BRAZILIAN BIOCOMBUSTÍVEIS LTDA

PRELIMINARY INVESTMENT PROSPECTUS

BBL DX TECNOLOGY

Advanced Renewable Diesel and SAF Platform

Capex 1 e 2 investment prospectus.

Patent Inpi n. BR 11 2022 011447-8

Preliminary document– 2026

Preliminary Investment Prospectus

2026

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1 CHAPTER 1 — THE COMPANY

1.1 1.1 Institutional Profile

Brazilian Biocombustíveis Ltda. ("BBL"), registered with the CNPJ under No. 29.425.965/0001-08, is a patent technology-based company incorporated under Brazilian laws, structured as a technical-scientific partnership between Italian and Brazilian chemical engineers and investors from both countries.

Founded with the purpose of developing and commercializing advanced solutions in renewable fuels, BBL' s **main activity is the production, promotion and commercialization of BBL DX and BBl SAF** — a new generation biofuel produced from virgin vegetable oils, used oils (UCO), alcohols and residual inputs, through a proprietary process of compatibility and physical-chemical stabilization.

In 2018, the founding partnership inaugurated the **first experimental unit** in the industrial area of Macaíba, Rio Grande do Norte (Brazil), intended exclusively for the development, quality testing and reliability validation of biofuel in vehicles, generators and industrial equipment. This unit constitutes the operational and laboratory base from which all the technical validation of the BBL DX technology was conducted.

BBL technology is also applicable to **processes for the recovery and treatment of waste with high environmental impact**, including mineral and vegetable oils and fats of animal origin — substances whose improper disposal represents a significant risk to the environment and public health, due to traces of toxic and persistent compounds.

1.2 1.2 Mission and Strategic Vision

1.2.1 Mission

Develop, produce and market new generation biofuels with production costs lower than those of fossil diesel and conventional biodiesel, through patented proprietary technology, contributing in a concrete way to the energy transition and the reduction of carbon emissions in the industrial, automotive and aviation sectors.

1.2.2 Vision

To position BBL, within a five-year horizon, as one of the main industrial platforms for the production of renewable fuel in Brazil and an international reference in the

segment of low-carbon synthetic fuels — recognized for the technical superiority of its process, the flexibility of its input chain and the modular scalability of its industrial architecture.

1.2.3 Corporate Principles

BBL's activities are guided by the following institutional commitments:

- **Transparency and ethics** — Conducting all relationships with customers, partners, employees and suppliers with ethical rigor and maximum integrity;
- **Certified quality** — Ensuring the technical compliance of products through continuous control and certification processes;
- **Social and environmental responsibility** — Overcoming the legal and regulatory requirements in force in the markets in which the company operates or intends to expand its activities;
- **Applied innovation** — Permanent commitment to technological improvement and value generation from more efficient, cleaner and economically competitive industrial solutions.

1.2.4 Competitive Differentials

BBL's business model is underpinned by three strategic pillars of differentiation:

Pillar	Description
Proprietary Technology	Patented process (**Patent BR 11 2022 011447-8**; **PCT/BR2019/050531**) physicochemical stabilization, avoinding reactional process, without transesterification, without glycerin generation and without any industrial by-products
Cost Competitiveness	Estimated production cost between R$ 3.00 and R$ 3.90/liter, lower than that of conventional biodiesel and competitive compared to fossil diesel
International Validation	Official selection by **ENAC Italy** for the European test program *"A Roadmap for Sustainable Aviation Fuels in Italy",* positioning BBL in the select group of companies qualified for the development of SAF (*Sustainable Aviation Fuel*).

1.2.5 Market Strategy

The licensee of BBL technology is able to plan and implement, gradually, the **partial or full replacement of conventional diesel and diesel with additives** by BBL DX fuel, both in the private market and in the public sector — including participation in bidding processes and government auctions.

The market entry strategy is structured in progressive value layers, prioritizing, in the short term, segments with lower regulatory friction — such as diesel generators, captive fleets, marine applications, and stationary industrial equipment — with subsequent expansion to the Green Diesel and SAF markets, in accordance with the regulatory framework established by **Law No. 14,993/2024 (Future Fuels Law)**.

2 CHAPTER 2 — BRIEF HISTORY: FROM UNIVERSITY TO SUSTAINABLE AVIATION

2.1 Origin and Foundation

The trajectory of **Brazilian Biocombustíveis Ltda.** it has its origin in more than two decades of scientific research conducted in the laboratories of the **University of Rome "La Sapienza",** in Italy. Under the leadership of **Dr. Andrea Festuccia**, PhD in Chemical and Environmental Engineering from the same institution and internationally recognized for his contributions to applied chemistry, the foundations that would come to constitute the BBL DX technology were developed. During this period, Dr. Festuccia has systematically dedicated himself to the study of alternative biofuels, with a focus on overcoming the technical and economic limitations of conventional biodiesel. The successful completion of a first phase of laboratory tests attracted the attention of Italian entrepreneurs **Alessandro and Roberto Pes**, who identified the commercial potential and global scale of the technology developed.

2.2 The Business Turn

The decision to convert academic research into an industrial enterprise was consolidated with the **entry of Brazilian biofuel investors**, whom brought the strategic vision of expanding the project beyond Italian borders. The union of the founding partners resulted in the formal constitution of **Brazilian Biocombustíveis Ltda.**, and **Brazilian Energy Investimentos Ltda**, with operational headquarters in Natal (RN), Brazil.

In **2018**, after extensive technical and business planning, the **first experimental unit was inaugurated** in the municipality of **Macaíba, Rio Grande do Norte** — a location chosen for its strategic logistics position, with easy access to raw materials and proximity to potential markets in Latin America.

The initial objective was precise: **to validate the feasibility of production on an industrial scale** of the biofuel developed in the laboratory by Dr. Festuccia. At this stage, **Prof. Dr. Francisco Wendell Bezerra Lopes**, Chemical Engineer and PhD from the Federal University of Rio Grande do Norte (UFRN) and *the Université du Sud Toulon-Var* (France), then a professor at UNP and UFRN in Natal, joined the team. His contribution was decisive for the technical improvement and the final development of the patented formulation.

The experimental production was subjected to **rigorous laboratory analysis** at the facilities of UFRN, CTGAS-ER and UNP, complemented by extensive operational performance tests that included applications in automobiles, agricultural machinery, diesel generators and vessels — in various conditions of use, temperature and load — in order to ensure compliance with current technical performance and safety standards.

2.3 The Achievement of the Patent

In **2019**, after the first full cycle of production and performance tests, BBL submitted the **international patent application** for the developed process, registered under the number **PCT/BR2019/050531** by *WIPO's* Patent Cooperation Treaty (PCT) system.
The Brazilian national phase was deposited under the number **BR 11 2022 011447-8**, with the title:
"Process, method and formulations for the production of an alternative fuel to the traditional Biodiesel"
The patent was **granted by the Brazilian Patent and Trademark Office (BPTO) in May 2025, confirming the global uniqueness of the new process, and consolidating the intellectual protection of BBL DX technology** in Brazil and establishing the legal basis for its national and international licensing.
This milestone transformed BBL from a company in the experimental phase into a **technical reference in the biofuels sector**, with intellectual property protected on an innovative process for the production of new generation renewable fuel.

2.4 International Recognition: Selection by ENAC Italy

The apex of BBL's technical and institutional validation trajectory took place on **October 4, 2024**, when the company was **officially selected by the Ente Nazionale per l'Aviazione Civile (ENAC)** — Italian civil aviation authority — to join the program:
"A Roadmap for Sustainable Aviation Fuels in Italy"
The program aims to promote, test and certify sustainable fuels for the airline industry, in line with the European aviation decarbonization goals established by the European Union.

With this selection, BBL became part of a restricted group of companies qualified to develop **SAF (*Sustainable Aviation Fuel*)** in the Italian context, alongside global reference groups such as **ENI S.p.A.**, **Italiana Petroli S.p.A.** and **Total Energies Italia S.p.A.**
This distinction gives BBL DX technology **international technical and institutional credibility**, reinforcing its potential to enter European sustainable fuel markets and positioning the company as a **strategic bridge between Brazil and Europe in the** SAF value chain.

2.5 BBL DX Technology

2.5.1 Basis of the Process

The technology underlying BBL's business model is protected by **Patent BR 11 2022 011447-8 / PCT/BR2019/050531**, entitled:
*"**Process, method and formulations for the production of an alternative fuel based on plants, animals, minerals or a combination thereof, also depleted, regenerated and/or genetically modified, algae and microalgae and/or oils derived therefrom, added to***

primary and/or higher alcohols, for use in generators and/or internal combustion engines for diesel motor vehicles, and/or turbines and/or boilers"

Unlike the conventional biodiesel production process — based on **transesterification**, an **organic chemical reaction** process, with the use of catalysts, temperature variation and mandatory generation of glycerin as a by-product — the BBL DX technology operates through a **controlled, *NON-REACTIONAL*** physical-chemical stabilization process, between inputs of different polarities (predominantly ethanol, vegetable oil and OCU), conducted at **room temperature**, **without external catalysts** and ***WITHOUT GENERATION OF BY-PRODUCTS***. The result is **BBL DX:** a renewable, economically competitive and chemically stable biofuel, compatible with conventional cycle diesel engines and the SAF route for aviation turbines.

2.5.2 Features and Applications of BBL DX

BBL DX fuel can be used in the following applications, **without the need for any modification to engines or combustion systems**:

- **Diesel internal combustion engines** – in pure formulation (BBL 100) or blended with fossil diesel (BBL DX in different proportions);
- **Generators and stationary industrial equipment** for generating electrical or thermal energy;
- **Industrial boilers and burners**;
- **Aviation turbines** — on the SAF route, mixed with kerosene (Jet A-1).

Tests conducted at the Macaíba experimental unit also proved a **reduction in fuel consumption** and **an increase in engine power and efficiency**, attributed to the balanced viscosity of the product and its ability to **neutralize the formation of carbon deposits in the** injectors and piston rings — favoring a superior atomization of the fuel in the combustion chamber.

2.5.3 Technical Comparison: BBL DX vs. Diesel S10

The following table presents the main physicochemical parameters of BBL DX 100 compared to Diesel S10, based on an analysis carried out at **the Fuel Laboratory of UFRN/ANP[1]:**

Property Analyzed	BBL DX 100	Diesel S10
Specific Mass at 20°C (kg/m³)	**847,70**	**815 to 853**
Total Sulphur (mg/kg)	**< 3.0**	**15,0**
Viscosity (mm²/s)	**3,801**	**2 to 5**
Flash Point (°C)	**< 40**	**38**
Higher Calorific Value (kcal/kg)[2]	**8.210**	**10.885**
Lower Calorific Value (kcal/kg)[2]	**7.570**	**10.178**
Draining Point (°C)	**–27**	**0 to –12**
Oxidation Stability (h)	**11,9**	**6**
Cetane Number	**41,60**	**42 to 48**

[1] *Sample produced with used frying oil (UCO).*

[2] *Although the Calorific Value of BBL DX is lower than that of S10 Diesel in the base formulation, performance, power and consumption tests have shown equivalent or slightly higher results than commercially available commercial diesel. Adjustments in the wording allow these values to be brought even closer. (Ref.: Section 4 — Tests and Results)*

2.6 Competitive Analysis

2.6.1 Limitations of Conventional Biodiesel (FAME)

Conventional biodiesel, produced by the **transesterification** process, has relevant technical and operational limitations that restrict its large-scale adoption:

- **High cost of** industrial implementation, with the need to immobilize significant capital in production and storage infrastructure;
- **Increased NOx emissions**: Burning FAME biodiesel increases nitrogen oxide emissions by **8 to 10%** compared to fossil diesel, due to the high oxygen content in the ester molecule. Even in mixtures (e.g., B20), the NOx increment remains in the range of **2 to 3%**;
- **Incompatibility with polymeric materials**: the high solvent power of methyl ester causes degradation of incompatible seals, hoses and rubber pipes, requiring periodic replacement of components and cleaning of tanks;
- **Generation of glycerin** as a mandatory by-product, increasing operating costs and generating additional environmental liabilities;
- **Long production cycle**: the conventional process requires between 6 and 24 hours to complete a batch, negatively impacting industrial productivity and working capital.

2.6.2 Limitations of Other Alternative Biofuels

Other renewable fuels — such as **synthetic diesel**, **HRJ (Hydrotreated Renewable Jet Fuel), JP-8** and biofuels derived from algae and microalgae — are still far from economic competitiveness on an industrial scale, presenting significant technical challenges of scalability and high process costs, especially due to the dependence on hydrogenation with external molecular hydrogen (H_2).

2.6.3 BBL's Competitive Positioning

In view of the competitive landscape described, **BBL DX is positioned as a disruptive alternative** to conventional biodiesel and other new generation biofuels, due to the following differentials:

- **Patented process without transesterification** — no glycerin generation, no external catalysts, no temperature variation;
- **Production cycle of approximately 30 minutes** per batch, compared to 6 to 24 hours for conventional biodiesel;
- **Production cost lower** than biodiesel and fossil diesel, with an estimated gross margin between 25% and 30%;
- **Full compatibility with existing infrastructure** (drop-in), without the need for adaptations in engines, tanks or distribution systems;
- **Drastic reduction of** NOx, SOx, CO and particulate matter emissions compared to fossil diesel;
- **International validation** by ENAC Italy for the SAF route.

2.7 Strategic Partnerships and Institutional Ecosystem

BBL maintains active collaborations with leading academic and technical institutions, which underpin the continuous improvement of the technology and enhance its credibility with investors, regulators and industry partners:

- **UFRN** — Federal University of Rio Grande do Norte (laboratory tests and R&D);
- **CTGAS-ER** — Center for Gas Technology and Renewable Energies (emission analysis);
- **UNP** — Potiguar University (applied research and technical training);
- **ENAC Italy** — Ente Nazionale per l'Aviazione Civile (SAF programme);
- **INPI** — National Institute of Industrial Property (patent granted).

This ecosystem of partnerships strengthens BBL's position as a **technology-based company with scientific and institutional validation**, differentiating it from competitors without equivalent academic and regulatory support.

2.8 Commitment to Sustainability

BBL maintains a strategic commitment to the **decarbonization of the energy matrix**, actively contributing to:

- Reducing the carbon footprint in the industrial, automotive and aviation sectors;
- Oily waste recovery (OCU) in the context of the circular economy;
- Drastic reduction of emissions of air pollutants (NOx, SOx, CO_2, particulate matter);
- Alignment with the energy transition goals of the European Union and the Brazilian **Fuels of the Future Program (Law No. 14,993/2024).**

BBL's patented technology represents, in this context, a **concrete and measurable advance** in the transition to cleaner, more efficient and economically viable fuels – both for the domestic market and for export

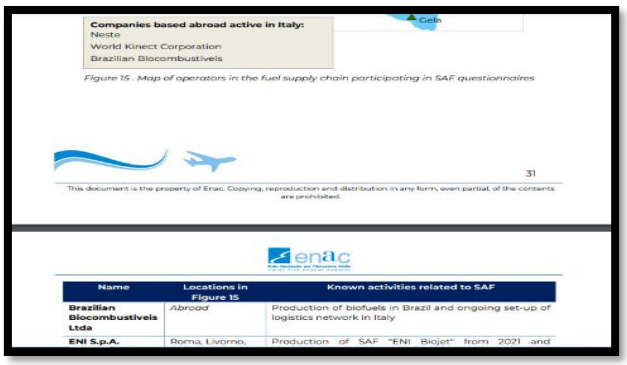
Companies based abroad active in Italy:
Neste
World Kinect Corporation
Brazilian Biocombustiveis

Figure 15 : Map of operators in the fuel supply chain participating in SAF questionnaires

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Name	Locations in Figure 15	Known activities related to SAF
Brazilian Biocombustiveis Ltda	Abroad	Production of biofuels in Brazil and ongoing set-up of logistics network in Italy
ENI S.p.A.	Roma, Livorno,	Production of SAF "ENI Biojet" from 2021 and

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3 CHAPTER 3 — CHARACTERIZATION OF ACTIVITIES

3.1 Corporate and Technical Identification Form

The following table consolidates the main institutional, technical and operational data of **Brazilian Biocombustíveis Ltda.**:

Field	Information
Company	**Brazilian Biocombustíveis Ltda**.
CNPJ	29.425.965/0001-08
Industry	**Production of New Generation Biofuel**
Patent Deferred	BR 11 2022 011447-8 / PCT/BR2019/050531
Patent Title	Process, Method and Formulations for the Production of an Alternative Biofuel Based on Crude/Virgin Vegetable Oils, UCO, Animal Fat and/or Combined
Main Activity	Production of alternative renewable fuel based on vegetable oils, by a patented process of controlled physicochemical compatibility oil/alcohols, without surfactants and without by-products
ENAC Validation	Product validated by ENAC (Italy) for SAF tests in combination with aviation kerosene, in the "*A Roadmap for Sustainable Aviation Fuel in Italy" program*
Final Product	BBL DX — diesel fuel (industrial and automotive use), agricultural and industrial machinery; available in pure formulation (BBL 100) or in blend with fossil diesel or querosene (BBL DX in variable proportions)
Production Process	Tank mixing system, no temperature variation, no external catalysts, no by-products
Environmental Advantages	Drastic reduction of NOx and SOx emissions compared to fossil diesel
Administrative Headquarters	Rua Lafayette Lamartine, 1889, Candelária, Natal/RN
Experimental Unit	Rua Antônio Delmiro, 375, Macaíba/RN, Brazil
Plant Capacity	5,000 to 100,000 litres/hour (scalable)
Estimated Production Cost	Between R$ 3.90 and R$ 4.30 per liter (base 2025)
Technical Managers	Dr. Ing. Francisco Wendell Bezerra Lopes / Dr. Andrea Festuccia

3.2 Comparative Process Analysis: Conventional Biodiesel vs. Biodiesel BBL DX

3.2.1 The Conventional Transesterification Process (Biodiesel)

The predominant method for the production of conventional biodiesel is **transesterification** — a chemical reaction by which vegetable oils obtained from seeds are converted into fatty acid esters (FAME — *Fatty Acid Methyl Esters*).
The process operates as follows:

1. **Mixing vegetable oil** with an alcohol (methanol, ethanol, propanol or butanol) in the presence of catalysts (acids, bases or enzymes);
2. **Transesterification reaction**, during which the triglycerides present in the oil are converted into smaller ester molecules;
3. **Glycerin separation** — an inevitable by-product of the process, corresponding to up to **10% of the volume of oil processed**;
4. **Washing, purification and refining** of the biodiesel produced.

The most widespread industrial system uses **methanol as a reagent alcohol** and **caustic soda (NaOH) as a catalyst**. The complete production cycle by this method requires between **6 and 24 hours**, depending on the scale and configuration of the plant.
The main operational and environmental limitations of this process are summarized below:

- ⚠ **Mandatory generation of glycerin** as a by-product, generating management costs and environmental liabilities;
- ⚠ **High cost of implementation** and operation, with multiple stages of processing, heating and purification;
- ⚠ **Increase in NOx emissions** of 8 to 10% compared to fossil diesel, due to the high oxygen content in the esters;
- ⚠ **Incompatibility with polymeric materials** (seals, hoses, gaskets) due to the solvent power of the methyl ester;
- ⚠ **Oxidative instability** of the final product, with a shorter shelf life in storage compared to fossil diesel.

3.2.2 The new BBL DX technological route

The **BBL DX process** represents a **conceptual and operational break** from conventional transesterification. Rather than a functional group substitution chemical reaction, BBL DX technology operates through **controlled physicochemical stabilization** between components of different polarities—predominantly vegetable oils, anhydrous ethanol, and the proprietary catalytic additive BBL—conducted at **room temperature**, **with no external catalysts**, **no heating,** and **no by-product generation**.
The innovative BBL DX process compresses into **approximately 30 minutes** what the traditional industry takes between 6 and 24 hours to accomplish, eliminating by-products and optimizing the OPEX of the operation.

3.2.2.1 Simplified Operational Sequence

Feedstock (vegetable oil/UCO + ethanol + BBL additive)

↓

Pre-Mixer (Physicochemical Compatibility)

↓

Final Mixer (Controlled Emulsification — Room Temperature)

↓

Spinning/Polishing

↓

BBL DX Final Product (B100 or in Diesel blend)

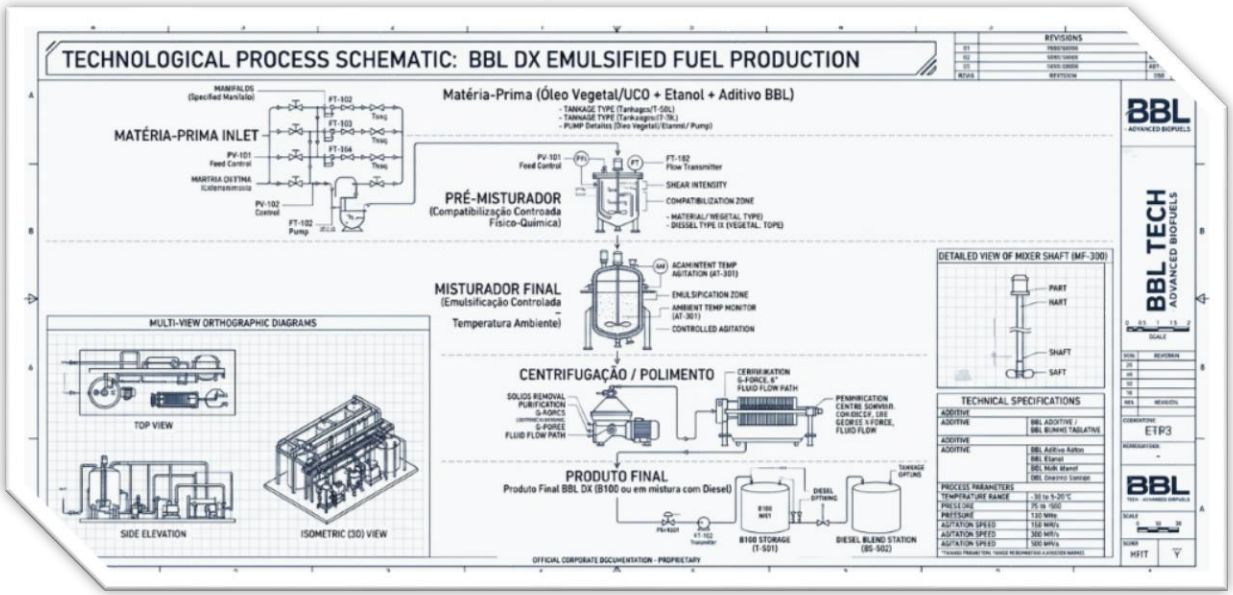


Photo of the BBL DX Macaiba RN experimental unit

3.2.2.2 Operational and Industrial Advantages

Attribute	Conventional Biodiesel (FAME)	BBL DX
Main process	Transesterification	Physicochemical compatibility
Temperature Range	Yes (60–70°C)	No (room temperature)
External catalysts	Yes (NaOH/KOH)	No
Glycerin generation	✔ Yes (up to 10%)	No
Washing and purification	Required	Not Required
Cycle time per batch	6 to 24 hours	**~30 minutes**
Industrial by-products	Glycerin, Wastewater	None
Operational complexity	High	**Low**
Modular scalability	Limited	✔ High
Drop-in compatibility	Partial (limited by law)	✔ Total (100%)

3.2.3 Stability and Shelf Life of the Final Product

The final product **BBL 100 maintains its physicochemical characteristics and performance properties** — including balanced viscosity — under normal storage conditions for **more than ten years**, without the need for agitation, thermal insulation or pressurization. This exceptional stability is attributed to the absence of unstable ester groups in the molecular composition of the product, structurally differentiating it from FAME biodiesel.

3.3 Raw Materials and Inputs of the BBL DX Process

3.3.1 Vegetable Oils and Residues

The oily feedstocks accepted by the BBL DX process cover a broad spectrum of renewable and waste sources, giving the technology **strategic supply flexibility** and potential for cost optimization according to regional availability:

Virgin vegetable oils (in varying percentages, from seeds or fruits):

- Soybeans, sunflowers, canola, cotton, palm, peanuts, sesame, coconut, olives, castor beans, corn, neem, jojoba, camelina, jatropha, brassica, among others.

Used Cooking Oil (UCO): Non-hazardous waste from homes, restaurants, bars, hotels, canteens, food industries and catering services. The UCO that has reached the end of its useful life cycle can be subjected to prior treatment (filtration, dehydration, fractionation and

refining of distillates) for use as raw material of the BBL DX process, in partial or total replacement of virgin oils.

*The oil fraction in the final formulation of BBL DX varies between **35% and 75% by weight** of the biofuel produced, depending on the patented formulation and the target application.*
The use of UCO as a primary input positions BBL in the context of the **circular economy**, adding value to a waste with a high volume of generation and transforming an environmental liability into a productive asset.

3.3.2 Alcohols and Auxiliary Components

The primary and/or higher alcohols used in the process — whose detailed specifications are protected by industrial secrecy and the BBL patent — play a central role in the physical-chemical compatibility and in the improvement of the technical characteristics of the final product. The specific composition of proprietary additives and catalysts constitutes the **core of BBL's technological differentiator** and is not disclosed in this draft document.

Detailed information on formulation, proportions and process parameters is available exclusively in a formalized confidentiality environment, upon signing of the NDA (Non-Disclosure Agreement).

3.4 Technological Development Strategies in the Brazilian Regulatory Context

3.4.1 Alignment with Law No. 14,993/2024 — Fuels of the Future

The approval of **Law No. 14,993/2024**, which establishes the National **"Fuels of the Future" Program**, establishes a robust and favorable regulatory framework for **Sustainable Aviation Fuels (SAF)** and **Green Diesel**, promoting the energy transition and the use of innovative technologies in the liquid fuels sector in Brazil.
BBL's proprietary technology **fully meets the technical and functional parameters** established by the new legislation for the production of SAF, Green Diesel and renewable synthetic fuels — products that represent a strategic evolution in the replacement of fossil fuels with high-performance renewable alternatives.
BBL operates on **two complementary strategic fronts** within this regulatory framework:

3.4.1.1 Front 1 — SAF Production (Brazilian and European Markets)

BBL is technically prepared to produce **high-efficiency SAF**, contributing to the decarbonization of the aviation sector. The regulation of mandatory blending between fossil fuels and biofuels — provided for in Law 14,993/2024 — strengthens the company's role as a reliable and sustainable supplier, simultaneously aligned with the demands of the domestic market and the decarbonization goals of the European Union.
The integration of BBL into the European "**Roadmap for Sustainable Aviation Fuel" program**, **coordinated by ENAC Italy**, positions the company as a **strategic platform for the export of SAF** to the European market, in compliance with the requirements of the **ReFuelEU Aviation regulation**.

3.4.1.2 Front 2 — Green Diesel Production (Domestic Market)

Green Diesel — characterized by being 100% renewable and chemically equivalent to fossil diesel — is one of BBL's priority strategic focuses for the domestic market. BBL DX technology

allows the production of a high-quality biofuel, fully compatible with the technical requirements and parameters of **Law 14,993/2024**, making it suitable for application in heavy road transport, distributed energy generation and industrial sectors.

3.4.2 Authorization for Use in Diesel Generators — Lowest Friction Regulatory Entry Route

Complementing the SAF and Green Diesel production strategy, BBL prioritizes, as **a short-term regulatory entry route**, the authorization of BBL DX for applications in **diesel generators**. This segment represents a strategic niche of high volume and less regulatory complexity, operating under the guidelines of **ANP Resolution No. 734/2018** and, more recently, **ANP Resolution No. 987/2025**, which dispenses with specific authorizations for sale intended exclusively for the generation of electricity.

The regulatory process for this segment follows the following key steps:

1. **Formal Application** — Submission of authorization request to the ANP with complete technical and legal documentation;
2. **Conformity Tests** — Conducting laboratory analyses and technical studies to validate the product according to ANP specifications;
3. **Inspection and Authorization** — Evaluation of production facilities by the ANP and issuance of commercial operation authorization.

This incremental approach — starting with power generation and progressively advancing to heavy transport, industrial equipment and SAF — allows for a **controlled, disciplined and low-regulatory risk entry** into the Brazilian renewable fuels market.

BBL DX and BBL SAF Industrial Plant Model

3.5 Synergy between the Fronts of Action: Progressive Market Expansion

BBL's market development strategy is structured in **progressive layers of value**, as shown in the following expansion diagram:

Phase	Segment	Regulatory Regime	Horizon
Phase 1	Diesel generators / Own use	ANP 987/2025 — exemption from authorization	0–12 months
Phase 2	Captive fleets / Marine applications	ANP 908/2022 experimental regime	12–24 months
Phase 3	Green Diesel / Road Transport	Law 14,993/2024 — synthetic fuel	24–36 months
Phase 4	SAF / Aviation (Brazil and Europe)	ENAC / ANAC / ASTM D7566	36–60 months

This expansion architecture ensures **alignment between technical, regulatory, and commercial advancement**, minimizing execution risk and maximizing value creation at each stage of growth.

3.6 BBL's Positioning in the Global Energy Transition

With simultaneous action on two highly relevant regulatory fronts — **SAF** (Brazilian and European markets) and **Green Diesel** (domestic market), both regulated by Law 14,993/2024 — and with the authorization for diesel generators as a vector for immediate entry into the market, **Brazilian Biocombustíveis Ltda.** consolidates itself as a **pioneer company in the sector of new generation sustainable fuels in Brazil**.

BBL's ability to simultaneously serve the local market and the European market, supported by patented proprietary technology, international validation by ENAC and alignment with Brazilian and European public policies for decarbonization, reinforces its position as a **strategic agent of the global energy transition** — and as a differentiated investment opportunity in a sector in full structural expansion.

4 CHAPTER 4 — TESTS AND RESULTS

4.1 Technical Validation Program Overview

The BBL DX technology technical validation program was conducted over multiple testing campaigns, covering different application platforms, operating conditions and analysis methodologies. The tests were carried out in partnership with **independent technical and laboratory institutions of recognized credibility**, including **UFRN**, **CTGAS-ER** and **INSPETRANS of Natal**, ensuring traceability, impartiality and reproducibility of the results obtained.
The validation programme covered the following evaluation dimensions:

- **Physicochemical analysis** of the product in an accredited laboratory;
- **Measurement of atmospheric emissions** (NOx, SOx, CO, CO_2 and particulate matter);
- **Performance and power tests** on a certified dynamometer;
- **Consumption tests** in real conditions of use;
- **Inspection of mechanical integrity** of critical engine components after prolonged use;
- **Operational tests on vessels** in real sailing conditions.

The consolidated results demonstrate, in a consistent and reproducible manner, that **BBL DX presents operational performance equivalent to Diesel S10**, with significant environmental advantages and without any negative impact on the mechanical integrity of the engines tested.

4.2 Test 1 — Electric Diesel Generator (Vonder GDV 5500)

4.2.1 Assay Description

The first test cycle was conducted with a **Vonder electric diesel generator, model GDV 5500**, operated in continuous mode with an average daily consumption of **11.5 liters of** BBL DX 100 **biofuel** (pure formulation, without the addition of fossil diesel).

- **Total test duration:** approximately **5,000 hours** of accumulated operation;
- **Operational result:** no motor failures recorded during the entire test period;
- **Internal inspection:** After approximately **2,000 hours of use**, the engine has been completely disassembled and subjected to detailed internal inspection, with an emphasis on the evaluation of the **fuel injectors**.

4.2.2 Mechanical Inspection Result

Visual and technical inspection of the injector nozzles after 2,000 hours of operation with BBL DX 100 **did not reveal any wear, carbonaceous fouling or mechanical degradation** in the analysed components – a result attributed to the balanced

viscosity of BBL DX and its ability to neutralise the formation of carbon deposits on the injectors and piston rings, as described in the technical section of the product.

BLL DX 100 - Status of the injector nozzles of the Vonder GDV 5500 generator, after 2000 hours of operation

4.2.3 Atmospheric Emissions Analysis — CTGAS-ER

In parallel with the mechanical performance tests, the atmospheric emissions of the generator were analyzed by the **Environmental Quality Laboratory of the Center for Gas Technology and Renewable Energies (CTGAS-ER),** in tests conducted at the BBL laboratory unit in Macaíba (RN).

The results confirmed the **almost non-existence of particulate matter** in the emissions and concentrations of SOx and NOx significantly lower than the maximum limits established by the current Brazilian legislation.

4.2.3.1 Table 4.1 – SOx and NOx Emissions: BBL DX 100 vs. Legal Limits

Parameter	BBL DX 100	Legal Maximum Limit (CONAMA 382/2006)*
SOx Emission (ppm)	**13**	1.000
NOx Emission (ppm)	**32**	800

Estimated values for Vonder GDV 5500 generator model, operating close to the maximum limits established by CONAMA Resolution 382/2006. For accurate data per equipment, direct analysis with field measuring equipment is recommended.

4.2.3.2 Table 4.2 — CO and CO_2 emissions: BBL DX 100 vs. Diesel S10

Parameter	BBL DX 100	Diesel S10*
CO_2 emission (%)	**0,7**	2,30
CO Emission (ppm)	**490**	2.400

Average emission values of Diesel S10. Source: siambiental.ucs.br

4.2.4 Summary of Emissions Results

Based on CTGAS-ER laboratory data and Diesel S10 mean reference values, the **BBL DX 100** demonstrates the following emission reduction indexes:

- **NOx:** reduction of approximately **96.4%** compared to Diesel S10;
- **SOx:** reduction of approximately **97.8%** compared to Diesel S10;
- **CO_2:** reduction of approximately **69.6%** compared to Diesel S10;
- **CO:** reduction of approximately **79.6%** compared to Diesel S10.

*These indices configure **exceptional environmental efficiency**, positioning BBL DX as a high-impact solution for markets subject to strict emissions restrictions and for companies with decarbonization and ESG goals*.

4.3 Test 2 — Diesel Automotive Vehicle (SsangYong Kyron 2.0 4x4 — Mercedes Engine)

4.3.1 Assay Description

The second test cycle was conducted with the **SsangYong Kyron 2.0 4x4** vehicle (chassis KTPOB1KSAPC73099), equipped with **a Mercedes-Benz engine**, manufactured in **2010**. The fuel used was **BBL DX 50** — a mixture of 50% BBL biofuel and 50% commercial Diesel S10.

- **Duration of the test:** approximately **12 months** of continuous use;
- **Total mileage traveled:** approximately **40,000 km**;
- **Test conditions:** different types of terrain and varying speed ranges.

4.3.2 Mechanical Inspection Result

At the end of the testing period, the engine was subjected to **a complete internal inspection**, with specific evaluation of the fuel injector nozzles. The technical report **did not record any wear, fouling or degradation** in the inspected components – a result consistent with the data obtained in the tests with the Vonder generator.

Figure 5 – Visual test of car injectors after traveling approximately 40,000 km with BBL D50

4.3.3 Exhaust Gas Opacity Test — INSPETRANS Natal

The vehicle was subjected to the **exhaust gas opacity test** by **INSPETRANS of Natal**, using the **CSM-5000 Smoke Analyzer**. The test was carried out compared with **Diesel S10** and **BBL DX 50**, with the following results:

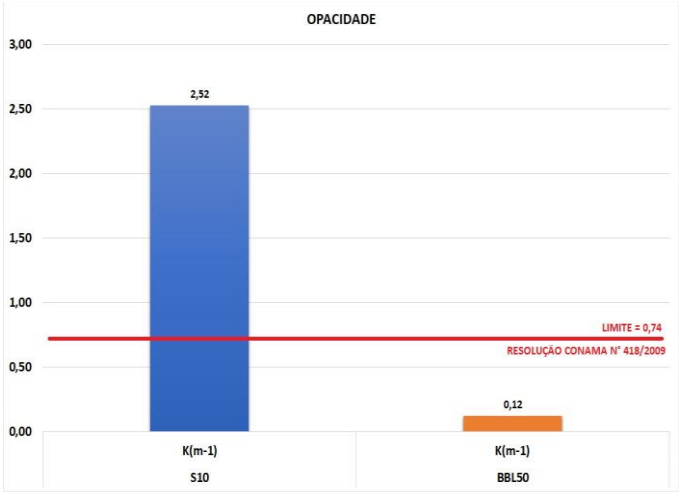
4.3.3.1 Table 4.3 — Opacity Test: BBL DX 50 vs. Diesel S10

Parameter	BBL DX 50	Diesel S10	Legal Limit (CONAMA 418/2009)
Opacity (m^{-1})	**0,12**	2,52	0,74

The results show that **BBL DX 50 has opacity 95.2% lower than Diesel S10** and **83.8% below the maximum legal limit** established by CONAMA Resolution 418/2009 — evidencing a **drastic reduction in the emission of particulate matter**, with a direct impact on air quality and public health.

Relevant technical note: *The vehicle tested with Diesel S10 failed the INSPETRANS opacity test (result: 2.52 m^{-1}, above the legal limit of 0.74 m^{-1}), while the same vehicle, operating with BBL DX 50, was **approved** with significant clearance (0.12 m^{-1}). This result objectively illustrates the environmental superiority of BBL DX over conventional fossil fuel.*

Photo vehicle emission testing at INSPETRANS (NATAL, BRAZIL)



MENOS POLUENTE QUE OS COMBUSTÍVEIS CONVENCIONAIS. REDUÇÃO DRÁSTICA NA EMISSÃO DE PARTICULADOS.

4.4 Test 3 — Performance and Power (Dynamometer — JM Power Car Natal)

4.4.1 Assay Description

With the same SsangYong Kyron 2.0 4x4 vehicle, **two comparative performance tests were carried out on a dynamometer** at **JM Power Car in Natal**, an establishment accredited by DETRAN/RN:

- **Test 1:** carried out on **12/11/2018** with **commercial Diesel S10**;
- **Test 2:** Performed on **01/02/2019** with **BBL DX 50**.

4.4.2 Dynamometer Results

4.4.2.1 Table 4.4 – Performance Comparison: Diesel S10 vs. BBL DX 50

Parameter	BBL DX 50 (02/01/2019)	Diesel S10 (11/12/2018)
Rotation (RPM)	3.909	3.959
Power (PS)	**128,0**	128,2

4.4.3 Analysis of the Results

The dynamometer data show that the **BBL DX 50 delivers power equivalent to the Diesel S10**, with a variation of only **0.2 PS** (0.16%) – a statistically insignificant difference and within the natural range of variation of the tests. This result confirms that the use of BBL DX **does not imply any loss of performance or power** compared to conventional fossil fuel, validating its **drop-in fuel characteristic** of full replacement.

Figure 6, on top of the dynamometer test performed with Diesel S10 additive on the market on 12.11.2018

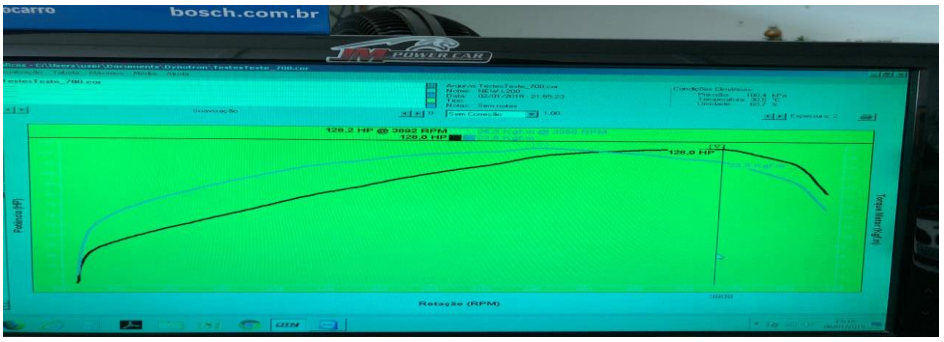


Figure 7 at the top of the dynamometer test performed with our BBL 50 Biofuel on 02.01.2019

4.5 Test 4 — Fuel Consumption (SsangYong Kyron 2.0 4x4)

4.5.1 Assay Description

Two comparative consumption tests **were carried out** with the same vehicle, covering the **same route** with a full tank of **75 liters**, under equivalent conditions of use:

- **Test 1:** December 2018 — **Diesel S10** commercial;
- **Test 2:** December 2018 — **BBL DX 50**.

4.5.2 4.5.2 Consumption Test Results

4.5.2.1 Table 4.5 — Consumption Comparison: Diesel S10 vs. BBL DX 50

Fuel	Volume (liters)	Distance Traveled (km)
Diesel S10	75	548,70
BBL DX 50	75	**632,20**

4.5.3 Analysis of the Results

With the same fuel volume (75 liters), the vehicle covered **83.5 km more** with BBL DX 50 than with Diesel S10 — representing an **efficiency gain of approximately 15.2%** in autonomy. This result, combined with the power equivalence demonstrated in the dynamometer test, suggests that the **more efficient combustion of BBL DX** — favored by balanced viscosity and better fuel atomization — results in lower

consumption per kilometer traveled, with a direct impact on reducing operating cost for the end user.

4.6 Test 5 — Vessels (Marine Applications)

4.6.1 Fishing vessel COOPA II

In **November 2018**, an operational test was carried out on board the fishing vessel **COOPA II**, belonging to the company **Recanto do Mar Transportes Marítimos Ltda.** (CNPJ: 08.220.947/0001-10), using **BBL DX 50 fuel**.

Test Parameters:

- Duration: **4 hours** of continuous operation;
- Total consumption: **50 liters** of BBL DX 50;
- Conditions: different engine speeds and operating regimes.

Results:

- No mechanical failure or malfunction recorded;
- No loss of vessel power compared to conventional diesel;
- No variation in consumption in relation to the historical standard of the vehicle;
- Visual absence of particulate emissions throughout the route.

4.6.2 NATUREZA TUR Tourist Boat

In **December 2018**, the same test protocol was applied to the **NATUREZA TUR Tourist Boat**, in operation in **Barra de Cunhaú, Rio Grande do Norte**, with equally positive results — confirming the **consistency and reproducibility** of the BBL DX 50's performance in marine applications of different operational profiles.

4.7 Consolidation of Results: BBL DX Performance Matrix

The following table summarizes the main results obtained throughout the technical validation program, offering an executive and comparative view of the performance of BBL DX against Diesel S10:

Evaluation Dimension	BBL DX Result	Reference Diesel S10	Variation
Engine power (PS)	128,0	128,2	**–0.2 HP (–0.16%)**
Range (km/75L)	632.2 km	548.7 km	**+83.5 km (+15.2%)**

Opacity — particulate matter (m^{-1})	0,12	2,52	**–95,2%**
NOx Emission (ppm)	32	~830*	**–96,4%**
SOx Emission (ppm)	13	~590*	**–97,8%**
CO_2 emission (%)	0,7	2,30	**–69,6%**
CO Emission (ppm)	490	2.400	**–79,6%**
Injector wear	Non-existent	References	**No wear and tear**
Mechanical failures (5,000h / 40,000km)	None	References	**Zero failures**

Estimated reference values for Diesel S10 based on CTGAS-ER data and available technical literature.

4.8 Technical Conclusion of the Chapter

The consolidated results of BBL's technical validation program demonstrate, with consistency and independent laboratory support, that **BBL DX is a drop-in fuel that fully replaces Diesel S10**, bringing together the following proven attributes:

- **Performance and power equivalent** to fossil diesel, without measurable losses;
- **Energy efficiency gain** of approximately 15% in autonomy;
- **Drastic reduction of atmospheric emissions** in all categories analyzed;
- **Mechanical integrity preserved** after prolonged use (5,000 hours / 40,000 km);
- **Full operational compatibility** with engines, generators and vessels without any modification;
- **Broad legal compliance**, with results significantly below the maximum limits established by current Brazilian environmental legislation.

These results constitute the **technical and evidentiary basis** that supports BBL's position with investors, regulators, industrial partners and development institutions, and underlie the commercial and regulatory expansion strategy described in the subsequent chapters of this Prospectus.

Fishing boat Coopa II

5 CHAPTER 5 — HUMAN RESOURCES AND CORPORATE GOVERNANCE

5.1 Overview

The execution of the BBL DX project is anchored in a **multidisciplinary and internationally experienced leadership team**, combining scientific excellence in chemical engineering, proven large-scale industrial management capacity and strategic expertise in institutional relations and fundraising. The governance structure is designed to meet the standards required by institutional investors, with a clear separation between technical, executive and supervisory functions.

5.2 Technical and Executive Nucleus

5.2.1 Dr. Ing. Andrea Festuccia — CTO & Co-Founder

Education: PhD in Chemical and Environmental Engineering from the **University of Rome "La Sapienza"** (Italy). More than **20 years of experience** in research and development of advanced biofuels. Principal inventor of the BBL DX patent (BR 11 2022 011447-8 / PCT/BR2019/050531). Author of **15 scientific publications in** peer-reviewed journals.

Relevant professional trajectory:

- President of **OPT Sensor S.R.L.**;
- Chief Executive Officer, **Recovery Technologies, Inc.**;
- Senior Manager – EILIS Division of **Altran Italia S.p.A.**;
- Technical Director of **3Ti Progetti Italia S.p.A.**;
- Technical Director of **Ecosystems S.r.l.** and **Igeam S.r.l.**;
- Consultant for **NATO** and the **Italian Government**;
- Holder of **4 patents** in the areas of technology and biofuels.

Role at BBL: Responsible for the design, development and intellectual protection of BBL DX technology. He leads the innovation strategy, the relationship with international scientific institutions and the development of the SAF route with ENAC Italy.

5.2.2 Roberto Pes — CEO & Co-Founder

Education: Business Administrator, graduated in **Management from the James Cook University of North Queensland** (Australia).

Skills and experience:

- Strategic planning and corporate management;
- Marketing, total quality and people management;
- Financial consulting and structuring of business projects for funds and resources of the **European community** and the **Italian government**;
- Proven experience in **industrial scale-up** and relationship with national and international institutional investors.

Role at BBL: Responsible for the executive management of the company, the structuring of investment rounds, the relationship with strategic partners and commercial development in the Brazilian and European markets.

5.2.3 Prof. Dr. Francisco Wendell Bezerra Lopes — VP of Operations

Education: PhD in Chemical Engineering and Materials Sciences from the **Federal University of Rio Grande do Norte (UFRN)** and the **Université du Sud Toulon-Var** (France). University Professor and Researcher at the institutions **UNP** and **UFRN**, Natal/RN.

Relevant professional trajectory:

- Specialist in chemical plants and industrial process engineering;
- History in commissioning of **large industrial units**;
- Several scientific publications in national and international journals;
- Patent holder in the area of natural gas treatment;
- Industrial engineer in an alcohol production plant;
- Chemical engineer in an environmental management company;
- Advisor to **CREA/RN;**
- Specialist in applied industrial chemistry and footwear engineering.

Role at BBL: Responsible for the technical and operational management of the Macaíba experimental unit, for the quality control of the production process, for the supervision of the testing programs and for the technical interface with academic and regulatory institutions.

5.3 Governance Council

BBL's governance structure was designed to meet the **best market practices** required by institutional investors, *private equity funds* and development institutions, with a clear separation between the spheres of regulatory, industrial and financial supervision.

5.3.1 Regulatory Council

Composed of professionals with the profile of **former ANP director** or advisors specialized in **Law No. 14,993/2024**, with direct institutional access to the main regulatory bodies of the fuel and energy sector in Brazil.
Strategic function: *Guide and accelerate the regulatory framework process of BBL DX with the ANP, MME and EPE, reducing regulatory risk and time to market.*

5.3.2 Industrial Council

Made up of executives with a proven track record of **industrial scale-up** in leading companies in the sector, including experiences in **Raízen**, **Cosan** and **Vibra Energia** — national leaders in the fuels, biofuels and energy distribution segment.
Strategic role: *Oversee the industrial deployment strategy, validate operational and CAPEX/OPEX assumptions, and support the structuring of partnerships with distributors and operators in the sector.*

5.3.3 Financial Board

Composed of professionals with experience in **CFO of CleanTech companies** and a history of **IPO processes** in institutions such as **AES Brasil** and **CPFL Renováveis** — national references in renewable energy.
Financial Controls Framework:

- Board with **2 independent members**;
- External audit by **E&Y / KPMG;**
- Quarterly reports to investors;
- Compliance with **ESG standards (GRI Standards).**

Strategic function: *Ensure financial discipline, transparency for investors, and compliance with international governance and sustainability standards required by institutional funds.*

5.4 Partner, Validation, and Supplier Network

5.4.1 Technical and Scientific Validation

The technical credibility of BBL DX technology is underpinned by a network of nationally and internationally recognized partner institutions:

Institution	Contribution
UFRN	R&D, laboratory analysis (NOx/SOx emissions, physico-chemical)
CTGAS-ER	Atmospheric emissions and environmental quality analyses
UNP	Applied research and operational technical support
ENAC Italy	International SAF Program — Validation for Sustainable Aviation

"Validated by those who understand. Bought by those who need it."

5.4.2 Key Suppliers

BBL's supply chain has been structured with a focus on **industrial quality, traceability and CAPEX optimization**:

- **Alfa Laval** — Centrifuges and separators (Swedish technology), local suppliers for tanks and piping (optimized CAPEX);
- Qualified regional suppliers for storage infrastructure and mixing systems.

5.4.3 Clients and LOIs in Trading

BBL maintains **Letters of Intent (LOIs)** in negotiation with high-volume anchor customers, representing significant potential demand at the beginning of commercial operation:

Segment	Estimated Volume (L/year)
Tier-1 Miners	up to 120 million
Logistics fleet	up to 30 million
Hotel chain (backup generators)	up to 5 million

LOIs in the negotiation phase, subject to the conclusion of the regulatory process and the implementation of the first commercial plant.

5.4.4 Institutional Support

BBL has the support of public institutions that promote innovation and energy transition:

- **FINEP** — Projects under analysis for the **Macaíba SAF** and **Circular UCO** fronts, with potential for non-reimbursable financing for R&D and industrial scale-up;
- **BNDES** — Active dialogue for structuring the **Climate Fund (Phase 2),** a long-term financing instrument aligned with the decarbonization agenda of the Brazilian economy.

5.5 Team Operational Structure

For the initial phase of commercial operation, BBL projects the following workforce structure:

Category	Profile	Quantity
Process Engineers	Chemical/Industrial Engineering	4
Plant Operators	Specialized technicians	6
R&D and Quality Control	Chemists / Analysts	2
Administrative and Financial Management	Administrators / Accountants	3
Commercial and Institutional Relations	Business Executives	3
Total Phase 1		**18–30 professionals**

*The expansion of the team will be conducted progressively, in line with the growth of production capacity, with **technical training programs in partnership with UFRN and UNP**, ensuring the continuous qualification of the operational staff.*

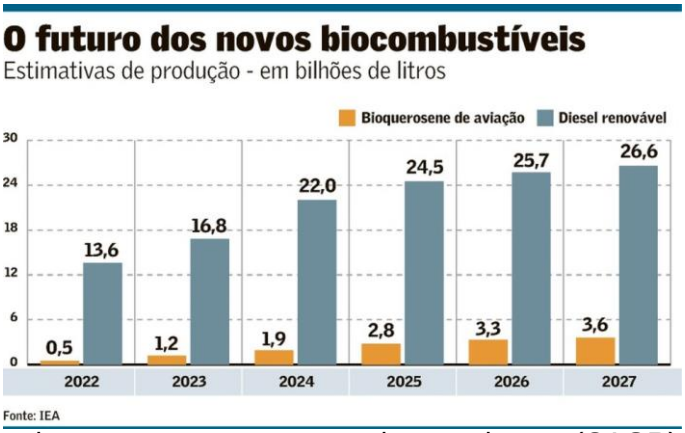
5.6 Strategic Summary: The Team as a Value Asset

The combination of **technical-scientific excellence**, **executive experience in industrial scale-up** and **governance structured with institutional standards** gives BBL a competitive advantage that goes beyond the patented technology: a **team capable of executing** the transition from the experimental stage to large-scale industrial operation, with capital discipline, regulatory rigor and credibility with the most demanding institutional investors.

6 CHAPTER 6 — MARKET

6.1 Global Context: The Energy Transition as a Structural Vector of Demand

The global renewable fuels market is going through a **structural inflection point**, driven by the convergence of three simultaneous forces: growing regulatory pressure for decarbonization, progress on international climate goals (Paris Agreement, Net Zero 2050), and industrial demand for economically competitive alternatives to fossil diesel.



According to data from the **International Energy Agency (IEA),** the global market for advanced biofuels — the category in which BBL DX falls — is expected to grow at a compound annual rate (CAGR) of **approximately 15% between 2024 and 2030**, driven especially by the segments of **SAF** (*Sustainable Aviation Fuel*), **Green Diesel** and **drop-in renewable synthetic fuels**.

The total value of the global advanced biofuels market was estimated at **USD 8.3 billion in 2024**, projected to reach **USD 19.8 billion by 2030** — representing a growth opportunity of more than **USD 11 billion** in less than six years.

6.2 The Brazilian Renewable Fuels Market

6.2.1 Overview of Diesel Consumption

Brazil is the **largest consumer of diesel in Latin America** and one of the largest in the world, with total diesel consumption reaching **67.2 million m³ in 2024**, according to data from **the ANP (National Agency of Petroleum, Natural Gas and Biofuels).** This volume represents the main target market for the progressive replacement by BBL DX.

The growth in diesel consumption in Brazil is structural, supported by the country's predominantly road logistics matrix, the expansion of agribusiness and the growth in industrial demand — factors that make the Brazilian market **particularly receptive** to cost-competitive renewable alternatives.

6.2.2 Evolution of Biodiesel Production in Brazil

Brazil has consolidated itself as the **world's second largest producer of biodiesel**, a position supported by the robust regulatory framework of mandatory blending and the abundance of agricultural raw materials. The evolution of production in recent years reflects the direct impact of blending mandate policies:

Year	Output (million m³)	Regulatory Framework
2019	5,9	Continued growth
2020	6,4	Slight growth despite the pandemic
2021	6,8	Expansion of the mandatory blend
2022	6,2	Temporary reduction to B10
2023	7,52	Resumption of B12 from April
2024	**9,07**	Introduction of B14 in March (+20.4% vs. 2023)
2025 (proj.)	**~10.5**	Implementation of B15 (Law 14.993/2024)
2030 (proj.)	**~14.0**	B20 trajectory provided for in Law 14,993/2024

Source: ANP, EPE, Mixed Parliamentary Front for Biodiesel (FPBio) — 2024/2025.
The growth of biodiesel production in Brazil is not conjunctural – it is **structurally determined** by the current regulatory framework. **Law No. 14,993/2024 (Fuels of the Future)** establishes a **mandatory trajectory of progressive increase** in biofuel blends in diesel, expected to reach **B20 by 2030**, creating an incremental demand of billions of liters per year that the market will need to supply with new technological routes — exactly the space that BBL DX occupies.

6.2.3 The Regulatory Framework: Law No. 14,993/2024 — Fuels of the Future

Law No. 14,993/2024 represents the most important regulatory advance in the renewable fuels sector in Brazil since the creation of PROÁLCOOL. Its key devices with direct impact on the BBL addressable market include:

- **Progressive biodiesel blending mandate:** B15 in 2025, with a trajectory to B20 in 2030;
- **SAF mandate:** mandatory blending of **1% SAF in 2027**, with progressive scaling up to **10% in 2037**;
- **Recognition of Green Diesel** as an autonomous regulatory category, with specific incentives for producers;
- **Creation of the "Renewable Synthetic Fuel" category**, in which BBL DX technically fits, as shown in the BBL Technical-Legal Report (Annex II of this Prospectus);
- **Expansion of RenovaBio** with the issuance of CBIOs (*Decarbonization Credits*) for qualified low-carbon fuel producers.

Direct impact to BBL: Law 14,993/2024 creates a compulsory and growing market for exactly the type of fuel BBL produces — renewable, drop-in, low-carbon, and economically competitive — with demand guaranteed by legal mandate and additional financial incentives via CBIOs.

6.3 The SAF Market — BBL's Global Opportunity and European Insertion

6.3.1 SAF Market Size and Growth

The global Sustainable **Aviation Fuels (SAF)** market is the fastest growing and highest value-added segment within the renewable fuels universe. The key market indicators for 2024–2030 are:

- **Global SAF market in 2024:** estimated at **USD 1.5 billion**;
- **Projection for 2030: USD 15.7 billion** (CAGR of ~47% per year);
- **Projected global demand for SAF for 2030:** between **5 and 8 million tons/year**, according to IATA and IEA;
- EU **ReFuelEU Aviation Regulation (EU):** 2% SAF mandate **in 2025**, with a staggered up to **70% in 2050** for all flights departing from European airports.

Sources: IATA *SAF Outlook 2024*, IEA *Aviation Biofuels 2024*, BloombergNEF *Clean Energy Transition 2025*.

6.3.2 BBL's Strategic Positioning in the SAF Market

The selection of BBL by **ENAC Italia** for the *"A Roadmap for Sustainable Aviation Fuels in Italy" program* in October 2024 positions the company as the **only Brazilian base producer** with European institutional validation for the development of SAF — a first-rate competitive advantage in accessing the European market.

The **ReFuelEU Aviation regulation** creates a compulsory and growing demand for SAF for all flights departing from the European Union, generating an **immediate window of opportunity** for Brazilian producers with validated technology and competitive raw materials — exactly what BBL is about.

The combination between:

- Competitive production cost (R$ 3.90–4.30/liter);
- Abundant and renewable raw materials in Brazil (vegetable oils, UCO);
- Technical validation for SAF tests by ENAC Italy;
- International Patent (PCT) protecting process;

... positions **BBL SAF as a high value-added strategic export product** for the European market, with significant additional revenue potential beyond the domestic market.

6.4 The Green Diesel Market in Brazil

Green Diesel — a 100% renewable fuel, chemically equivalent to fossil diesel and fully drop-in — is the fastest growing segment in the Brazilian domestic renewable fuel market for the period 2025–2030.

According to projections by the **EPE (Energy Research Company)** and **the MME (Ministry of Mines and Energy):**

- The Brazilian Green Diesel market could reach **5 to 8 billion liters/year by 2030**, driven by the B20 mandate and demand from the heavy-duty transport sector;

- The average reference price of B100 biodiesel in the Brazilian market stood at **R$ 5.80/liter in 2025**, with an upward trend due to growing demand;
- The **road freight transport**, **agribusiness** and **mining** sectors represent the largest potential consumers of Green Diesel in Brazil.

BBL DX, with an estimated production cost between **R$ 3.90 and R$ 4.30/liter** and a projected sales price between **R$ 5.40 and R$ 5.60/liter** — below the market reference of B100 biodiesel — has **a higher competitive margin** and the potential to capture accelerated market share in this segment.

6.5 The RenovaBio Program and CBIOs

RenovaBio — a national biofuels program established by Law 13,576/2017 and expanded by Law 14,993/2024 — establishes mandatory annual decarbonization targets for fuel distributors, which must be met through the acquisition of **CBIOs (Decarbonization Credits).** Each CBIO represents **1 ton of CO_2 equivalent** avoided in the biofuel production and use chain. Qualified producers emit CBIOs in proportion to the volume produced and the carbon intensity of their process.

CBIOs Market Data in 2024–2025:

- Average price of CBIO in 2024: **BRL 80 to BRL 120 per credit** (variation throughout the year);
- Volume of CBIOs issued in 2024: more than **40 million credits**;
- CBIOs target for 2025: **~55 million credits**, with a growth trend until 2030.

Impact for BBL: *With a reduction in CO_2 emissions of approximately **70% compared to fossil diesel** (according to the preliminary Life Cycle Assessment – Annex IV of the BBL Technical-Legal Report), BBL DX has **a high potential for eligibility for RenovaBio**, representing an **additional source of revenue** which can significantly increase the company's operating margin when the regulatory framework is consolidated.*

6.6 Total Addressable Market (TAM) for BBL

Considering BBL's priority segments of operation and the available market data, the company's **Total Addressable Market (TAM)** can be estimated as follows:

Segment	Brazil Market (2025)	Projected Growth (2030)	BBL Relevance
Biodiesel / Green Diesel (B15→B20)	~10.5 billion L/year	~14.0 billion L/year	☆☆☆☆☆
Diesel Generators (distributed generation)	~3.0 billion L/year	~4.5 billion L/year	☆☆☆☆☆
Captive fleets (mining, agro, logistics)	~8.0 bi L/year	~10.0 billion L/year	☆☆☆☆
SAF — Brazil (2027 term)	~200 mi L/year	~2.0 billion L/year	☆☆☆☆☆
SAF Europe (ReFuelEU)	~5.0 bi L/year	~40.0 billion L/year	☆☆☆☆
Marine applications	~1.5 billion L/year	~2.0 billion L/year	☆☆☆

*The combined TAM of BBL's priority segments in Brazil exceeds **25 billion liters/year** in 2025, with the potential to grow to more than **32 billion liters/year by 2030**.*

6.7 Projected Market Share for BBL

Based on the planned production capacity and the strategy of gradual entry by segments with less regulatory friction, BBL projects the following evolution of participation in the Brazilian market:

Year	BBL production (million L/year)	Market Share (% Brazilian market)	Estimated Gross Revenue
2026	12	0,11%	R$ 66.0 million
2027	25–50	0,20–0,40%	R$ 137.5–275.0 million
2028	50–80	0,40–0,65%	R$ 275.0–440.0 million
2029	80–120	0,65–0,95%	R$ 440.0–660.0 million
2030	160	~1.1%	R$ 880.0 million

*Selling price assumption: **R$ 5.50/liter** (base scenario). Reference market: Brazilian biofuel production projected at ~14 billion liters/year in 2030.*

BBL's market share targets — between **0.11% in 2026** and **~1.1% in 2030** — are **conservative and defensible** given the size of the addressable market, structural demand growth and the absence of equivalent technology competitors in the drop-in synthetic fuels segment without transesterification.

6.8 Competitive Market Analysis

6.8.1 Direct Competitors

The conventional biofuels market is dominated by major FAME biodiesel producers such as **BSBIOS**, **ECB Group**, **Granol**, and the biofuels divisions of major agribusiness groups. These players operate with conventional transesterification processes, generating glycerin as a by-product and facing the technical and environmental limitations described in Chapter 3.

6.8.2 BBL's Sustainable Competitive Advantage

BBL does not compete directly with FAME biodiesel producers — it **outperforms them structurally** through a different, patented, and superior technological route in multiple dimensions:

Competitive Dimension	FAME Biodiesel (Competitors)	BBL DX
Process	Transesterification	Patented catalytic synthesis
By-products	Glycerin (10% by volume)	✕ None
Cycle Time	6–24 hours	**~30 minutes**
Production cost	R$ 4.50–5.50/liter	**R$ 3.90–4.30/liter**
Drop-in compatibility	Partial (limited by law)	**Total (100%)**
NOx emissions	+8–10% vs. diesel	**–96.4% vs. diesel**
Intellectual protection	Public process	**Exclusive Patent**
SAF Validation	✕ No	**ENAC Italy**
CBIOs Eligibility	Yes	**Yes (higher potential)**

6.9 Conclusion: A Structurally and Temporally Defined Window of Opportunity

The renewable fuels market in Brazil and around the world is experiencing a moment of **irreversible structural transformation**, driven by compulsory regulation, binding climate targets, and growing industrial demand for alternatives to fossil diesel.

Brazilian Biocombustíveis Ltda. is positioned to capture value in this transformation with a unique combination of assets:

- **Patented proprietary technology** — no market equivalent;
- **Competitive production cost** – lower than conventional biodiesel;
- **International validation** — ENAC Italy for SAF;
- **Regulatory alignment** — Law 14,993/2024 and RenovaBio;
- **Market in structural expansion** — TAM exceeds R$ 130 billion/year by 2030.

*The window of opportunity for strategic positioning in this market is **temporally defined**: the first producers to obtain regulatory framework as a renewable synthetic fuel and to establish long-term supply contracts with large industrial consumers and airlines will capture lasting competitive advantages that are difficult to replicate.*

BBL is ready to be that producer.

7 CHAPTER 7 — OPERATIONAL INVESTMENTS AND ECONOMIC AND FINANCIAL PROJECTIONS

7.1 Investment Strategy Overview

The investment plan of **Brazilian Biocombustíveis Ltda.** It has been structured on the basis of three key principles:

1. **Capital discipline** — phased growth, with each investment stage linked to the advancement of technical, regulatory and commercial milestones;
2. **Modular scalability** — industrial architecture that allows progressive capacity expansion without major plant reconfigurations;
3. **Incremental monetization** — Revenue generation from the first phase, reducing the period of exposure to execution risk.

The model foresees **two main phases of investment**, with a total production capacity of up to **160 million liters per year** at the end of Phase 2, and the possibility of additional expansion in Phase 3 as the platform advances regulatory.

7.2 Investment Structure by Stage

7.2.1 Investment Plan Executive Summary

Phase	Horizon	CAPEX (USD)	CAPEX (BRL)*	Capacity	Description
Phase 1	Years 1–2 (2026–2027)	**USD 50 million**	**~BRL 290 million**	50–80 mi L/year	First commercial plant, certifications, regulatory structuring and initial working capital
Phase 2	Years 3–4 (2028–2029)	**USD 150 million**	**~BRL 870 million**	up to 160 mi L/year	Second plant, capacity expansion and commercial consolidation of the platform
Phase 3	Years 5–6 (2030–2031)	TBD	TBD	Further expansion	Internationalization, modular replication, and strategic consolidation
Total Stages 1+2	Years 1–4	**USD 200 million**	**~BRL 1.16 billion**	160 mi L/year	Consolidated industrial platform

Benchmark exchange rate: BRL 5.80 / USD 1.00 (base 2025/2026). Values subject to update according to exchange rate variation.

7.2.2 CAPEX Phase 1 — USD 50 million (~BRL 290 million)

Phase 1 includes the **implementation of BBL's first commercial plant**, with an initial capacity of between **50 and 80 million liters per year**, in addition to all the investments necessary for the technical, regulatory and commercial structuring of the platform.

7.2.2.1 CAPEX Phase 1 breakdown

Item	Description	Estimated Value (USD)	Estimated Value (BRL)
Industrial plant – civil and structural	Construction and assembly of the plant (~50 thousand L/day)	USD 16.4 mi	**BRL 95.0 mi**
Equipment and automation	Tanks, pumps, centrifuges (Alfa Laval), automation and process control	USD 7.2 mi	**BRL 41.8 mi**
Laboratory and R&D	Plant-integrated laboratory unit	USD 5.2 mi	**BRL 30.0 mi**
Licensing and certifications	ANP certifications, environmental, performance reports and compliance	USD 1.4 mi	**BRL 8.0 mi**
Legal structure and IP	National patents, internationalization and intellectual property protection	USD 0.9 million	**BRL 5.0 mi**
Institutional marketing and ESG	Relationship with government, private sector, media and ESG reporting	USD 0.9 million	**BRL 5.0 mi**
Working capital — 12 months	Raw material, logistics, HR and distribution (initial phase)	USD 10.3 mi	**BRL 60.0 mi**
Contingency (10%)	Reservation for unforeseen events	USD 7.7 mi	**BRL 44.7 mi**
Total CAPEX Phase 1		USD 50.0 mi	**BRL 289.5 mi**

7.2.3 Phase 2 CAPEX — USD 150 million (~BRL 870 million)

Phase 2 includes the **implementation of the second industrial plant**, the expansion of the total production capacity to up to **160 million liters per year** and the commercial consolidation of the BBL DX platform in the domestic and international markets.

7.2.3.1 CAPEX Phase 2 breakdown

Item	Description	Estimated Value (USD)	Estimated Value (BRL)
Second industrial plant	Construction and assembly (~80 mi L/year additional)	USD 80.0 mi	**BRL 464.0 mi**
Infrastructure expansion	Storage, logistics and distribution tanks	USD 25.0 mi	**BRL 145.0 mi**
SAF and regulatory certifications	ANP Dossier Synthetic Fuel, ASTM/ENAC Certification for SAF	USD 8.0 mi	**BRL 46.4 mi**
International commercial expansion	SAF export structure to Europe (Mercosur and MENA)	USD 10.0 mi	**BRL 58.0 mi**
Incremental working capital	Raw material scaling and operation at full capacity	USD 15.0 mi	**BRL 87.0 mi**
Contingency (8%)	Reservation for unforeseen events	USD 12.0 mi	**BRL 69.6 mi**
Total CAPEX Phase 2		USD 150.0 mi	**BRL 870.0 mi**

Industrial plant model – CAPEX 2- BBL DX and BBL SAF

7.3 Key Operational Milestones and Deployment Timeline

Milestone	Period	Deliverable
Phase 1 Investment Closing	Q1–Q2 2026	Signing of contracts and initial contribution
Land acquisition and environmental permits	Q2–Q3 2026	IDEMA/IBAMA operating license
Construction and assembly of Phase 1	Q2–Q4 2026	Civil plant and installed equipment
Pilot production and scale testing	Q4 2026 – Q1 2027	Industrial-scale process validation
Start of commercial production Phase 1	Q2 2027	First commercial batches – generation and fleets
ANP Regulatory Submission – Synthetic Fuel	Q3 2027	Complete technical-legal dossier
Phase 2 Investment Closing	Q1–Q2 2028	Phase 2 funding confirmed
Implementation of the second plant	Q2–Q4 2028	Expansion to 160 million L/year
Start of SAF exports to Europe	Q1–Q2 2029	First SAF supply contracts
Full operational capability	Q4 2029 – Q1 2030	160 million L/year consolidated

7.4 Production Cost Structure

7.4.1 Variable Costs per Liter Produced

Input	Estimated Cost (BRL/L)	Note
Vegetable oil (soybean or residual UCO)	R$ 1,40	Mid-Market Price 2025
Anhydrous ethanol	R$ 0.70	Ethanol from a renewable source
BBL additive (proprietary catalyst)	R$ 1,50	Patent-protected component
Electricity and water	R$ 0.10	Mixing and centrifugation system
Logistics and transportation	R$ 0.20	Local Receiving and Distribution
Technical losses (~2%)	R$ 0.05	Conservative estimate
Total Variable Cost	**R$ 3.95/liter**	Financial Model Calculation Basis

7.4.2 Monthly Fixed Costs per Plant

Item	Monthly Value (BRL)
Payroll	R$ 280.000
Rental and Operating Facilities	R$ 25.000
Maintenance and general supplies	R$ 18.000
Plant and liability insurance	R$ 10.000
Institutional marketing and ESG	R$ 12.000
Administrative and legal costs	R$ 15.000
Total Monthly Fixed Costs / Plant	**R$ 360.000**
Total Annual Fixed Costs / Plant	**R$ 4.32 million**
Total Annual Fixed Costs / 2 Plants	**R$ 8.64 million**

7.5 Revenue and Pricing Assumptions

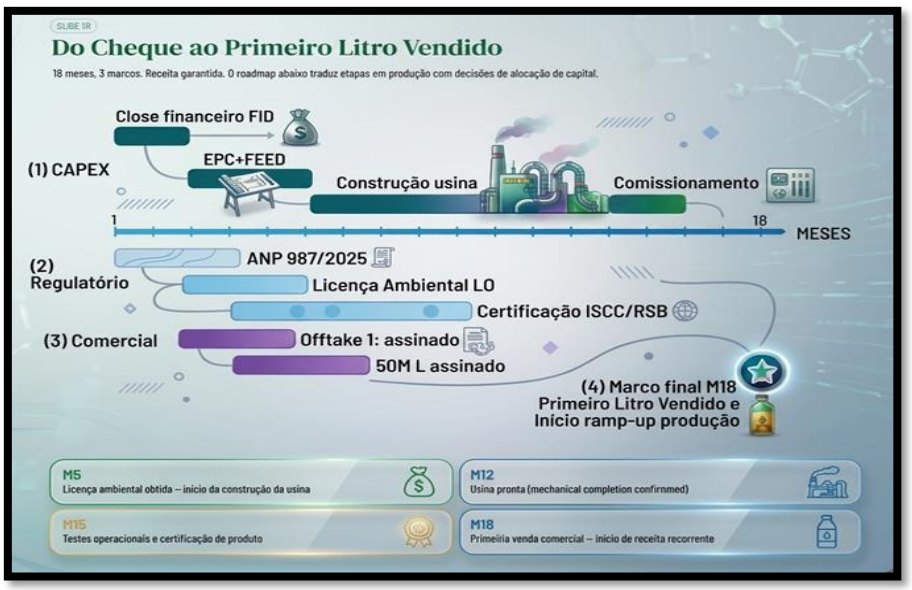
7.5.1 Price Positioning

Market Reference	Price (BRL/L) — Base 2025/2026
Diesel S10 (average producer price)	$5.90–6.20
Biodiesel B100 (average price ANP 2025)	$5.80–$6.00
BBL DX — Estimated Selling Price	**$5.40–5.60**
BBL DX — Base Price (conservative scenario)	**R$ 5,50**

*BBL DX is priced **below the market benchmark for B100 biodiesel**, offering the buyer a renewable alternative with **lower cost and superior environmental performance** – a value proposition that accelerates commercial adoption and reduces resistance to entry into new segments.*

7.5.2 Unit Contribution Margin

Parameter	Value
Average selling price	R$ 5,50/L
Total variable cost	R$ 3,95/L
Unit Contribution Margin	**R$ 1,55/L**
Contribution Margin (%)	**28,2%**



7.6 Financial Projections — 5 Year Model (2026–2030)

7.6.1 Projection per Plant – Phase 1 (Capacity: 50–80 mi L/yr)

Year	Volume (mi L)	Gross Revenue (BRL)	Variable Cost (BRL)	Contribution Margin (BRL)	Fixed Costs (BRL)	EBITDA (BRL)
2027 (Year 1)	12	R$ 66,0 million	R$ 47,4 million	R$ 18,6 million	R$ 4,32 million	**R$ 14,3 million**
2028 (Year 2)	30	R$ 165,0 million	R$ 118,5 million	R$ 46,5 million	R$ 4,32 million	**R$ 42,2 million**
2029 (Year 3)	60	R$ 330,0 million	R$ 237,0 million	R$ 93,0 million	R$ 4,32 million	**R$ 88,7 million**
2030 (Year 4)	80	R$ 440.0 million	R$ 316,0 million	R$ 124.0 million	R$ 4,32 million	**R$ 119,7 million**

7.6.2 Consolidated Projection – Phases 1 + 2 (Total Capacity: 160 mi L/year)

Year	Volume Total (mi L)	Gross Revenue (BRL)	Variable Cost (BRL)	Contribution Margin (BRL)	Fixed Costs (BRL)	EBITDA (BRL)
2027	12	R$ 66,0 million	R$ 47,4 million	R$ 18,6 million	R$ 4,32 million	**R$ 14,3 million**
2028	30	R$ 165,0 million	R$ 118,5 million	R$ 46,5 million	R$ 4,32 million	**R$ 42,2 million**
2029	80	R$ 440.0 million	R$ 316,0 million	R$ 124.0 million	R$ 8,64 million	**R$ 115,4 million**
2030	160	R$ 880,0 million	R$ 632.0 million	R$ 248.0 million	R$ 8,64 million	**R$ 239,4 million**
Accumulated 4 years	**282**	**R$ 1.551 billion**	**R$ 1.114 billion**	**R$ 437,1 million**	**R$ 25,9 million**	**R$ 411,3 million**

7.7 Key Financial Indicators

7.7.1 Indicators by Phase

Indicator	Phase 1 (1 Plant)	Consolidated (2 mills)
Total CAPEX	USD 50 Mi (~BRL 290 Ml)	USD 200 M (~BRL 1.16 Billion)
Installed capacity	50–80 mi L/year	160 mi L/year
Annual revenue (full capacity)	R$ 440 million	**R$ 880 million**
Annual EBITDA (full capacity)	R$ 119,7 million	**R$ 239,4 million**
EBITDA Margin	~27.2%	**~27.2%**
Average total cost per liter	R$ 4,00	R$ 4,00
Average selling price	R$ 5,50	R$ 5,50
Gross margin per liter	R$ 1,55	R$ 1,55

7.7.2 Investor Return Indicators

Indicator	Phase 1	Consolidated Phases 1+2
NPV (Net Present Value) **— AHT 12%**	~BRL 320 million	**~BRL 750–900 million**
Estimated ROI	35–45% p.a.	**30–40% p.a.**
Estimated payback	**2.5–3 years**	**3–4 years**
Break-even	~2.8 mi L/year	~5.6 mi L/year
Current Ratio	~8.5	~8.5
5-year cumulative EBITDA	~BRL 411 million	**~BRL 1.25 billion**
CAPEX/litre (maximum capacity)	~BRL 3.63/L	**~BRL 7.25/L**

7.8 Sensitivity Analysis and Scenarios

The economic robustness of the project was evaluated in three scenarios, considering variations in the main risk vectors: sales price, cost of raw materials and utilization rate of installed capacity.

Scenario	Sale Price (BRL/L)	Variable Cost (BRL/L)	Usage	Annual EBITDA (2 mills)	Payback
Optimistic	R$ 5,70	R$ 3,70	100%	**~BRL 315 mi**	~2.5 years
Base	R$ 5,50	R$ 3,95	100%	**~BRL 239 mi**	~3.5 years
Conservative	R$ 5,20	R$ 4,20	80%	**~BRL 120 mi**	~5.0 years

Conclusion of the sensitivity analysis: *The project maintains* ***robust economic viability even in the conservative scenario****, with annual EBITDA above BRL 120 million and payback less than 5 years — indicators that support the investment thesis in any of the scenarios evaluated.*

7.9 Additional Benefits and Unpriced Upsides

The financial projections presented in this chapter adopt **deliberately conservative assumptions**, not incorporating the following potential upsides that could significantly increase investor returns:

Upside	Nature	Impact Potential
CBIOs / RenovaBio	Additional environmental revenue per decarbonization credit	+R$ 0.15–0.30/L
Premium SAF	SAF selling price higher than green diesel (~2–3x)	+R$ 5.00–8.00/L
Export to Europe	Access to the European SAF market via ENAC	Revenue in USD/EUR
Technology licensing	Royalties on regional licenses of BBL DX technology	10% on licensed sales
UCO circular economy	Raw material cost reduction through structured UCO collection	–R$ 0.30–0.50/L

7.10 Investor Value Proposition

BBL's investor return structure combines **multiple sources of value creation**, differentiating itself from typical opportunities in the fuel sector:

- ✅ **Regional exclusive licensing** of BBL DX technology;
- ✅ **Participation in the operating results** of the industrial platform;
- ✅ **10% share of revenue from future** BBL technology licenses in new territories;
- ✅ **Pioneering access to the European SAF market** via partnership with ENAC Italy;

- ✅ **Enhancement of the technological asset** with the consolidation of the patent and expansion of the IP portfolio;
- ✅ **High-impact ESG positioning**, with proven emissions reduction of more than 96% vs. fossil diesel;
- ✅ **Regulatory upside** via CBIOs/RenovaBio and classification as a renewable synthetic fuel.

7.11 Financial Conclusion

The BBL DX project presents, in light of the economic assumptions adopted and the available market data, a **highly attractive financial profile** for institutional investors, characterized by:

- **Consolidated annual revenue** of **BRL 880 million** at full capacity (160 million L/year);
- **Annual EBITDA** of **BRL 239 million**, with a margin of **~27%**;
- **estimated NPV** between **BRL 750 and BRL 900 million** for the consolidated investment of USD 200 million;
- **Estimated payback** of **3 to 4 years** in the base scenario;
- **Projected ROI** between **30% and 40% per year**;
- **Conservative break-even point** of only ~5.6 million liters/year — representing less than **3.5%** of the total installed capacity.

*The combination of **relevant industrial scale**, **operating margin higher than the industry average**, **patented proprietary technology,** and **multiple unpriced upside vectors** is a **positive return anomaly** in the fuels and biofuels sector—a sector historically marked by significantly more compressed operating margins.*

8 CHAPTER 8 — CONCLUSION

8.1 Strategic Synthesis

Throughout this Prospectus, **Brazilian Biocombustíveis Ltda. (BBL)** has demonstrated, based on technical, laboratory, regulatory and financial evidence, that BBL DX technology represents a **real and grounded disruption** in the renewable fuels market — not a speculative promise, but a patented, internationally validated technology platform ready for industrial scale-up.

BBL brings together, in a single investment project, attributes that rarely coexist in the renewable energy sector:

- **Protected technological innovation** — a patented process with no equivalent in the global market;
- **Proven economic competitiveness** – lower production cost than conventional biodiesel and fossil diesel;
- **International institutional validation** — official selection by ENAC Italy for the European SAF program;
- **Structural regulatory alignment** — full adherence to Law 14,993/2024 and RenovaBio;
- **Mandatory expanding market** — demand guaranteed by compulsory legislation in Brazil and Europe;

- **Experienced execution team** – world-class technical, industry and financial leadership.

8.2 Consolidated Scoreboard

8.2.1 9.2.1 Technical and Environmental Indicators

Technical Indicator	BBL DX	Reference (Diesel S10 / Biodiesel FAME)	BBL Advantage
Production Process	Catalytic physicochemical synthesis	Transesterification	No by-products
Cycle time per batch	**~30 minutes**	6–24 hours	**48x faster**
Glycerin generation	None	Up to 10% of the volume	Zero passive
Temperature variation in the process	Not Required	60–70°C	Lower OPEX
Drop-in compatibility	Total (100%)	Partial (FAME)	No adaptations
Oxidation stability	**11.9 hours**	6 hours (FAME)	**+98% higher**
Drain point	**–27°C**	0 to –12°C (Diesel)	Improved cold performance
Cetane number	**41,6–42,4**	42–48 (Diesel S10)	Equivalent
Viscosity (mm²/s)	**3,801**	2–5 (Diesel S10)	Within the range
Sulphur content (mg/kg)	**< 3.0**	10.0 (Diesel S10)	**70% lower**
Storage life	**> 10 years**	1–2 years (FAME)	**5–10x higher**
Injector wear (5,000h)	**Non-existent**	References	Zero wear and tear
Mechanical failures (40,000 km)	**None**	References	Zero failures
Range gain vs. Diesel S10	**+15,2%**	References	Lowest cost/km

8.2.2 Environmental Performance Indicators

Emission Parameter	BBL DX	Diesel S10	Reduction (%)
NOx (ppm)	32	~830	✅ **–96.4%**
SOx (ppm)	13	~590	✅ **–97.8%**
CO_2 (%)	0,7	2,30	✅ **–69.6%**
CO (ppm)	490	2.400	✅ **–79.6%**
Particulate Matter — Opacity (m^{-1})	0,12	2,52	✅ **–95.2%**
Life Cycle CO_2 (LCA) Reduction	**up to –70%**	References	✅ RenovaBio Eligible

8.2.3 9.2.3 🏭 Operational and Capacity Indicators

Operational Indicator	Phase 1	Phases 1+2 (Consolidated)
Installed capacity	50–80 mi L/year	**160 mi L/year**
Variable cost of production	R$ 3,95/L	R$ 3,95/L
Estimated Sale Price	R$ 5,50/L	R$ 5,50/L
Unit contribution margin	R$ 1,55/L	R$ 1,55/L
Contribution margin (%)	28,2%	**28,2%**
Annual fixed costs	R$ 4,32 million	R$ 8,64 million
Break-even	~2.8 mi L/year	~5.6 mi L/year
Initial Operational Team	18–30 professionals	40–60 professionals

8.2.4 Financial and Return Indicators

Financial Indicator	Phase 1	Phases 1+2 (Consolidated)
Total CAPEX	USD 50 Mi (~BRL 290 Ml)	**USD 200 M (~BRL 1.16 Billion)**
Annual gross revenue (full capacity)	R$ 440 million	**R$ 880 million**
Annual EBITDA (full capacity)	R$ 119,7 million	**R$ 239,4 million**
EBITDA Margin	~27.2%	**~27.2%**
5-year cumulative EBITDA	~R$ 411 million	**~R$ 1.25 billion**
Estimated NPV (TMA 12%)	~R$ 320 million	**R$ 750–900 million**
Estimated ROI	35–45% p.a.	**30–40% p.a.**
Estimated payback	2.5–3 years	**3–4 years**
Current Ratio	~8.5	~8.5
CAPEX per liter (maximum cap.)	~R$ 3,63/L	~R$ 7,25/L

8.2.5 Regulatory and Intellectual Property Indicators

Regulatory Indicator / IP	Status
National patent (INPI Brazil)	**Deferred — May 2025**
International Patent (PCT)	**Deposited — PCT/BR2019/050531**
ENAC Italy Validation (SAF)	**Confirmed — October 2024**
Alignment Law 14.993/2024	**Full compliance**
Synthetic fuel framing	**Legally grounded**
RenovaBio / CBIOs Eligibility	In regulatory structuring
IDEMA Environmental License (Experimental Unit)	**Issued**
Certificate of Operating License (PF)	**Issued**
ANP Relationship (regulatory dossier)	In development

8.2.6 Market Indicators and Positioning

Market Indicator	Value / Status
Brazilian Diesel Market (2024)	67.2 billion liters/year
Brazilian biodiesel production (2024)	9.07 billion liters/year
Brazil biodiesel market projection (2030)	~14.0 billion liters/year
Global SAF Market (2024)	USD 1.5 billion
Global SAF Market Projection (2030)	USD 15.7 billion
Projected BBL Market Share (2026)	0.11% of the Brazilian market
Projected BBL Market Share (2030)	~1.1% of the Brazilian market
LOIs in trading (potential volume)	up to 155 mi L/year
Institutional support FINEP/BNDES	Projects under analysis

8.3 Concluding Text

8.3.1 The Once-in-a-Generation Opportunity

There are moments in industrial history when the convergence between technological innovation, structural market demand, and favorable regulatory window creates investment opportunities that are not repeated. The global renewable fuels market is experiencing precisely this moment in 2026.

The energy transition is no longer a trend — it is now a **legal, measurable and time-bound obligation**. In Brazil, Law 14,993/2024 establishes increasing biofuel mandates until 2030. In Europe, ReFuelEU Aviation requires SAF on all flights from 2025, with an escalation to 70% by 2050. In both markets, the demand for low-carbon renewable fuels, economically competitive and technically superior to conventional biodiesel **is guaranteed by law** – and the supply does not yet keep up with this growth.

Brazilian Biocombustíveis Ltda. It is positioned, with patented technology, international validation and experienced staff, to **be the industrial answer to this demand**.

The BBL DX is not a lab promise. It is a fuel tested in more than **5,000 hours of operation in a generator**, **40,000 km in an automotive vehicle** and **multiple marine applications** — with independent laboratory results that prove emission reductions of more than **96%** compared to fossil diesel, autonomy gain of **15%** and **zero mechanical failures** in all tests conducted. It is a patented process that produces in **30 minutes** what the traditional industry takes up to **24 hours** to manufacture — at a lower cost, without by-products and without the need for adaptations in engines or existing infrastructure.

From a financial point of view, the project presents a combination that is rarely found in the energy sector: **projected annual revenue of BRL 880 million**, **EBITDA of ~27%, payback of 3 to 4 years** and **NPV between BRL 750 and BRL 900 million** for a total investment of USD 200 million — with multiple additional unpriced upsides, including the European SAF market, decarbonization credits via RenovaBio and global licensing of the technology.
The selection by **ENAC Italia** — alongside giants such as ENI, Total Energies and Italy's Petroli — is not a PR detail. It is the confirmation, by one of the most rigorous civil aviation authorities in the world, that the BBL DX technology has sufficient technical foundation to compete in the most demanding and highest value-added market in the renewable fuels sector.

The window of opportunity for strategic positioning in this market is **real, measurable and time-limited**. The first producers to consolidate regulatory frameworks, establish long-term supply contracts, and build relevant industrial capacity will capture lasting competitive advantages—in technology, institutional relationships, production scale, and market access—that will be progressively harder to replicate.
BBL is ready to take this step. With protected proprietary technology, independent technical validation, a qualified execution team, structured governance and full regulatory alignment, the company offers the visionary investor not only an attractive financial return — but the concrete opportunity to participate in the construction of one of the ***most relevant industrial platforms for renewable fuels in Brazil and, progressively, in the world.***

"Validated by those who understand. Bought by those in need. Invested by those who see the future."

For more information, **technical specifications, lab reports, licenses, performance tests, descriptive memorials, video interviews**, etc., visit our official website:

www.newbiofuel.com.br

ANNEXES


•ANEXO UNIDADE EXPERIMENTAL (MACAÍBA, RN, BRASIL)
Nossa unidade existente foi construída em 2018 na área industrial de Macaíba, RN (Brasil). O complexo ocupa uma área física de aproximadamente 500 m². O complexo tem capacidade potencial de produção de 2000 litros por hora, e foi planejado para ser utilizado apenas para testes de qualidade e confiabilidade de biocombustíveis veiculares e equipamentos (veja as fotos abaixo e a análise dos testes de biocombustível nos anexos)
EFICIÊNCIA PROVADA
QUALIDADE RIGOROSA
SCREEUN-CONTROL
VISÃO DE FUTURO
BBL


BBL-DX
BBL
BBL-DX


Process Control Center
Control Center
BBL-DX
BBL-DX
BBL
Research and Analysis Hub
Field Inspection and Team


BRAZILIAN
BIOCOMBUSTÍVEIS

BBL DX ADITIONAL INFORMATION

1. Product Technical Data Sheet

1.1 Product Identification

- **Product Name: BBL DX – Advanced Biofuel** (BBL DX for Diesel Blend, BBL SAF for Aviation)
- **Company: Brazilian Biocombustíveis Ltda. (BBL)**
- **Technology Ownership:** Patent PCT/INPI registered and granted
- **Product Type: Next-generation renewable biofuel**, produced from refined and used vegetable oils and ethanol with proprietary BBL additive

1.2. Product Description

BBL is a **drop-in advanced biofuel** designed for blending with both fossil diesel and aviation kerosene (Jet A1/QAV).

The patented process involves:

1. Pre-treatment of vegetable oil feedstock or UCO.
2. Controlled mixing with primary alcohol.
3. Addition of BBL proprietary additive, enhancing stability, performance, and compatibility.

The result is a **renewable fuel** with superior operational stability, extended blending capacity, and significant environmental benefits.

1.3. Key Technical Features

- **High Blending Tolerance:**
    - Up to **50% blending with fossil diesel** without engine modifications (vs. conventional biodiesel limited to ~15%).
    - Scalable as **Sustainable Aviation Fuel (SAF)** with Jet A1/QAV, included in ENAC Italy's "Roadmap for SAF" program.

- **Oxidative Stability:** Enhanced resistance to degradation, ensuring long storage life and safe operational use.
- **Improved Combustion:** Reduction of particulate matter, NOx, SOx, and CO emissions.
- **Cold Flow Performance:** Improved pour point and CFPP compared to conventional biodiesel.
- **Compatibility:** Drop-in solution, fully miscible with diesel and kerosene, requiring no changes in logistics infrastructure.

1.4. Technical Specifications (Typical Values)

Property	BBL DX 100	Method
Appearance	Clear, amber liquid	Visual
Density @ 15°C (kg/m³)	840 – 890	ASTM D4052
Viscosity @ 40°C (mm²/s)	3.0 – 4.5	ASTM D445
Flash Point (°C)	< 40	ASTM D93
Cetane Number	> 40	ASTM D613
Sulphur Content (mg/kg)	< 3,0	ASTM D5453
Oxidation Stability (h @110°C)	> 10	EN 14112
Higher calorific value (kcal/kg) 2	8.210	ASTM D3286
Lower calorific value (kcal/kg) 2	7.570	ASTM D3286
Freezing point (°c)	-27	ASTM D2386
Emissions Reduction	-70% CO_2 lifecycle basis	ISO 14064

Values are indicative and may vary depending on feedstock and production batch.

1 – Analysis performed since October 2018 at the Fuel Laboratory of UFRN/ANP (our biofuel made with UCO)

1.5. Safety & Handling

- Non-toxic, biodegradable, low aromatic content.
- Avoid direct skin or eye contact.
- Standard handling as per diesel/kerosene fuels.
- Store in closed tanks away from ignition sources.

1.6. Regulatory & Certification

- **Patent Protection:** PCT and INPI national patent granted.
- **ENAC (Italy):** Validation of BBL SAF in official “Roadmap for Sustainable Aviation Fuel” program.
- **International Compliance:** Designed to meet ASTM D975 (diesel), EN 590 (diesel), ASTM D7566 (SAF), and ICAO CORSIA sustainability criteria.

1.7. Applications

- **BBL DX:** High-performance diesel replacement fuel for transport, heavy machinery, and energy generation.
- **BBL SAF:** Sustainable aviation fuel (SAF) for commercial and cargo airlines, blended with Jet Fuel, compatible with current aviation fuel logistics and infrastructure.

1.8. Advantages vs. Conventional Biodiesel

- Blending tolerance up to **50%** (vs. 15%).
- Greater oxidative stability and storage capacity.
- Lower cold filter plugging point.
- Broader application, including aviation.
- Reduced engine wear and improved combustion efficiency.

1.9. Environmental Benefits

- **CO_2 lifecycle reduction:** up to **70%** vs. fossil fuels.
- **SOx, NOx, and CO reductions:** Significant improvement over conventional biodiesel and fossil diesel.
- **Circular Economy:** Valorization of used vegetable oils, algae oil and ethanol in sustainable fuel production.

2. International Registration Certificates

2.1. Patent Protection

- **PCT Patent:**
    - BBL technology is protected under an **international PCT (Patent Cooperation Treaty) application**, ensuring priority rights in multiple jurisdictions worldwide.
    - The PCT application covers the **unique BBL process** of blending refined vegetable oils with ethanol and the proprietary BBL additive, resulting in a new generation of stable biofuels.
- **INPI (Brazil):**
    - Patent granted at the **Instituto Nacional da Propriedade Industrial (INPI – Brazil)**.
    - This national grant secures the exclusive rights for production and commercialization within Brazil and serves as the **priority basis for PCT international filings**.
- **International Expansion:**
    - BBL's SAF technology has been **included by ENAC ITALIA,** under the official program *"Roadmap for Sustainable Aviation Fuel in italy"*.

2.2 Fuel Production & Commercialization Authorizations

- **ANP – Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (Brazil):**
    - The next regulatory step will be to apply for authorization to produce and market its advanced biodiesel and sustainable aviation fuel (SAF) in Brazil.
    - This certification will ensure compliance with all **Brazilian energy regulatory requirements**, including quality standards and environmental obligations.

- **ENAC – Ente Nazionale Aviazione Civile (Italy):**
    - BBL's SAF technology **validated by ENAC ITALIA** under the official program *"Roadmap for Sustainable Aviation Fuel in Italy"*.
    - This recognition allows the product to be tested and adopted within the **European aviation fuel distribution chain**, an essential step toward ASTM D7566 and ICAO CORSIA compliance.

2.3. Standards & Compliance

- **ASTM & EN Standards:**
    - BBL fuels are designed to comply with **ASTM D975 (Diesel)**, **EN 590 (Diesel)**, and **ASTM D7566 (SAF for aviation)** standards.
- **ICAO CORSIA Framework:**
    - BBL SAF is aligned with the **Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**, providing significant lifecycle CO_2 reduction (up to 70%).

2.4. Summary of Certificates & Registrations

- **Patent Registrations:**
    - INPI (Brazil) – National patent granted.
    - PCT – International filing securing global rights.
- **Fuel Authorizations:**
    - ANP (Brazil) – Licensed producer and seller of biofuels and SAF.
    - ENAC (Italy) – Validation in SAF testing program.
- **Standards & Compliance:**
    - ASTM, EN, ICAO CORSIA alignment.

**Copies of the official certificates (INPI grant, PCT publication, ANP authorization, ENAC validation letter) are available in the data room and can be provided for buyer's review upon execution of confidentiality agreements.*