Solid biofuels | Carbon credits | Soil restoration

Accelerating the energy transition in the Dominican Republic

Introduction

Dominican Republic project

In 2020, Jord launched its second project. This time in the San Pedro de Macorís Province, located in the central region of the Dominican Republic. This area holds strategic importance due to its proximity to Santo Domingo and its historical role in the sugar industry. Jord's project is established on degraded and marginal lands, including low-productivity areas previously used for sugarcane cultivation. The initiative employs a regenerative agroforestry model centered around perennial C4 grasses. This approach aims to regenerate the soil, enhance biodiversity, and support the development of an agricultural system for sustainable biomass production.

Regional insights and trends

The Dominican Republic's energy sector, emissions profile, and soil health reveal critical insights into the country's sustainability challenges and opportunities. Understanding these regional trends is essential for developing strategies to reduce dependence on fossil fuels, curb emissions, and address land degradation.

Energy

The Dominican Republic is a sun-rich island with abundant biomass resources, yet **80% of its energy** comes from fossil fuels.[1] In 2021, renewable energy accounted for **17%** of the country's power generation.[2]

Emissions

Energy-related CO_2 emissions rose by **52%** since 2000, totalling **27 million tons** in 2021 [3]. Notably, coal combustion contributed to **24%** of these emissions.[4]

Soil

Currently, **69%** of the country's land is at risk of desertification, with **11%** already degraded.[5]

Objectives

Goals in the Dominican Republic

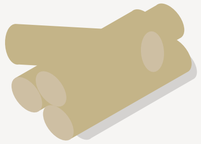
The Dominican Republic's natural resources and biodiversity are under threat from human activities and climate-related challenges.

Supporting local landowners with strategies to combat soil degradation and reduce CO_2 emissions is essential for preserving biodiversity, sustaining agriculture, and supporting local communities.

In 2030 Jord aims to:

Restore **5,000 ha** of degraded or marginal land.

Avoid and sequester **~350,000 tons of CO_2**.



Produce **200,000 tons** of renewable biofuel.

Dominican Republic

San Pedro de Macorís

The project began in 2020, and by 2024, the farm had expanded to 500 hectares. We are currently 22FTEs in the Dominican Republic working to expedite the global energy transition. Our goal is to produce pellets and renewable biofuel on a large scale to facilitate the transition from fossil fuels to renewable biofuel, and in the process remove carbon from the atmosphere.

Project overview

Start date

2020

Hectares

500

Products

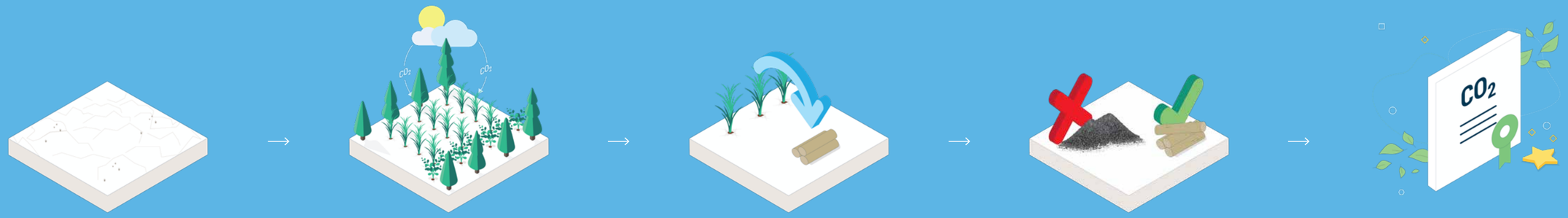
Solid biofuels

FTEs (as of September 2024)

22

The solution

Our holistic approach



1. Jord establishes plots on marginal and degraded lands, implementing a regenerative agroforestry.
2. C4 grass absorbs CO_2, storing it in biomass, roots, and soil.
3. Jord transforms the C4 grass into solid biofuels.
4. Companies replace fossil fuels with Jord's solid biofuels.
5. Jord generates carbon credits, which companies purchase to reduce hard-to-abate emissions.

The feedstock

Harnessing C4 grasses

The demand for pellets has surged in recent years due to the global shift away from fossil fuels, highlighting the need to scale up renewable fuel production. The agricultural sector can support this expansion through dedicated energy crops like C4 grasses, which are ideal for sustainable pellet production due to the following advantages:

High biomass yield
Approximately 40 t/ha per year.

Adaptability to degraded soils
Tolerant to heat, drought, and salinity, which are common in degraded soils.

High lignin content
Acts as a natural binding agent for high-quality pellets.

Photosynthetic efficiency
Improved nutrient and water use.

Perennial nature
Reduces tillage and increases below-ground biomass.

Carbon sequestration
Efficient in sequestering carbon in the soil, thanks to their deep root systems.

Project overview

Industrial site

15,000 m²

Built area

2,000 m²

Solar power capacity

736.9 MWh

The facility

Densifying raw biomass

Powered by solar panels, our facility generates 736.9 MWh of clean energy annually, significantly reducing our carbon footprint.

Located in the San Pedro de Macorís province, our facility benefits from its proximity to the fields, offering excellent accessibility and infrastructure to meet the growing biofuel demand in the Dominican Republic. Key features of the industrial site include:

- An industrial site where pressing and pelletization machines are installed.
- Production area, including office, storage and shop buildings.
- Powered by solar panels generating, significantly reducing our carbon footprint.

Biomass

Pressed grass

Jord’s pressed C4 grasses are a sustainable biomass source with high energy value, ideal for industrial processes that require heat and power. Grown on marginal lands, they do not compete with agricultural land or contribute to deforestation. As a perennial crop, they allow for multiple harvests per year, ensuring a continuous supply. Additionally, they have low ash, sulfur, and chlorine content, which enhances combustion efficiency.

Pressed grass

Energy content	≥ 17,52 MJ/kg
Moisture content	≤48%
Ash content	<5%
Sulfur content	≤ 0,08

Biofuels

Fuel pellets

Jord processes C4 grass into white and black pellets, optimized by pressing and drying to reduce moisture. White pellets are produced by directly pelletizing the pre-treated grass, resulting in compact, high-energy pellets with low ash and moisture content, ideal for power generation. Black pellets undergo an additional torrefaction step, enhancing their density, energy content, grindability, and water resistance.

White pellets

Energy content	≥18 MJ/kg
Moisture content	≤10%
Ash content	<5%
Sulfur content	≤ 0,08

Black pellets*

Energy content	≥20 MJ/kg
Moisture content	≤5%
Ash content	<5%
Sulfur content	≤ 0,08

*This information is subject to change and will be updated as soon as we have samples available for testing.

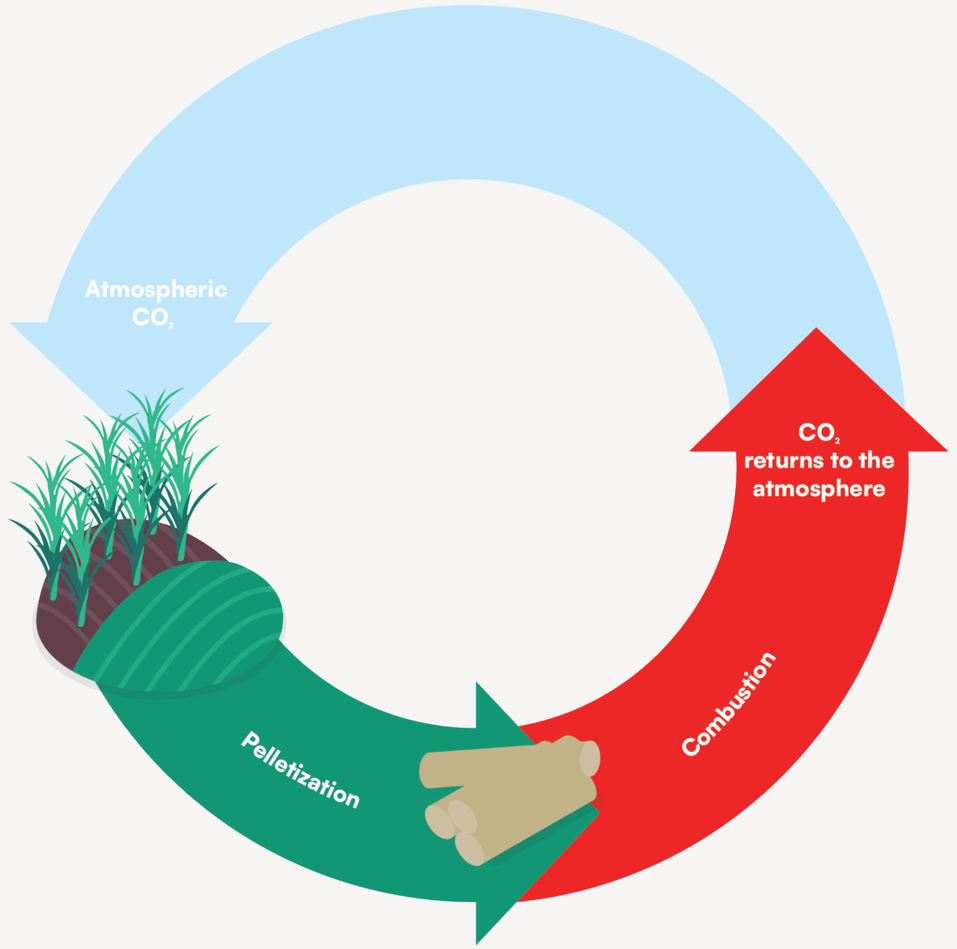
The transition

Replacing fossil fuels

As a solid biofuel, pellets are among the most versatile and efficient renewable energy sources. They are a high-energy heating material that can replace fossil fuels.

Burning fossil fuels releases carbon that has been stored underground for millions of years, adding new CO_2 to the atmosphere and intensifying human-induced climate change. In contrast, burning grass pellets harmonizes with nature's balanced carbon cycle. The CO_2 emitted during combustion is offset by the carbon absorbed by the grasses as they grow, creating a sustainable, closed-loop system that nurtures our planet.

We supply clients with high energy needs, using our pellets to replace fossil fuels such as coal in industrial heat and power generation. While coal remains a common energy source, switching to Jord pellets significantly reduces fossil CO_2 emissions because Jord's fuel pellets are CO_2e negative.



Do you have hard-to-abate emissions?

Carbon credits

Jord offers a portfolio of carbon credits targeting both carbon avoidance and removal. This comprehensive approach enables us to tailor carbon solutions to the diverse needs of businesses committed to reducing their carbon footprint.

Fuel switch

Mechanism: Avoidance
Pathway: Fuel switch

Avoiding the release of new carbon into the carbon cycle and reducing reliance on fossil fuels. DNV, an independent certification body, has validated the methodology.

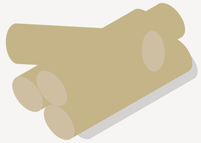
Soil sequestration

Mechanism: Removal
Pathway: Soil carbon sequestration

Storing carbon in the soil and deep root systems of C4 grass, ensuring long-term sequestration. These credits are based on Jord's DNV-validated methodology.

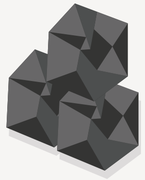
Environmental and social

Impact in the Dominican Republic



~20,000 tons of pellets produced annually.

+



~20,140 tons of lignite coal could be replaced each year.

+

~35,000 tons of new CO_2e emissions avoided annually.

+

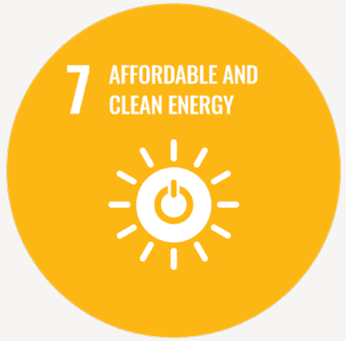
500 hectares of degraded land under regeneration.

+

22 direct jobs created in San Pedro de Macorís.

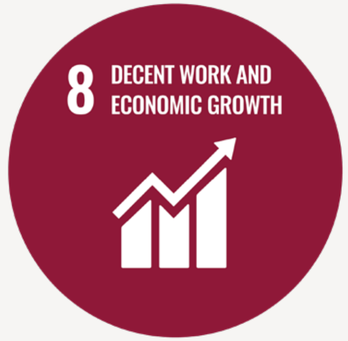
Addressing 4 key

SDGs



Clean energy
Produce clean energy from 100% sustainable biofuel.

40,000 tons
sustainable biofuel per 1,000ha.



Responsible repurposing
To decouple economic growth from environmental degradation.

,

0% layoffs
expected as a result of repurposing.

Carbon removal
Jord will capture carbon in the ground in the same process that produce biofuel

,

11,000 tons
CO_2 stored in 1,000ha.

Regenerating soils
Regenerating large areas of marginal land, improving soils and biodiversity

3,000ha
planted by end of 2026.

Jord

Partnership

LCA

CHM ANALYTICS

Methodology validation

DNV

Project partners

Votion

TEXEL®

Explore the

Reference

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