



*The emergence of an  
industrial biology leader*

*June 2015*



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## The founders

### Dr. Marc Delcourt

*Co-founder  
Chairman & CEO*



Entrepreneur with a scientific background

Has founded and managed  
industrial biotechs since 1997

### Dr. Philippe Marlière

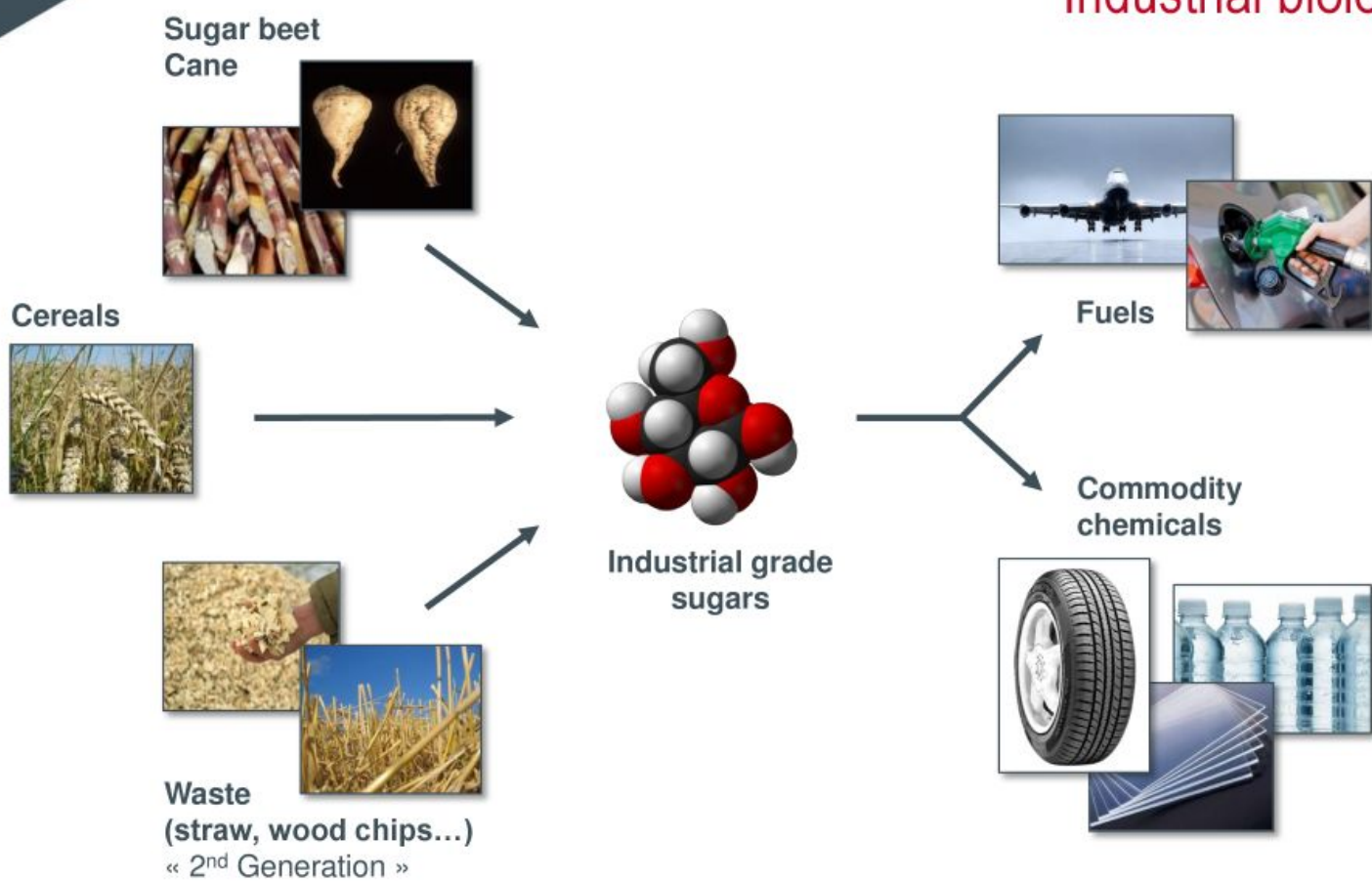
*Co-founder  
President of the Scientific Advisory Board*



Visionary scientist

Has pioneered the translation of synthetic  
biology into industrial applications

## Industrial biology



→ an alternative to oil-based fuels and chemicals

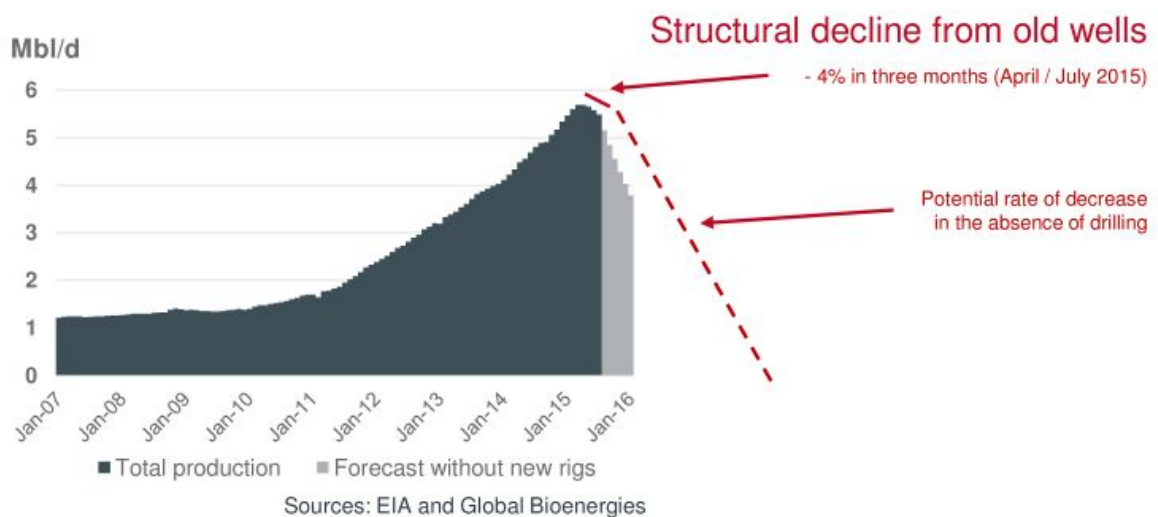


## State of the industry

- Current technologies: Ethanol and food/feed additives
  - Mature and widely spread
  - Low margin, low value
- Modern industrial biology targets higher value products
  - Still in its pioneering days: Limited number of players
  - Only a few successful commercial plants

## Industrial biology in the global context

- 2mb/d oversupply in December 2014 due to tight oil in the USA
- Oil stocks went up, prices went down



- The 5mb/d tight oil production has peaked in April 2015, and is going down quickly. In the meantime, the demand is up.

→ The market should swing back to higher price in coming months and years

## Mission Statement

To take part in the energy transition by bringing  
renewable hydrocarbons to the market

## **1. Bio-isobutene: from brain to market**

2. Global strategy

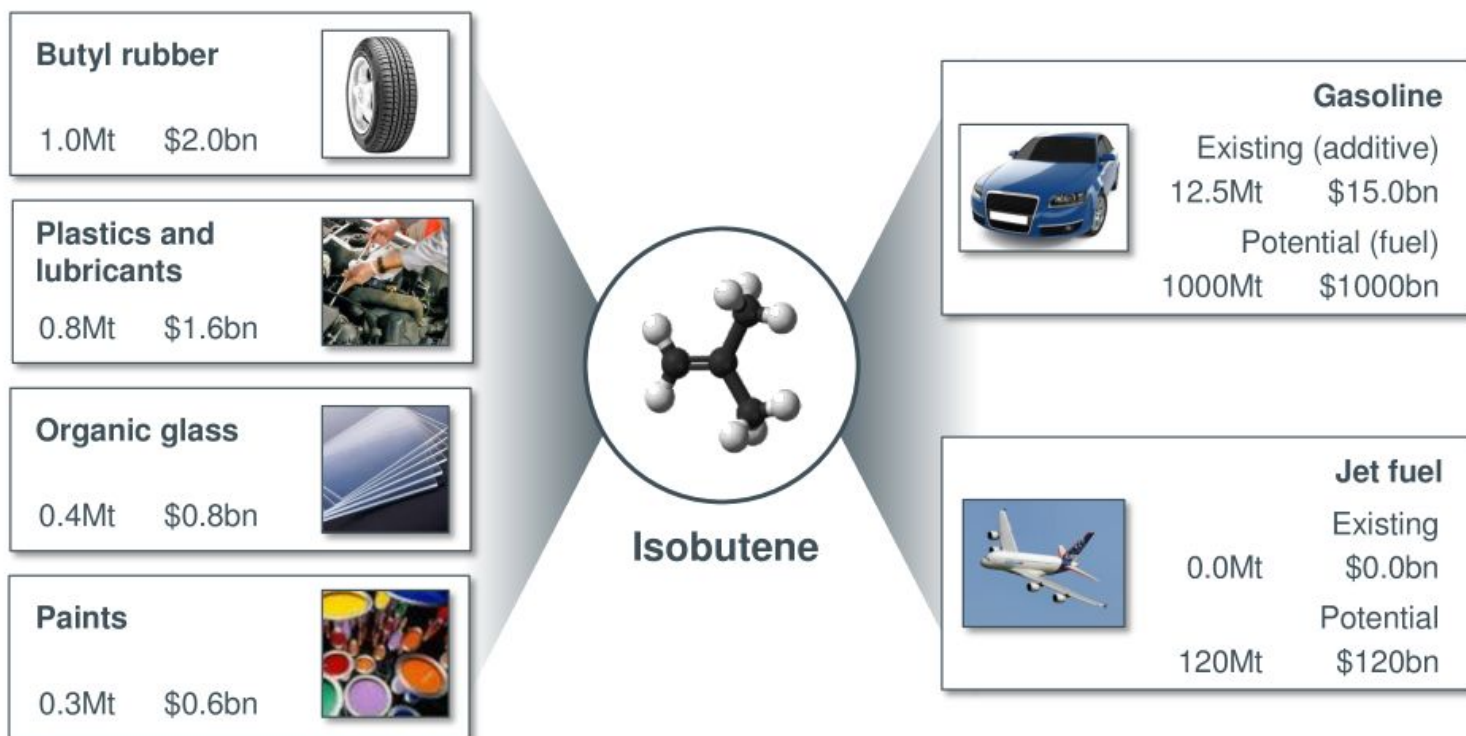
3. Equity story



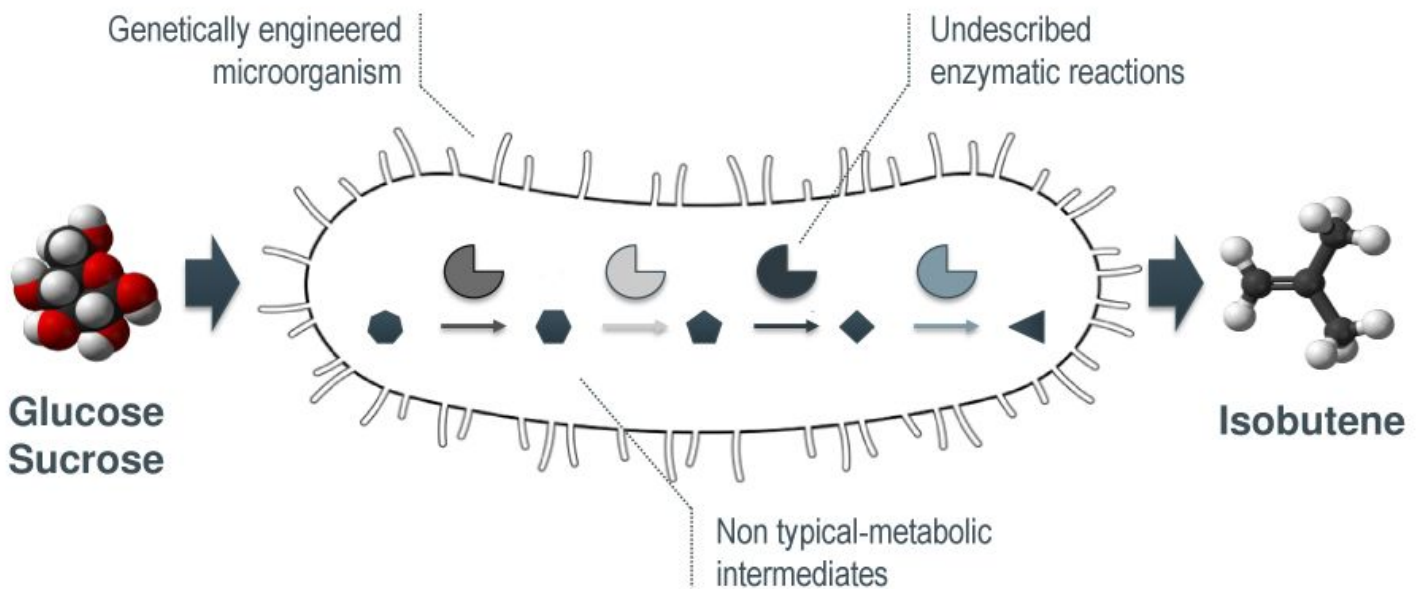
## Bio-Isobutene at a glance

- Breakthrough innovation
- Very strong IP position ; excellent competitive environment
- Largely de-risked program:
  - Pilot plant in operation
  - Demo plant under construction
- Progressive market access:
  - First plants for “drop-in biofuels” accessible at an oil price > \$50/bl
  - \$5b commodity chemicals market accessible at an oil price > \$85/bl
  - Huge gasoline and jet fuel markets accessible at an oil price > \$150/bl

## Isobutene: a wide product tree



## Microbial factory



- Breakthrough innovation: artificial metabolic pathways
- Exclusive rights on 26 families of patent applications on isobutene and other hydrocarbons (first patents granted in 2014)
- First ever fermentation process to a gas

## A simple and robust two-steps technology



Glucose  
Sucrose

### I - Fermentation



**Breakthrough technology by direct fermentation to a gas**

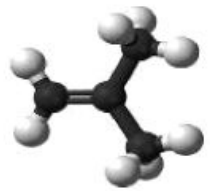
- No product-associated toxicity
- Pre-purification by product volatilization

### II - Purification



**Combination of proven petrochemical modules**

- High performance
- Simple design



Isobutene

## Pilot and Demo plants

### Pomacle



### Leuna

10 tons/yr capacity

€10.5m program

€5.2m public financing



Consortium with **ARKEMA** and **cnrs**

Up and running since Nov. 2014

Operated by **ard**, a **CRISTAL UNION** affiliate

Purified isobutene shipped to **ARKEMA** and converted into e-gazoline for **Audi**



100 tons/yr capacity

~ €20m program

€5.7m public financing

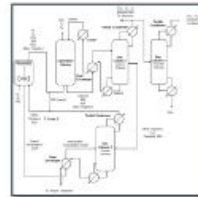


€4.4m bank loan

Engineering done by **Linde**

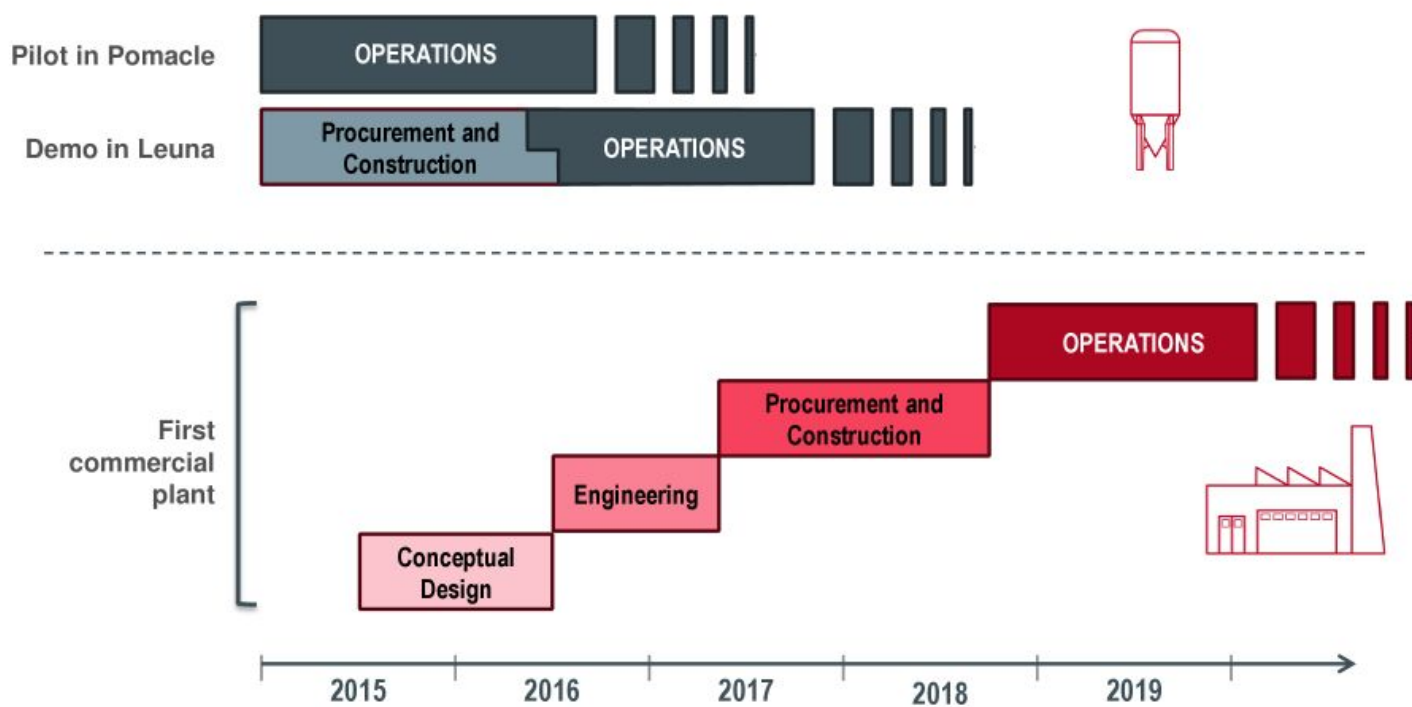
First run expected Q2 2016

To be operated with **Fraunhofer** CBP





## Road to market



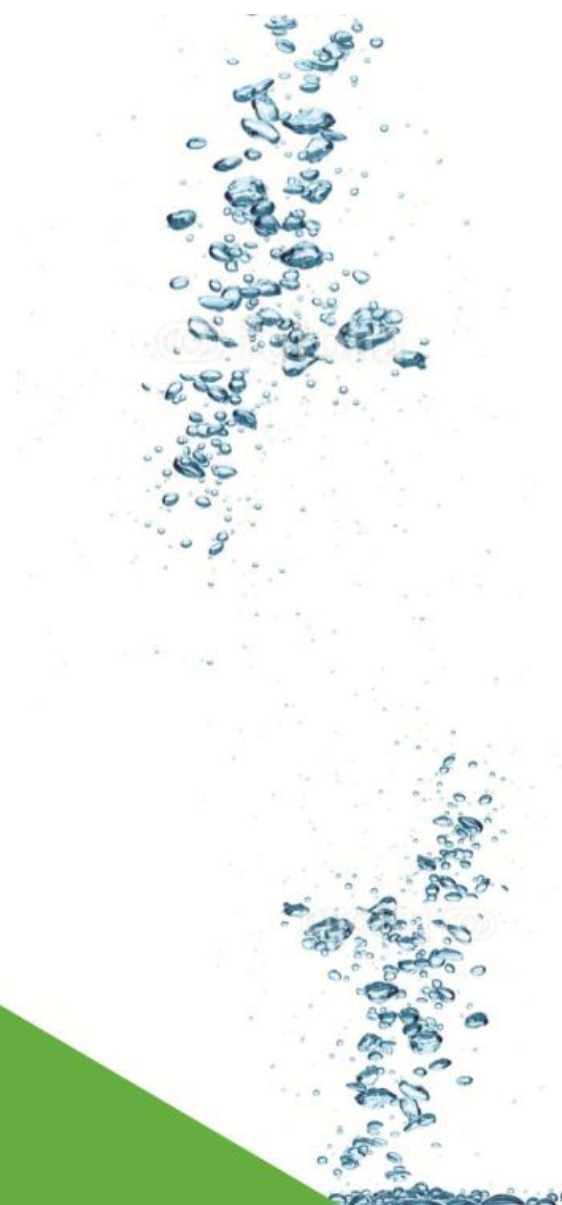


IBN-One

Joint-Venture between  
Cristal Union & Global Bioenergies

to

Build and operate a first  
commercial bio-isobutene  
plant in France



- 2015: Seed (€1m budget)
  - Cristal Union and Global Bioenergies each own 50% of the JV
  - Non-exclusive license for a first plant in France to convert 200Kt sucrose into 50Kt isobutene
- 2016: Structuration (€15m budget)
  - New shareholders: regional, national, European funds. Downstream Industrialists.
  - Conceptual design / basic and detailed engineering
  - Signing of commercial agreements (supply and offtake)
- 2017: Construction (€100m budget)
  - To be raised in part as equity from JV partners, in part as debt
  - GBE's stake massively diluted (revenues will come from the license)
- 2018: Start of production

## IBN-One markets

- High-purity IBN to manufacture green plastics, rubbers, paints...
- Drop-in gasoline to overcome the ethanol the blend wall ; jet fuel



### Drop-in bio-gasoline in France

- Gasoline must incorporate 7% energy content from biofuels
- Ethanol is in practice limited to only 6% blending
- A €1,700 fine (TGAP) paid per ton of missing biofuel. 70,000 tons each year. Total TGAP paid each year: €100m.
- Isobutene-derived isooctane is a drop-in biofuel and offers a unique solution to gasoline retailers










1. Bio-isobutene: from brain to market

**2. Global strategy**

3. Equity story



# Process portfolio: overview

	Discovery	Development	Industrialization
Isobutene			
Butadiene			
Propylene			

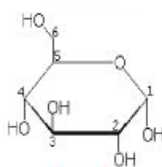
## Butadiene, a partnership with Synthos

3 million tons



Opportunity for further industrial agreements

Glucose



**BUTADIENE**

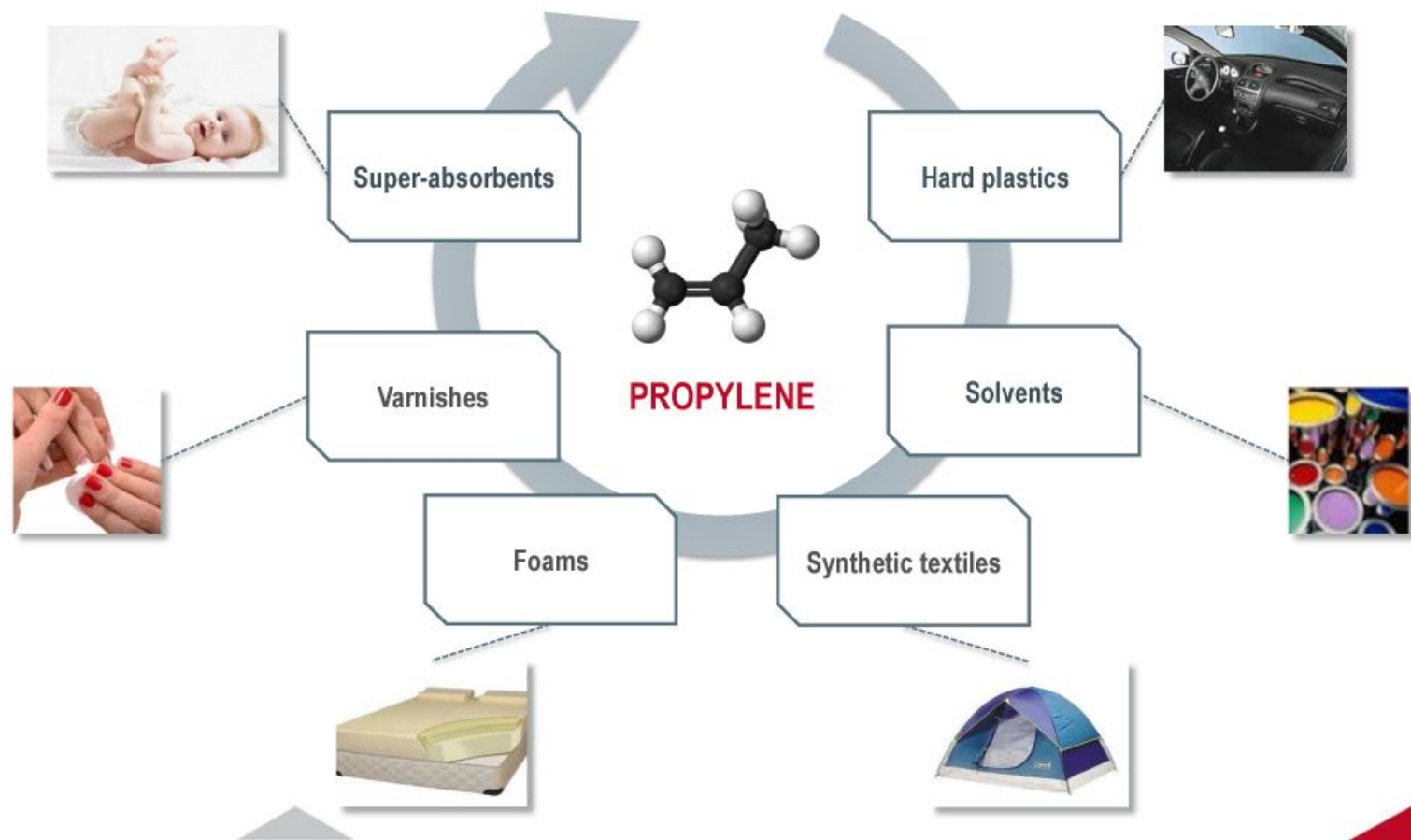


7 million tons



Royalties to be paid to Global Bioenergies

# Propylene



## Standard 100Kt Isobutene plant



Raw margin	14%
IRR* (Internal Rate of Return)	20%
NPV* (Net Present Value)	\$202m

Source : Company

\* discount rate 10%, inflation 2%, duration 30 years, no terminal value

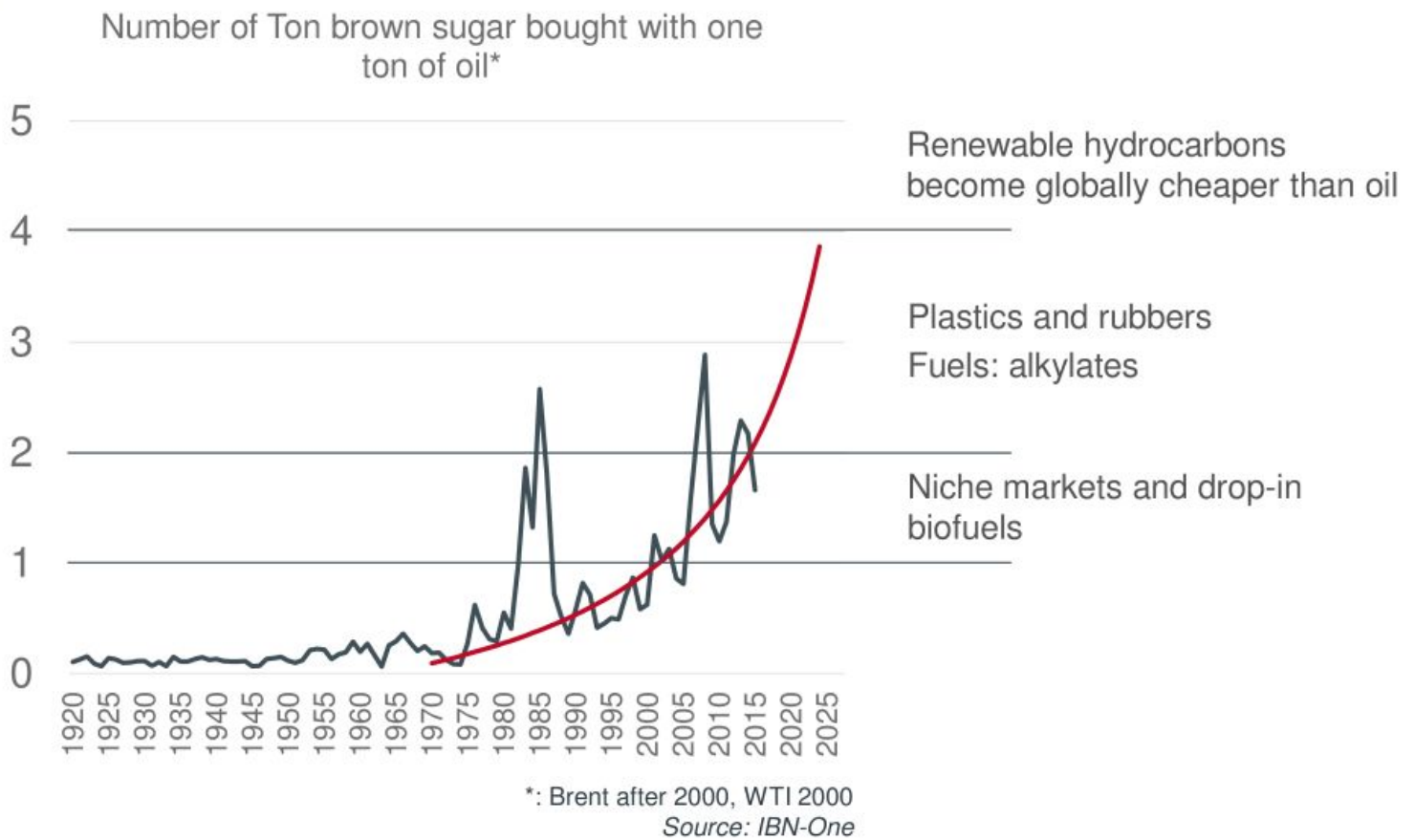
## Business model and market size

- Upfront, milestones and royalties payments
  - NPV for GBE of €40m per 100Kt plant
- Isobutene:
 

– Regulatory-driven drop-in biofuels market	~10 plants
– 2.5Mt commodity chemicals market	25 plants
– 1200Mt global gasoline and jet fuel market	12 000 plants
- Butadiene: 10Mt commodity chemicals 100 plants
- Propylene: 90Mt commodity chemicals 900 plants



## A market opening in several steps



## Potential licensees

### **Sugar, starch and 2<sup>nd</sup> generation industrialists**

ADM, Borregaard, Cargill, Cristal Union, Raizen, Roquette, SüdZucker, Tate&Lyle, Tereos, UPM, ...

### **Petrochemical industrialists**

Dow, BASF, Evonik, Mitsubishi, Arkema, ...

### **Fuel companies**

#### **Oil companies**

Total, Exxon, Chevron, BP, Shell, ...

#### **Fuel distributors**

Independent distributors, retail store chains

### **Producers of down-stream products**

Packaging producers, tire producers, car manufacturers, cosmeticians, ...

→ Major industrial sectors

## Downwards integration (1/2): Engineering services

- Initial plan is based on a purely “license-based” business model
- Engineering services to be added progressively
  - Conceptual design package: ~ \$5m for one plant
  - Detailed engineering package, based on a network of subcontractors: ~\$25m for each plant
- Profitability based on know-how specific to direct fermentation to a gas
- To be taken in charge by GBE GmbH, progressively becoming the Engineering affiliate

## Downwards integration (2/2): Build and operate

- Global Bioenergies could decide to raise money and invest in building and operating a plant
- Timing: once enough cash in hand to leverage a \$200m investment – probably not before 2020
- Aim: keep all the value associated to the plants within Global Bioenergies

→ In parallel to its licensing activity, Global Bioenergies could own and operate multiple plants

## The people making it happen



**Marc Delcourt**  
*Chief Executive Officer*



**François-Henri Sahakian**  
*Chief Financial Officer*



**Dr. Frédéric Pâques**  
*Chief Operations Officer*



**Dr. Macha Anissimova**  
*Chief Scientific Officer*



**Thomas Buhl**  
*Head of Business Development*



**Jean-Baptiste Barbaroux**  
*Head of Corporate Development*



**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



**Claudia Erning**  
*VP Investor Relations*

Former Head of ECM-Origination  
at Berenberg Bank

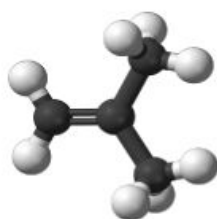


1. Bio-isobutene: from brain to market

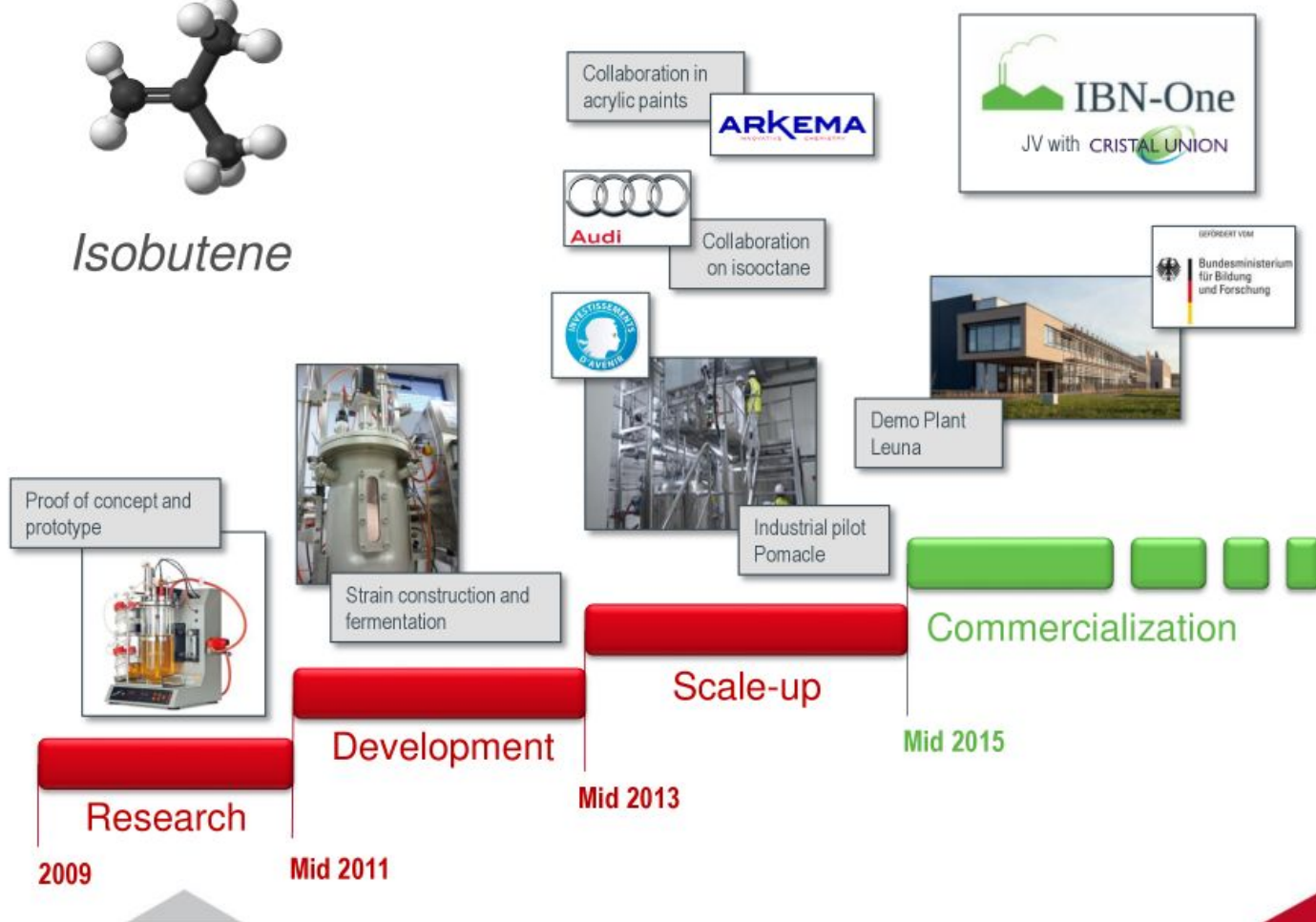
2. Global strategy

**3. Equity story**

A company that has always delivered...



*Isobutene*



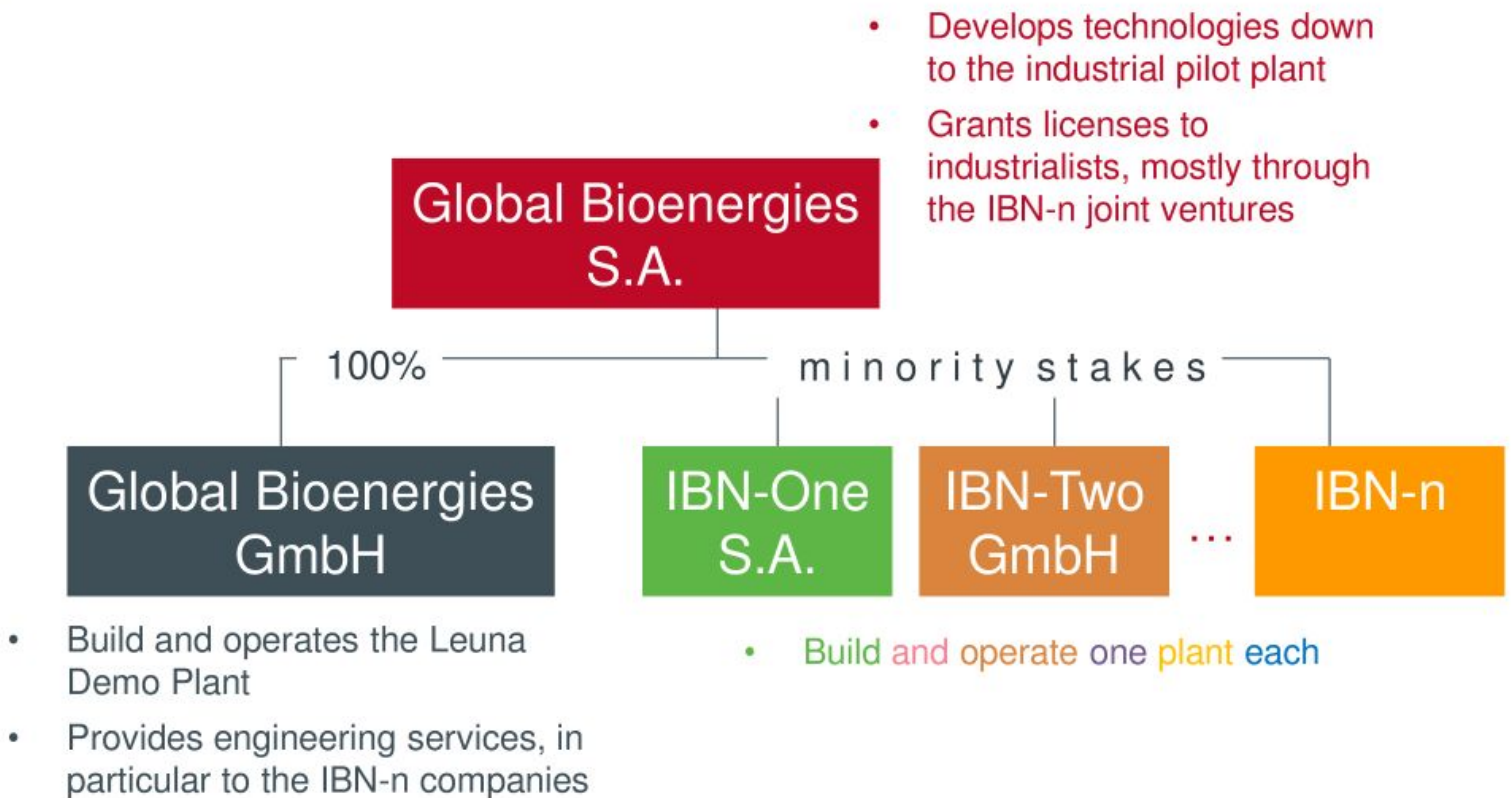
...and kept the burn rate under control

Consolidated figures for the Global Bioenergies group  
(Global Bioenergies SA + 100%-owned Global Bioenergies GmbH)

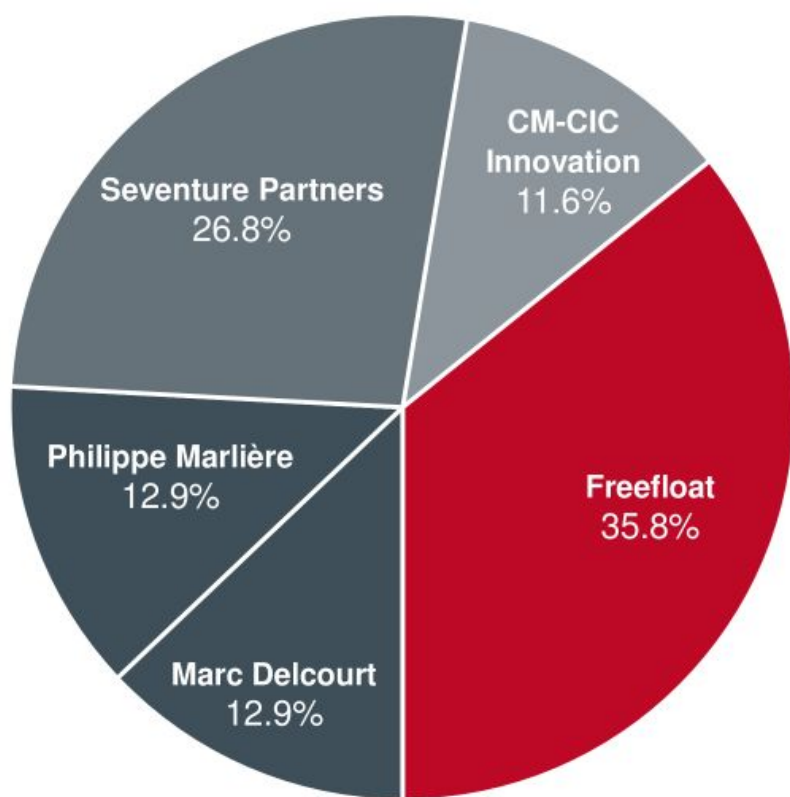
<i>In €'000 – audited</i>	31 Dec 2014	30 Dec 2013
Operating Income	3,166	1,179
Operating Expenses	12,666	7,885
<b>Operating Result</b>	<b>-9,500</b>	<b>-6,706</b>
Tax Credit on R&D	1,876	1,413
<b>Net Result</b>	<b>-7,578</b>	<b>-5,211</b>

Cash in hands as of December 31<sup>st</sup>, 2014: 15.6 million euros

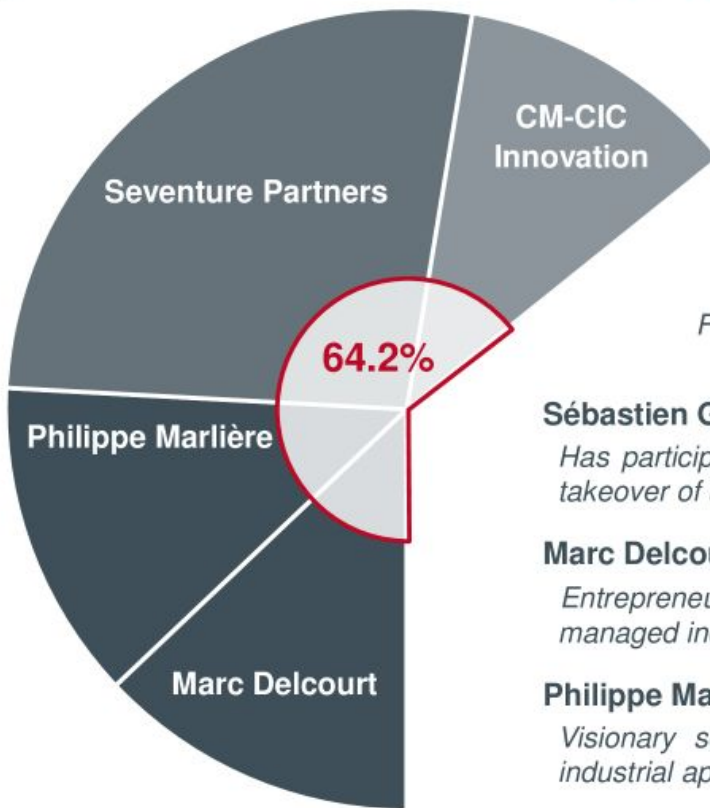
## Global Bioenergies: an industrial group under construction



## Equity structure



## Core shareholders sitting at the Board



From left to right:

**Sébastien Groyer** - Partner at Seventure Partners

*Has participated in the investment, administration, market launch or takeover of about 20 innovative companies*

**Marc Delcourt** - Cofounder, CEO and Chairman

*Entrepreneur with a scientific background. Has founded and managed industrial biotechs since 1997*

**Philippe Marlière** - Cofounder and President of the SAB

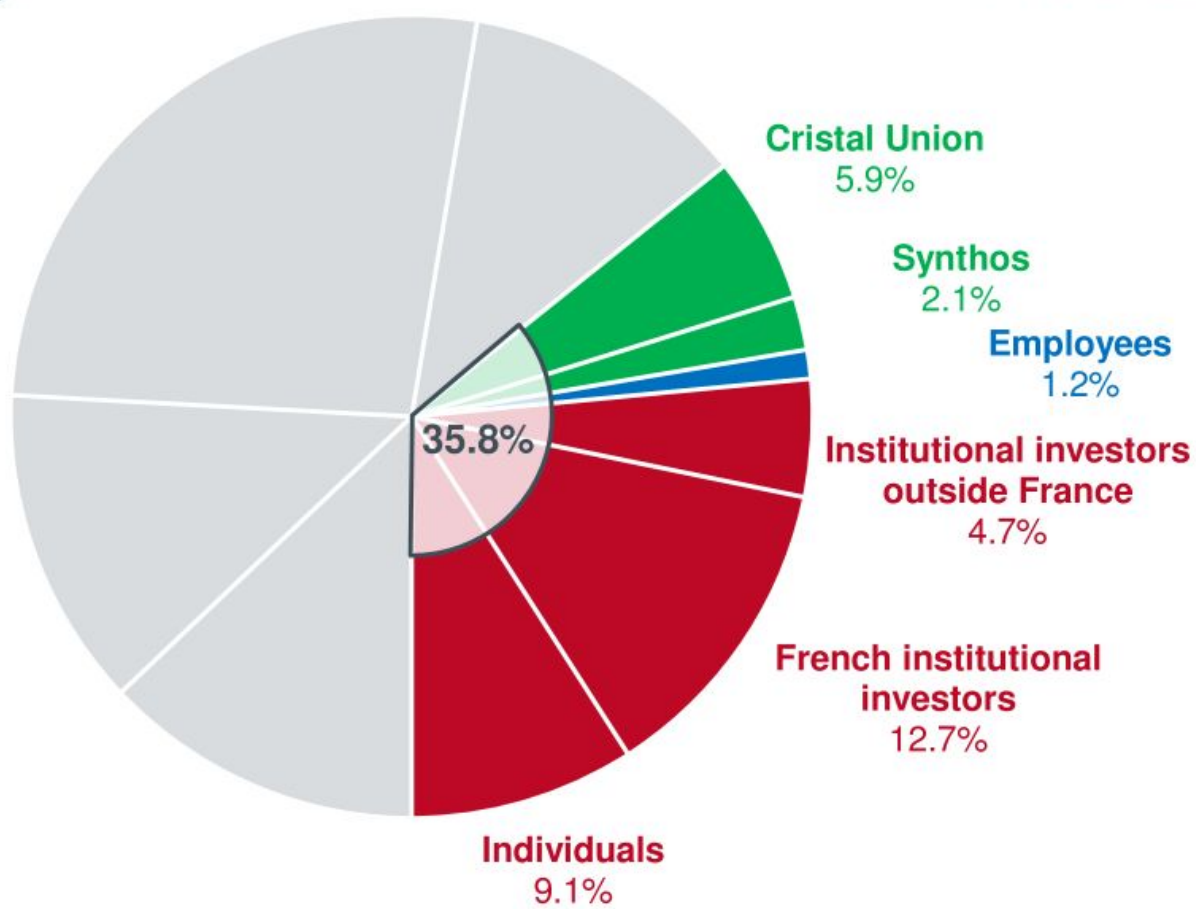
*Visionary scientist. Has pioneered the translation of biology into industrial applications*

**Karine Lignel** - Director at CM-CIC Investissement

*Seasoned engineer, active in Venture Capital since 2000*



## A diversified freefloat



As of April 2015

## A positive and coherent equity history

(2,775,468 shares as at June 24<sup>th</sup>, 2015)

	Average daily liquidity	Share price at 31 <sup>st</sup> of Dec.
IPO		(June 15 <sup>th</sup> ) 19.85 €
2011	-	16.10 €
2012	15.5 K€	27.61 €
2013	31.7 K€	28.20 €
2014	76.6 K€	27.39 €
2015	128.9 K€	(June 24 <sup>th</sup> ) 46.06 €



### Financial analysts:

- Gilbert Dupont (Paris)
- ODDO (Paris)
- Invest Securities (Paris)
- Edison (London)
- Baader (Munich)



**ALGBE**  
**LISTED**  
**NYSE**  
**ALTERNEXT**

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**ENTERNEXT**  
**TECH40**

## Global Bioenergies: an oil-driven stock?

- The price of the ALGBE share seems linked to the price of oil
- Investing in Global Bioenergies involves a bet on an oil price:
  - By 2020, the tight oil industry might have completely shut down
  - The conventional production could be shrinking, as a consequence of low investments in 2015-20

**Patrick Pouyanné**, CEO of French oil major **Total**:

*"...by 2030 more than half of the existing global oil production will disappear. There is an enormous amount of money that needs to be invested to get another 50 million barrels per day of new production."*

Davos, 21<sup>st</sup> January 2015

**Claudio Descalzi**, CEO of the Italian oil major **ENI**:

*"If you are cutting capital expenditure drastically now, we can have a lack of production in four or five years creating a new increased oil price at \$200 maybe."*

- The demand will continue to grow

→ the oil price could bounce back, taking ALGBE along

## Summary

- Isobutene: a key milestone has been reached in scale up
- IBN-One: A first plant business case becoming concrete
- R&D pipeline to replicate this first success to butadiene and propylene
- A well organized team gathering senior profiles from France, Germany and the USA
- Profitability to be reached in 2019
- Intense news flow expected on the short and mid-terms

**Jean-Baptiste Barbaroux**  
Head of Corporate Development

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