics

IDD and IHD are **used since decades in cosmetics** for their unique properties

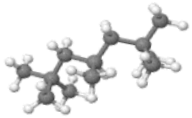
Isonaturane™ is a perfect replacement for petrochemical IDD/IHD

With the **same molecular composition and properties**, GBE's Isonaturane™ can replace petrochemical IDD/IHD **on a like-for-like basis** and is a good alternative to cyclic silicones (CS)

Using GBE's Isonaturane™ is the only way for brands to claim naturalness

Switching from petrochemical IDD to GBE's natural product enables a **strong marketing** claim and product differentiation for cosmetic brands at a **limited increase in sourcing costs** (below 0.5% of the total retail price[1])

Isododecane's main properties



Isododecane's strongest case is in **long-wear, waterproof and no transfer** make-up and skin care formulas


Powerful solvent


Highly volatile


Aerial emollient


Safe to use

Core global addressable market for GBE

in tons

Make up

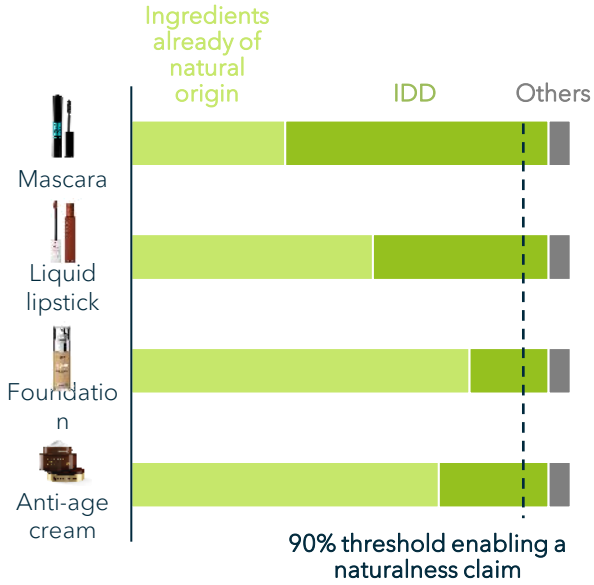
Mascara, lipstick, foundation

Skin care

Anti-ageing, moisturizing creams

Market **of 20k tonnes /year**, possibly ramping-up to **100k tonnes /year** in the next few years

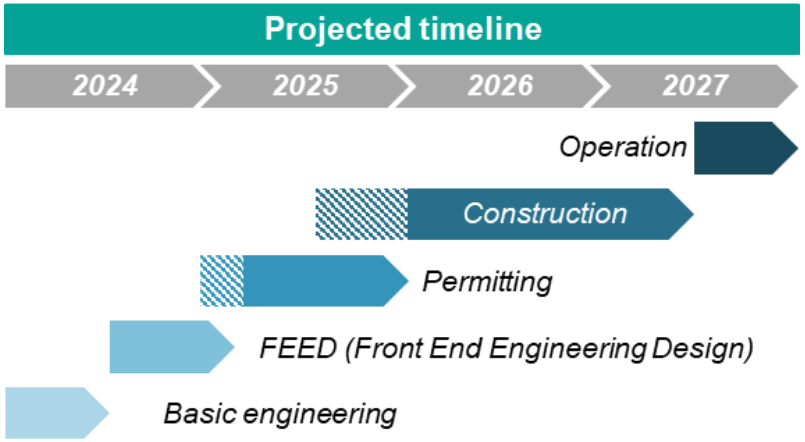
Impact of switching to GBE's IDD on naturalness



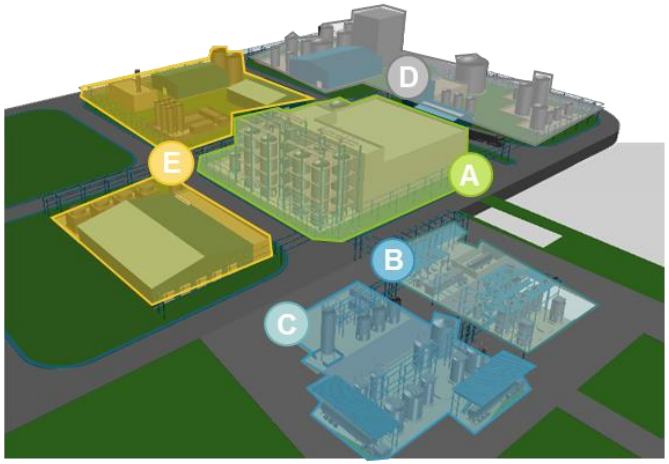
Global Bioenergies

Horizon III : Design and schedule

- The plant will focus on high added-value cosmetics markets, with annual production capacity up to 2,500 tons
- The total volume of letters of intent exceeds the plant's production capacity
- The plant will also enable to initiate the sustainable aviation fuels market



Preliminary plant design



- A — Production of IBN through fermentation
- B — IBN purification
- C — Conversion of IBN to IDD/IHD by oligomerization and hydrogenation
- D — Wastewater treatment
- E — Utilities (electricity, cooling water, hydrogen, etc.)

Global Bioenergies

Contact

Global Bioenergies
5 rue Henri Desbruères
91000 Evry Courcouronnes

invest@global-bioenergies.com

+33 1 64 98 20 50

www.global-bioenergies.com

Global Bioenergies