



*The Isobutene process:
short term opportunity and
long term potential*

October 2020

*Listed on Euronext Growth: ALGBE
Eligible to SRI investments*



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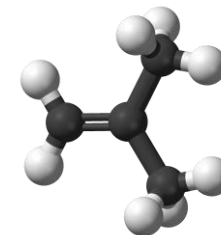
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Mission

We prepare a more socially and environmentally responsible world for the next generation

Producing bio-isobutene



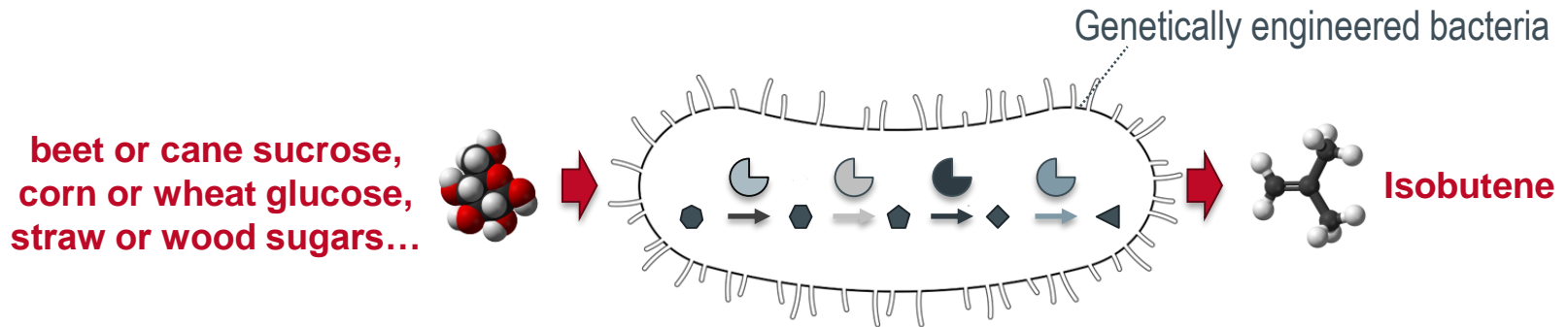
We have developed a unique, innovative process to convert renewable resources into isobutene, a platform molecule widely used in cosmetics and also offering a clear opportunity for renewable jet fuel

Why Isobutene?

- On the short term, with oil price < \$120/bbl, renewable products are more expensive than their oil-based equivalents.
 - Need to target markets where bio-based products are sold with a high price premium
 - Isobutene is THE molecule with the largest high-premium market: tens of thousand tons in the cosmetics
- On the longer term, with a higher oil price and/or increasing commitments from States to preserve the environment, bio-based isobutene could become core for sustainable air transportation.

Unique Science and strong IP

- We have engineered bacteria to convert renewable resources into isobutene, a gaseous 4-carbon building-block molecule traditionally derived from fossil oil (>15 million tons per year)



- No biological starting point because Isobutene is not produced in Nature → We created an artificial metabolic pathway, first ever. Huge technology barrier overcome.
- First ever fermentation process to a gas. Brings key benefits: abrogation of product-to-strain toxicity and simple purification scheme.
- Metabolic and chemical engineering breakthroughs covered by an IP fortress surrounding a know-how citadel.

The technology is now mature

- 2018-2019: Major breakthroughs achieved at lab-scale on yield and productivity
- Scale-up efforts in progress at pilot and demo scale

**Commercial
plants**

**2012
R&D in Evry,
France**

40L



**2015
Pilot plant in
Pomacle, France**

500L

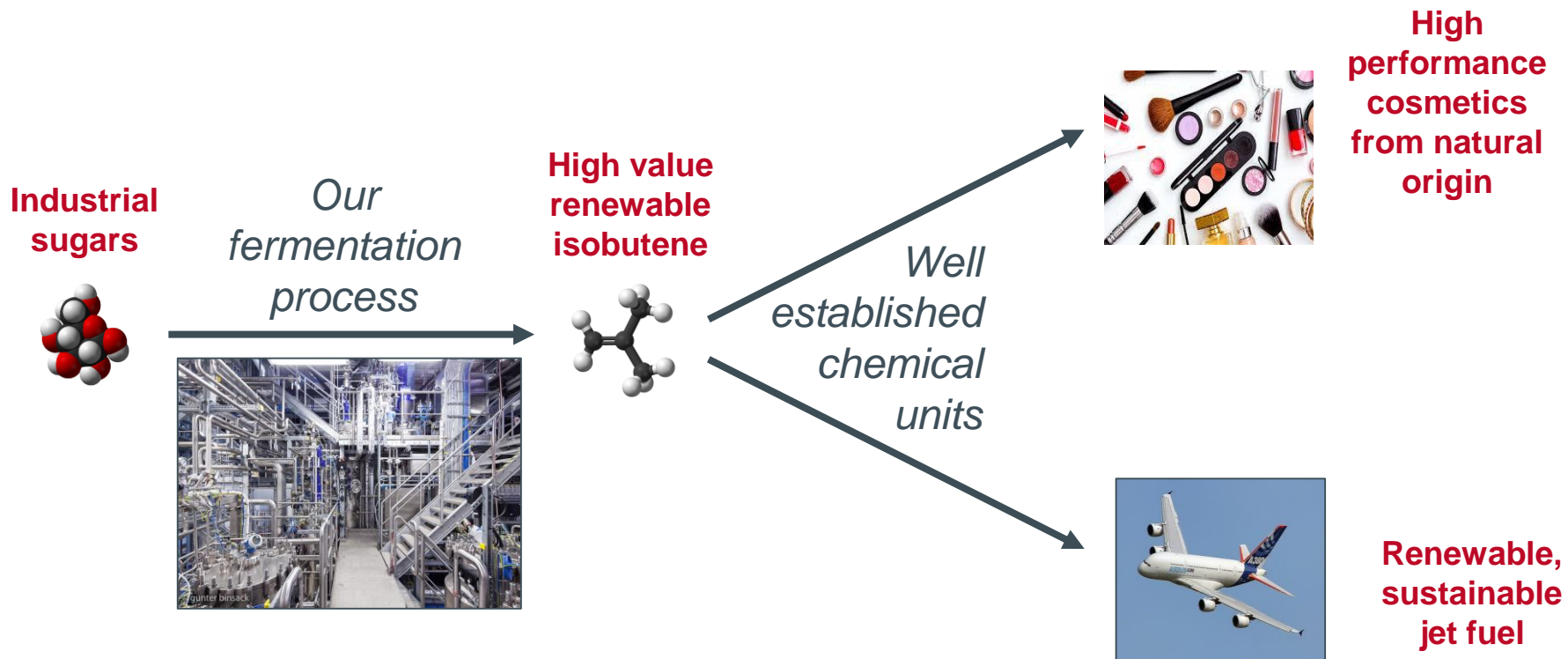


**2017
Demo plant in
Leuna, Germany**

5,000L



Two main opportunities



Cosmetics

- Isobutene derivatives have an existing market in the cosmetics of ~30,000 tons/yr
- Current main emollient for cosmetics is being phased out
- Isobutene derivatives substitute with comparable level of performance
- Cosmetic companies are looking for bio-based compounds to increase their level of naturality
- Collaboration with **L'ORÉAL** PARIS since 2016
- Market for isobutene derivatives in the cosmetics expected to exceed 100,000 tons/year within a few years

Sustainable Jet Fuel

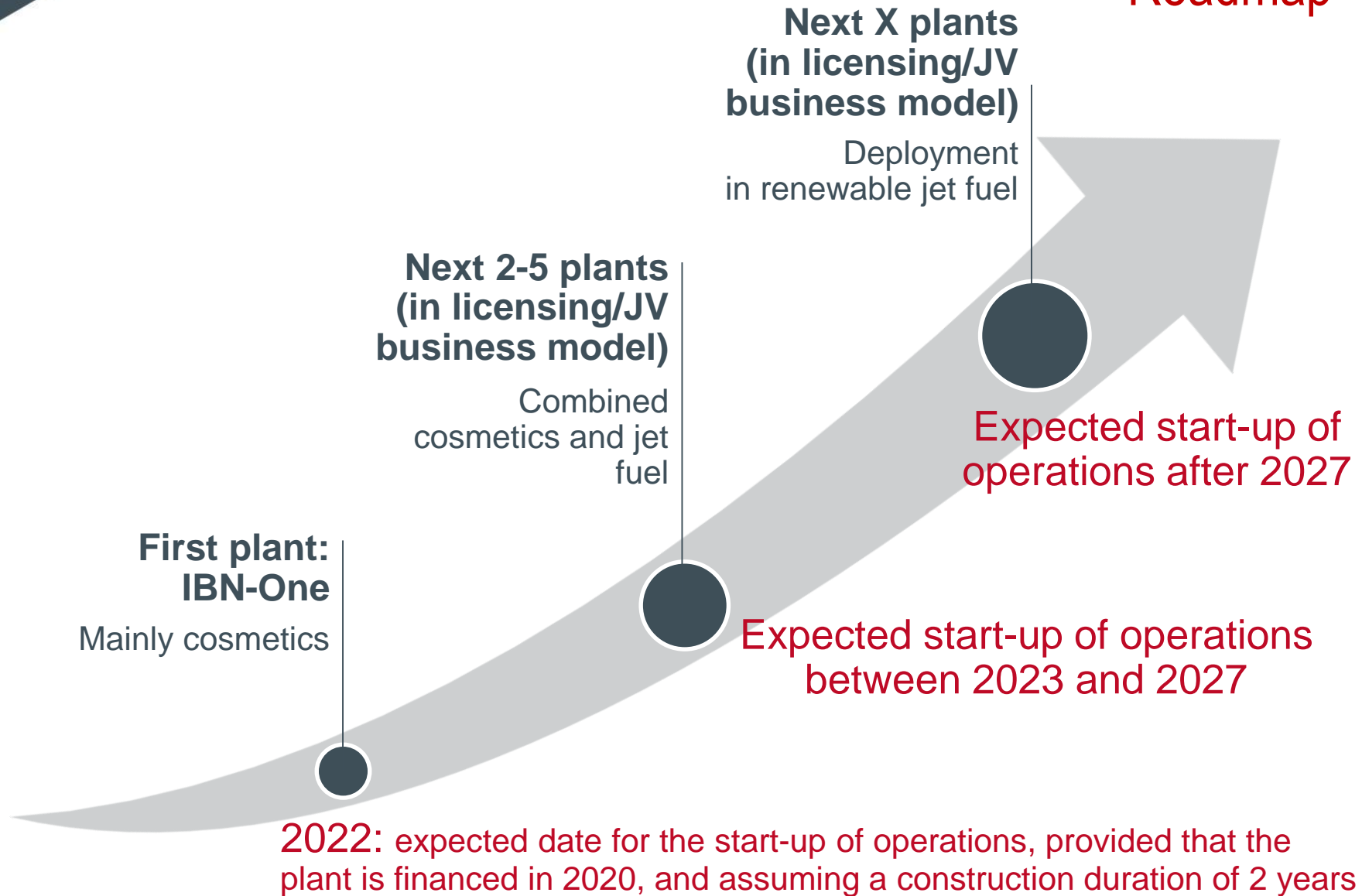
- Jet fuel is the most dynamic segment of the oil industry: +5% per year
- Market of 250 million tons fuel per year almost entirely based on fossil oil
- Only 4 different technologies provide biofuel batches for demonstration flights
- Norway has introduced a 0.5% mandate for Sustainable Aviation Fuel by 2020
- Air shame spreading → need for action
- France and Europe are moving on regulatory
- Massive tax incentives soon expected
- Regulatory process ongoing in fast-track mode



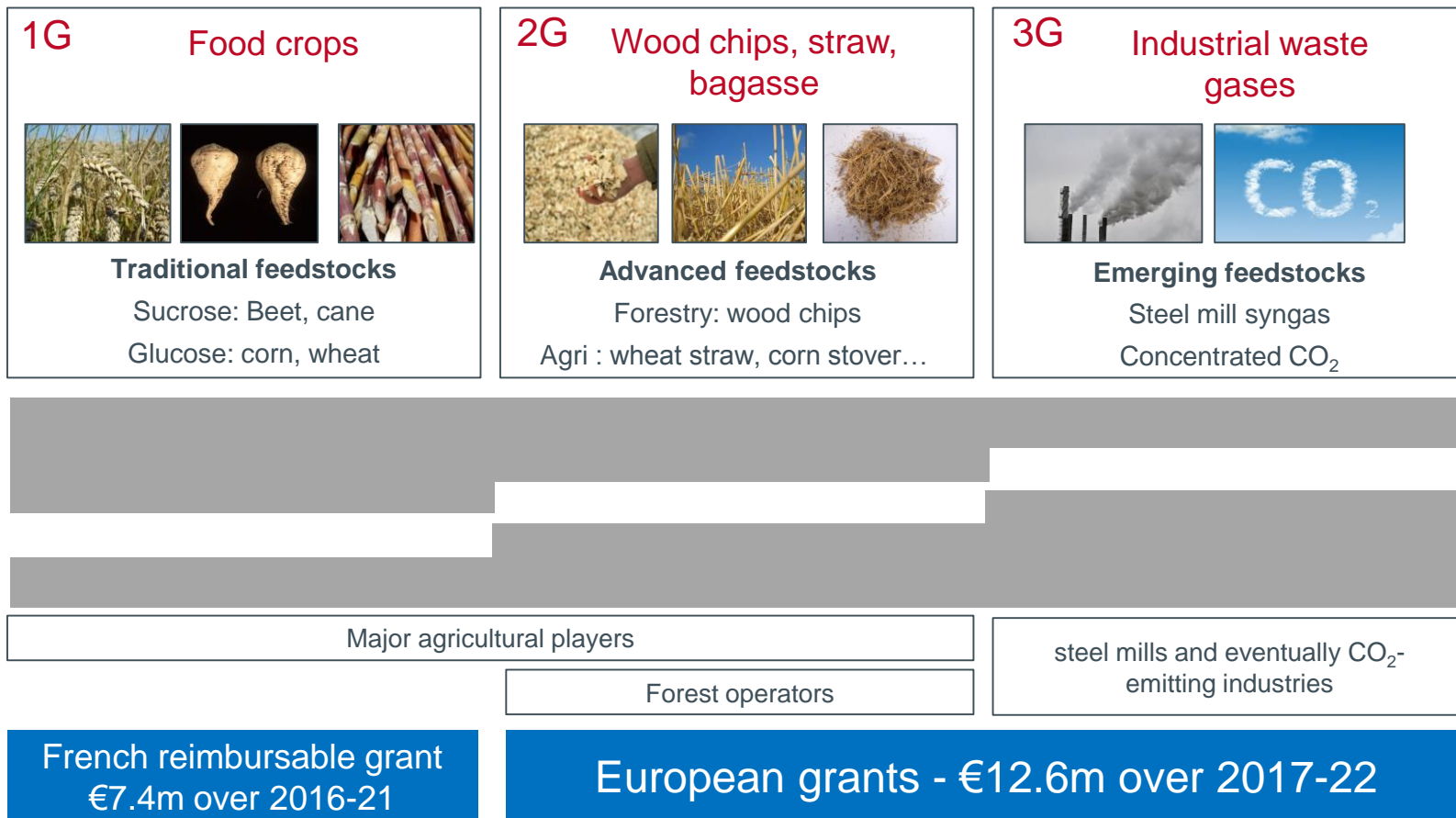
Moving to commercial scale exploitation

IBN-One, a Joint-Venture with sugar player Cristal Union, has the project to finance, build and operate the first plant

Roadmap



Diversifying the feedstocks to reach lower costs and further improve environmental impact



- €5.7m directly to GBE / €4.6m already received
- €3.3m to IBN-One / €1m already received (accounted at 50% in consolidation).
- The rest will be received based on expenses + financial and technical milestones

€9.3m already received by GBE. The rest will be received based on expenses and technical milestones

Executive summary

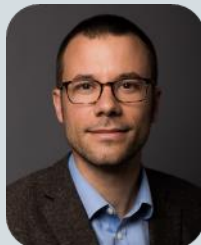
1. A unique Science, based on an innovative Synthetic Biology approach. Strong IP position.
2. The technology is at late development stage: High performances reached. Scale-up in progress.
3. Business in the cosmetics accessible on the short term.
4. One of the rare technologies having a potential for sustainable jet fuel

A seasoned management team...

Executive committee



Marc Delcourt
Chief Executive Officer



Samuel Dubruque
Chief Financial Officer



Macha Anissimova
Chief Scientific Officer



Bernard Chaud
Head of Industrial Strategy



Frédéric Ollivier
Chief Technical Officer



Alexandra Ramirez-Moncada
Chief Legal Officer

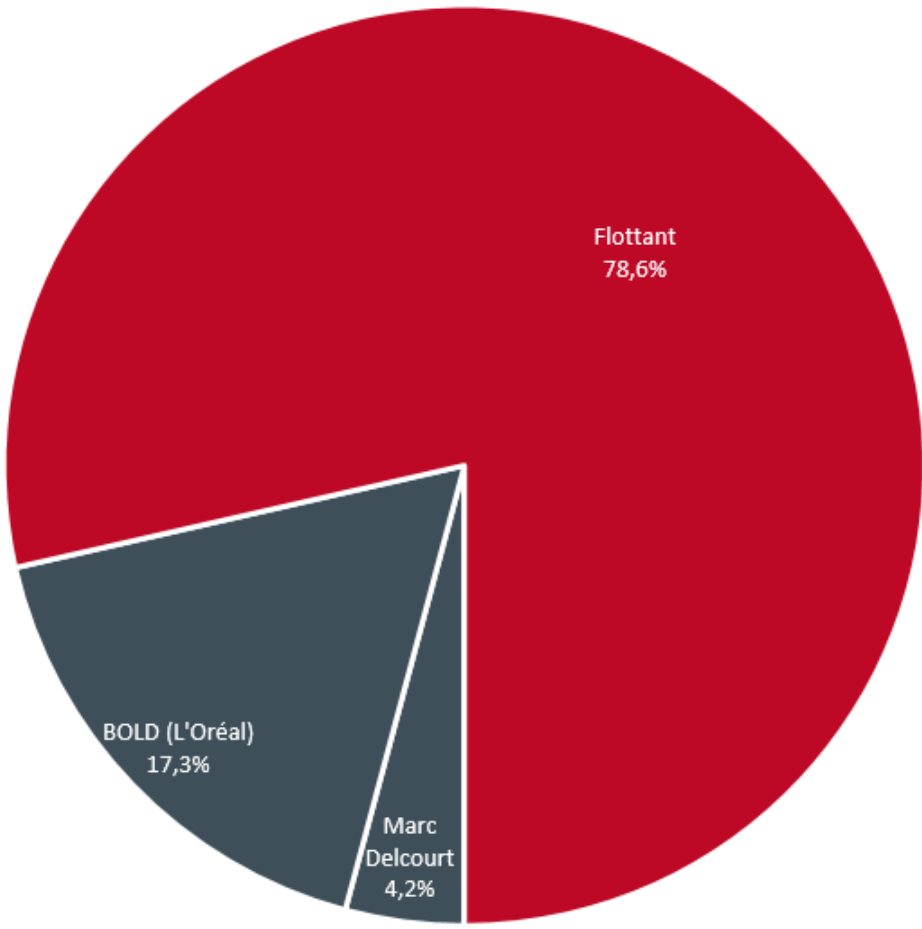
Vice Presidents



Dr. Richard E. Bockrath
VP Chemical engineering
Former Technical Director at DuPont



Dr. Charles E. Nakamura
VP Metabolic engineering
25 years at DuPont.
Received ACS award in 2007



En gris figurent les actionnaires présents au Conseil d'administration
(BOLD en tant que censeur)