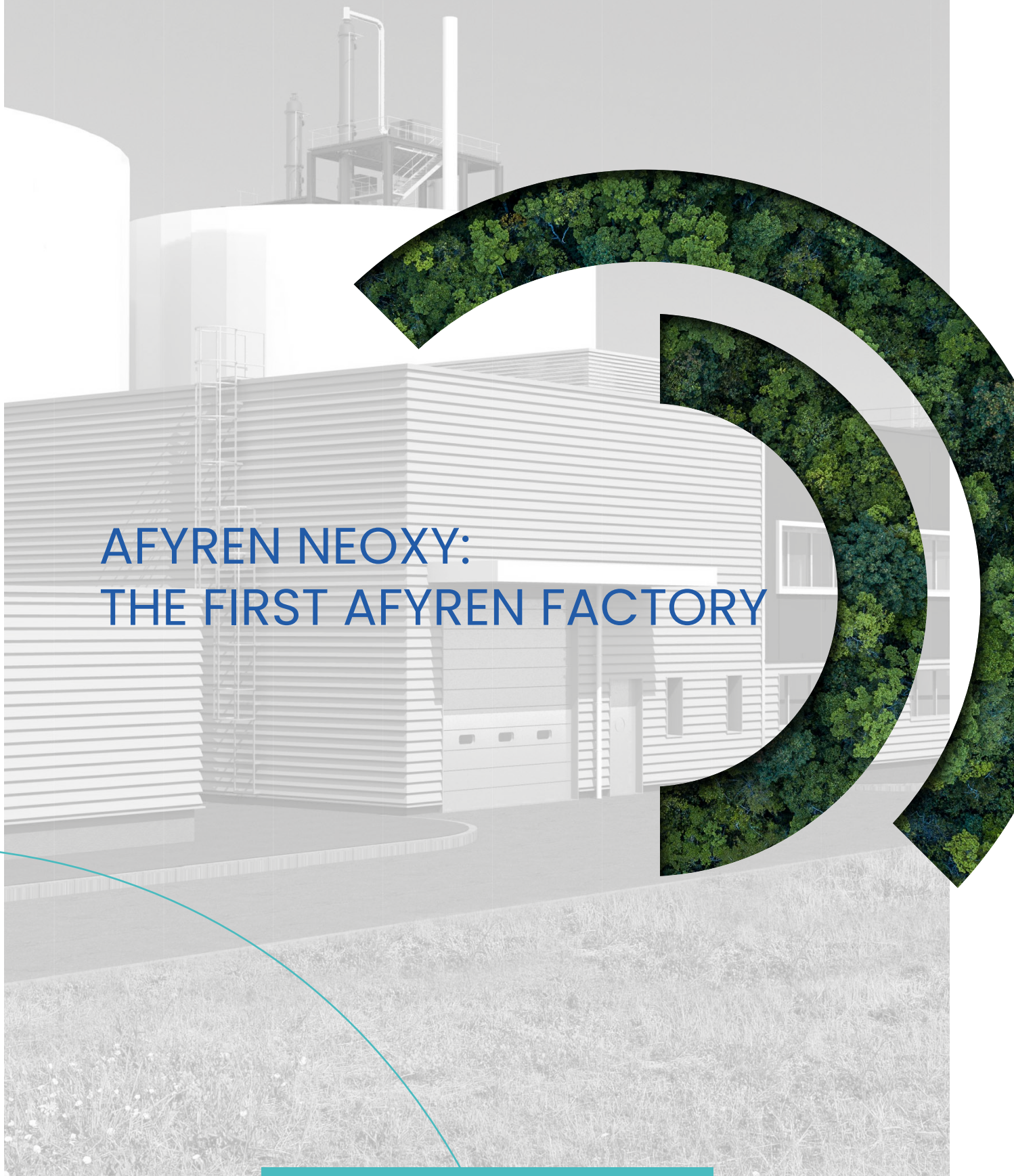
AFYREN NEOXY



AFYREN NEOXY: THE FIRST AFYREN FACTORY

PRESS KIT 2020

EDITORIAL

By
Nicolas Sordet, CEO of AFYREN
Jean Saint-Donat, CEO of AFYREN NEOXY

Our planet needs us. It needs us to shed our habits, escape our former ways of living and thinking, and innovate to preserve it. But what it needs more than anything else is that we bring our most innovative projects to fruition and effect concrete change.

In this sense, the construction of the AFYREN NEOXY factory is both the culmination of 8 years of hard work and the first step towards the fulfilment of a project we have been working on for all these years and to which our entire team is dedicated.

AFYREN NEOXY is a clear illustration of the transformation of an industry that needs to find solutions to reduce its environmental footprint. Our first factory will be both zero waste and low carbon.

Today marks a new chapter in AFYREN's development, the first stone in the foundation of an industrial adventure that we hope will be global and sustainable.

This new stage was made possible thanks to our partnership with BPI and its SPI (Industrial Projects) fund, and because of the support from our investors and partners, including the Grand Est Region, Total, and the European Union.

We chose this site at Carling - Saint-Avold because of its strategic location: close to the raw materials our factory will use, close to our customers in France and Europe — but also because of the great welcome we have had from the Chemesis industrial platform and our public-sector partners.

We are convinced that innovation, combined with a new way of seeing both the world and industry, can lead to a profound change in the market, reducing the environmental impact of our companies. We are setting out to demonstrate that respect for our environment and our planet can co-exist with industry, our lifestyles and consumption patterns. We want to showcase an economically viable model.

The biomolecules soon to be produced by this unique factory will help to significantly reduce CO_2 emissions linked to sectors including human nutrition, animal feed, cosmetics, perfumes, pharmaceuticals and industrial chemicals.

It's the beginning of a great French, European and international adventure, in a major global market, and our team is proud to see its positive impact on the environment take shape.

1 AFYREN NEOXY: The world's first AFYREN factory, contributing to the revival of French industry

AFYREN, a start-up on the cutting edge of innovation, is making the leap to industrial-scale production

AFYREN is an innovative French company that is responding to the growing desire **to cut the use of oil derivatives** by producing biomolecules derived from the reuse of non-food biomass, with a very low carbon footprint.

These biomolecules are used in the human and animal nutrition sectors, as well as cosmetics, perfumes, pharmaceuticals and fine chemicals.

AFYREN's process, which is firmly grounded in the circular economy, uses fermentation technologies that "imitate nature", using natural micro-organisms. These technologies, the result of 10 years of research, are patented worldwide.

Founded in 2012 and led by Nicolas Sordet and Jérémy Pessiot, AFYREN employs 23 people at its Lyon and Clermont-Ferrand sites. The company was selected in the **French Tech 120** (the 120 most promising French start-ups) in January 2020 and **received the «Efficient Solution» label from the Solar Impulse Foundation** in November 2019.

Today, AFYREN's plans are becoming a reality. Its first plant, AFYREN NEOXY, **a one-of-a-kind, zero-waste and low-carbon biorefinery,** is under construction at the Chemesis industrial platform located in Carling - Saint-Avold, in the Grand Est region of France. The goal: to produce AFYREN's family of seven 100% bio-based organic acids by 2022. Production capacity will be 16,000 tonnes.

With this first zero-waste, low-carbon plant, AFYREN is helping to re-localise French industry and significantly reduce CO_2 emissions.

Funding and partners that rise to the challenge

AFYREN has raised more than €80 million in total funding from public and private sources to carry out this project.

The lead investor is Bpifrance's SPI fund, underwritten by the Programme Investissement d'Avenir (PIA) and the European Investment Bank. Other investors and supporters include the European Union, through the Bio-Based Industry Joint Undertaking (BBI-JU); the European Regional Development Fund (ERDF) and the Grand Est Region, as well as the Communauté d'Agglomération de St-Avold Synergie (CASAS).

AFYREN NEOXY, led by Jean Saint-Donat, is an industrial joint venture between AFYREN and the SPI fund of Bpifrance, which holds a 49% stake.

AFYREN was also able to count on Total, which provided technical and financial support for the project.

And of course, AFYREN received support from its partner banks, BNP Paribas, Crédit Agricole and Banque Populaire.

"Contributing to the reindustrialisation of French regions is the SPI Fund's true mission. We are particularly proud to contribute to this project because not only does it respond to that challenge, but it does so with a new approach that shows that it is possible to combine high-performance industry and innovation with the protection of the environment and people"

Magali Joessel,
Director of the SPI-BPI Industrial Investment Division.

An international project

The project's international scope is underscored by support from the European Union, with a €20 million subsidy via the European public-private partnership platform "Bio-based Industries Joint Undertaking"[1] (BBI JU) for the AFTER-BIOCHEM project (Anaerobic Fermentation & EsteRification of BIOmass for producing fine CHEMicals). AFYREN brought together 12 key players in the bio-economy — French, German, Belgian and Dutch companies — for this initiative, which aims to develop European value chains that are sustainable, low-carbon and circular.

AFTER-BIOCHEM will allow AFYREN to prove the value of its innovative, sustainable and replicable biorefinery model, ensuring its contribution to the renewal of industry and, more broadly, to the development of strong bioeconomy value chains in Europe.

"Today we are celebrating the launch of a very important project for the region, for Europe and for the environment. With its circular and sustainable production process, AFTER-BIOCHEM will substantially reduce CO_2 emissions, while diversifying the incomes of primary producers and creating new jobs."

Philippe Mengal,
Executive Director of BBI JU

1. This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 887432

Construction is starting on a plant that will be operational in 2022

Today this industrial project is taking physical form as construction starts on the factory.

AFYREN's industrial team has been fully involved in this project for almost two years; After the detailed engineering studies and the technical definition of the equipment, the project entered a new phase in early September, with the start of site preparation work.

The INGENICA construction management team, as well as the company selected to carry out site preparation works and earthworks have mobilized on site. Construction work on the factory itself will start very quickly.

"We made it! We got the operating permit, so we can start building the plant. Meeting deadlines was a major challenge, especially in the current context. I would like to take this opportunity to thank institutions like the DREAL, the prefecture and the environmental authority, which have remained heavily engaged in the examination of our case despite the health constraints."

Olivier Marquant,
Plant Manager at AFYREN NEOXY

Safety comes first in all of AFYREN's operations. Safety issues for this construction project are a constant concern for the company. Knowledge of the industrial risks and the rigorous and systematic application of safety rules are crucial for the project team.

Throughout the construction works, particular attention will be paid to the integration of the plant in its environment, within the platform but also in the neighbouring areas.

"We maintain a regular dialogue with local stakeholders to detail our activities and understand the concerns of local residents."

Jean Saint-Donat,
CEO of AFYREN NEOXY

This project shows that it is possible to develop an efficient and sustainable industry in our territories, to create jobs and provide competitive products that are made in France and Europe.

Very concrete economic, societal and environmental benefits

ECONOMIC AND SOCIETAL BENEFITS:

AFYREN NEOXY is dedicated to the production of 7 natural organic acids using AFYREN's technology. When construction is finished, the plant will produce 16,000 tonnes of organic acids annually, starting in 2022.

This type of project brings new value to stakeholders both upstream and downstream — from farmers to consumers — **and will increase the economic and environmental sustainability of sugar beet**, a key European crop.

The world market for organic acids is quite significant at nearly 18 million tonnes, currently worth more than €10 billion, with annual growth of around 5%.

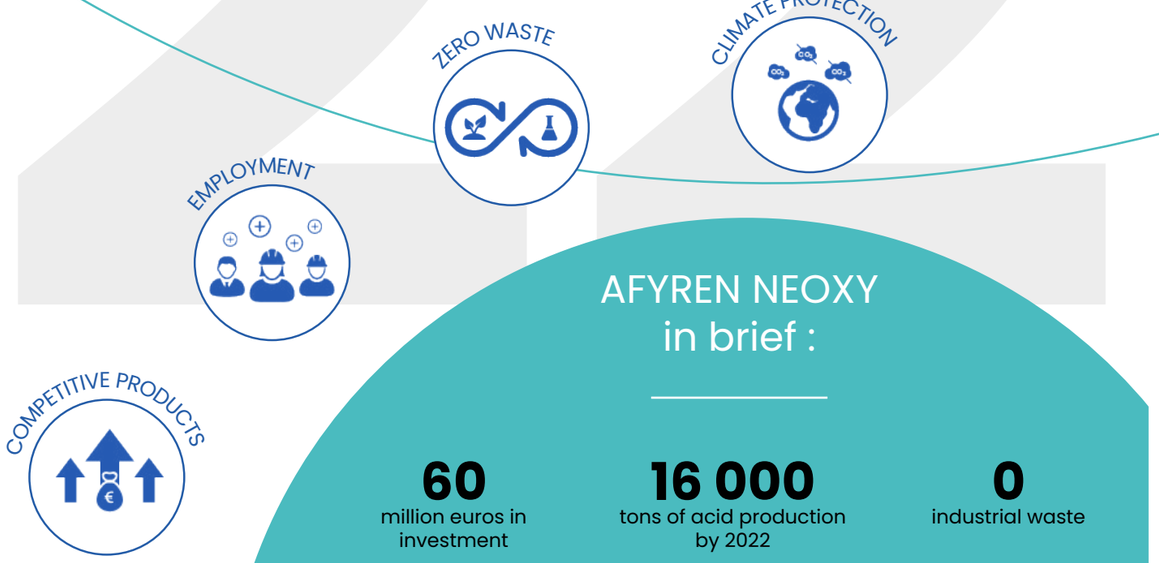
AFYREN NEOXY's supplies are already guaranteed thanks to a partnership with a sugar manufacturer that operates factories in Germany and elsewhere near the site.

The installation of the plant at the platform in Carling - Saint-Avold (Grand Est Region, France) will contribute to the economic development of the region, creating nearly **60 direct jobs and up to 200 indirect jobs in the industrial and construction/engineering sectors.**

ENVIRONMENTAL BENEFITS:

AFYREN's technology is based on an advanced fermentation process, combined with separation and purification steps. It is a process **without GMOs or genetically modified microorganisms,** which offers many environmental advantages at different levels:

- **Circular economy and optimisation of resources:** maximum valorisation of by-products (molasses and pulp) of the sugar beet value chain (farmers and industry). The plant is aiming for **"Zero Industrial Waste",** with:
  - . an optimised production process
  - . the valorisation of industrial by-products in the form of fertilisers
  - . a process that does not use external water supplies once the circuits have been filled because the plant operates in a closed circuit
- **Protecting the climate: dividing by 3 the CO_2 emissions** compared with traditional production methods for carboxylic acids of fossil origin.
- **A strong sustainability approach** with the choice of the Grand Est region — the key to optimising local procurement (close to beet growers and major players in the sugar industry), while also being near our customers.



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A strategic location that combines territorial integration with international development

Location on a global industrial platform

To establish its new location, AFYREN NEOXY benefited from the support of a major industrial group: Total. For more than 40 years, Total has been involved in the development and economic support of territories in France through its Total Développement Régional (TDR) unit.

After initial discussions with TDR, Total also offered more operational assistance, providing guidance on the subjects of the environment, utilities and procedures, and facilitating the installation of the future plant on the Chemesis platform. Chemesis, which brings together petrochemical and speciality chemical manufacturers in Carling-Saint-Avold, functions as a real industrial platform that develops synergies between the manufacturers established there. The platform is also turning to green chemistry, with 3 confirmed projects. The Chemesis platform facilitates economies of scale in utilities (water, gas, electricity), as well as measures to manage the water cycle and the circular economy.

Among AFYREN NEOXY's future neighbours, Arkema and Total are providing a great deal of support in setting up the plant, with close cooperation for the provision of land, water management, logistics and utilities (steam, compressed air, etc.).

The platform also offers the overall management of general services and equipment, helps with logistics with an access to a large number of subcontractors as well as tools for managing the health and safety of employees and local residents (safety drills, fire-fighting team, shared occupational health service).

> *We are proud to welcome AFYREN to the CHEMESIS platform. This latest addition is further evidence of Total's commitment both to the industrial future of the Carling-Saint-Avold platform and to carbon neutrality. This new project also confirms that the French renewable chemistry sector is dynamic, with the potential for innovation and the capacity for industrial-scale transition.*
>
> **Isabelle Patrier, Total's Regional Development Director**

A strategic location in the Grand Est region

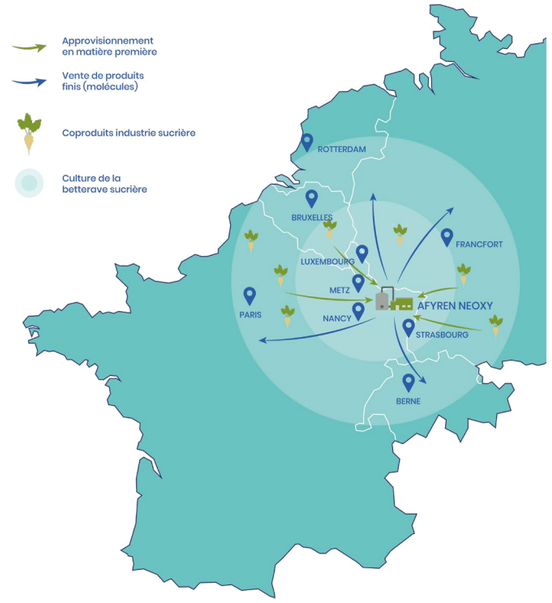
The Chemesis platform, located in the heart of Europe, provides a geographical advantage given its proximity to 4 countries (Belgium, Luxembourg, Germany and Switzerland).

What is more, the Grand Est region has a strong industrial tradition and is one of France's leading agricultural, wine-growing and forestry regions. For AFYREN, this region provides short supply chains (as close as possible to beet growers and major players in the sugar industry), and serves as a nexus for developing relations with international customers.

The Grand Est region has been laying the groundwork in recent years to become a European leader in the bioeconomy (www.bioeconomie-grandest.fr) This strategic vision, accompanied by a budget of €35 million per year — which provides a leverage effect of €500 million over 5 years — is a real asset for companies like AFYREN that want to transform innovative bioeconomy projects into real industrial successes in France. The company received a very warm welcome, along with financial support from the Grand Est Region of €1 million, voted in 2019 via its Aid to Large Enterprises programme, as well as €2 million in support from ERDF. Last February, AFYREN was honoured with a prize by the Trophées de la Bioéconomie for the Grand Est Region at the Salon de l'Agriculture, in the presence of the Minister of Agriculture, Mr. Didier GUILLAUME.

The Grand Est Region is pleased to host a winner of the BBI-JU's 2019 "flagship" call for proposals, which aims to support the construction of first industrial plants in the bioeconomy sector. Indeed, the support and development of local biorefineries is one of the 5 major challenges of the Grand Est Region's 2019-2022 bioeconomy strategy. The region hopes to turn the Carling site into a showcase for the bio-economy, with a plug & play location (access to a heating network, electricity, water and various other facilities) for any company that wants to benefit from area's unique assets.

The Grand Est also has an ecosystem of quality higher education, research and innovation, which will make it easier for the AFYREN NEOXY project to recruit the right talent.



AFYREN chose to establish itself in this strategic European location because of **proximity to its suppliers and customers and to promote short supply chains for sustainable products.**

For all these reasons, setting up this project in the Grand Est region was an obvious choice. It is amazing to come to a region that has a real industrial tradition and culture, a pool of talent and skills — one that has developed a strong industrial development strategy, particularly in the bioeconomy.

3 Operational excellence

AFYREN's rise to prominence requires real structure

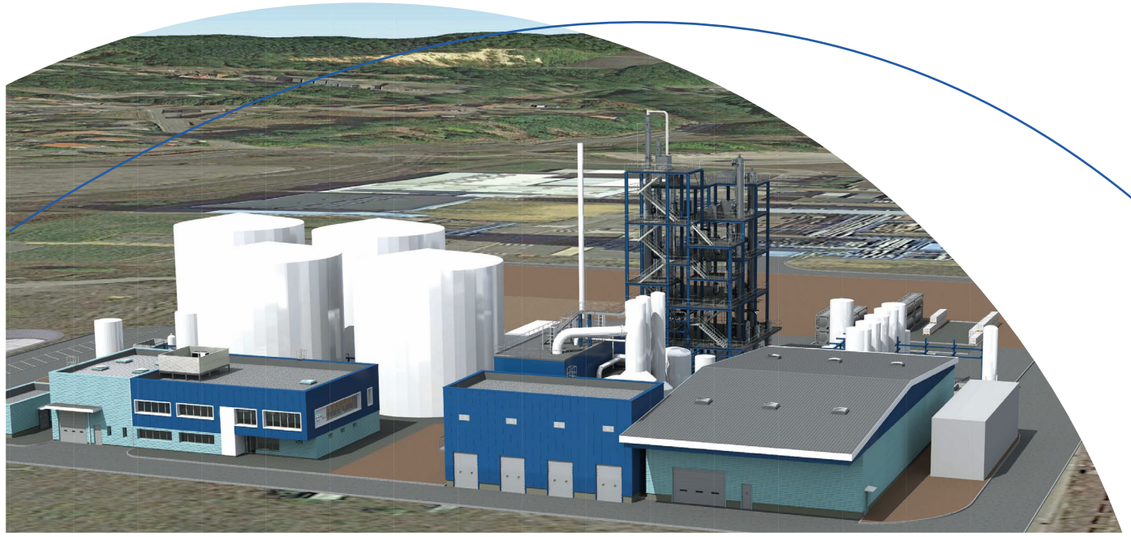
This transformation of AFYREN, a start-up in the French Tech 120, into a company aiming for industrial success requires a real corporate structure to guarantee the safety of its employees. The company must be ready to excel on every front as soon as activity gets underway at the site.

To achieve this, it must implement **a culture of operational excellence** and risk management — excellence in the execution of the company's processes in order to:

- structure and continually improve its processes
- deliver quality products on time
- work in a safe environment

The satisfaction of customers and stakeholders, including employees, is at the heart of AFYREN's endeavours. This pragmatic and agile organisation will be in place from the start of activity at the site to guarantee employees' safety.

Furthermore, the company will have to launch an ambitious recruitment policy and develop a management culture that focuses on employee well-being.



Constructing a culture of operational excellence

The challenge is to **implement a level of operational excellence in the factory equivalent to what can be found in large industrial groups** and that meets the requirements of future customers. This has to be done while maintaining the agility of a young, emerging company that knows how to adapt.

Initially, the reference frameworks that will be put in place, in relation to operational excellence and quality, are FSSC22000, GMP+, ISO 9001 and 14001.

This requires collaborative work with all the people in the factory so that all the processes set up on the site are effective, understood, accepted and well used (recruitment, supply chain, logistics quality, etc.), and so that needs, malfunctions and difficulties in the field can be easily identified.

Building a factory in 2020 also means benefitting from high-performance IT tools that enable you to be more efficient, to identify malfunctions in real time and to better control your products and processes.

With common sense and the right tools to collect data in real time, AFYREN NEOXY will have the means to rise to the challenge. **Without going overboard on digital, it's a matter of selecting the best tools to serve the men and women who operate the factory to ensure a safer and more efficient environment.**

The best tools do not work without people, so when hiring, AFYREN NEOXY will integrate an appetite for this operational culture into its selection criteria and directly train its new recruits. Indeed, more and more candidates are receptive to these new processes, which provide them with a solid framework to work in.

... and building the best team:

The major challenge for AFYREN NEOXY in the short term is recruitment — building a competent, committed and caring team. In the coming year, in addition to the current team of 8 people, including a human resources manager who has just joined the team, around 50 direct jobs still need to be filled, for service managers, administrative employees, operators and generally technical profiles.

Construction of the AFYREN NEOXY plant starts at the end of 2020. It is the first stone in the foundation of AFYREN's industrial development.

> *Our objective is to develop this unique biorefinery model to provide our customers and consumers with a greater volume of biobased solutions and to generate a real impact in high-growth markets. Our team, with humility and agility, is fully committed to serving our ambition for a responsible industry and a sustainable world.*

Nicolas Sordet, CEO of AFYREN

Special thanks to our supporters and partners

AFYREN and AFYREN NEOXY would like to extend sincere thanks to all our partners without whom all of this would not have been possible. Special thanks to the following organisations:

bpifrance

TOTAL

Grand Est
ALSACE CHAMPAGNE-ARDENNE LORRAINE
L'Europe s'invente chez nous

Bio-based Industries Consortium
BBI JU

Horizon 2020
European Union Funding
for Research & Innovation

AFTER BIOCHEM

Communauté d'Agglomération
Saint-Avold Synergie

chemesis
CATALYSEUR DE PERFORMANCE

La FRENCH TECH
FT120

BANQUE POPULAIRE

BNP PARIBAS

CRÉDIT AGRICOLE

INVESTIR L'AVENIR

European Investment Bank