Information on the Reduction of the Carbon Footprint

as a result of the implementation of Financing Contract BG-RRP-3.008-0871-C01

As part of its sustainable development strategy and the implementation of circular economy principles, during the period June 2024 – December 2025, POBEDA AD, Burgas, implemented an investment for the introduction of two highly specialized assets – new packaging lines for rectangular-shaped biscuits and for coated biscuits. The investment is aimed at optimizing production processes, achieving more efficient use of raw materials and reducing waste generation, which leads to a reduction of the carbon footprint of the manufactured products.





The Company consistently implements a policy aimed at reducing the carbon footprint of its activities by following a sustainable investment program for the introduction of highly efficient production assets. Financing Contract BG-RRP-3.008-0871-C01 “Support for the Transition to a Circular Economy” addresses challenges in the production process related to packaging operations, which result, on the one hand, in product rejects and excessive use of raw materials, and on the other hand, in excessive use of single-use plastic packaging. The implemented assets – a packaging line for rectangular-shaped biscuits and a packaging line for coated biscuits – represent state-of-the-art technology and perform highly precise packaging, contributing to a reduction in waste generation and raw material input per unit of product.

Environmental Effects of the Implemented Packaging Lines

Following the introduction of the packaging line for rectangular-shaped biscuits, a significant reduction has been achieved in the quantity of materials unfit for consumption and processing, as well as in plastic packaging waste and other mixed waste materials. This results in lower resource consumption per unit of product and, accordingly, a reduction in associated greenhouse gas emissions.

The implemented packaging line for coated biscuits contributes to a reduction in the amount of plastic used (PP film) in packaging, which limits the use of raw materials and leads to an additional reduction of the carbon footprint of the products.

Reduction of Food Waste

After the introduction of the new packaging lines, a significant reduction in materials unfit for consumption and further processing (waste code 02 06 01) has been recorded – from 2.740 kg to 1.475 kg per 100 kg of produced biscuits, representing a reduction of 46.15%. This reduction is the result of higher packaging precision, improved synchronization between production stages, and lower technological losses.

Optimization of Packaging Material Use

The implemented packaging line for coated biscuits allows a reduction in the use of polypropylene (PP) film from 9.332 g/kg to 8.700 g/kg of produced biscuits, representing a reduction of 6.77%. This leads to lower consumption of plastic raw materials and a corresponding reduction in "embedded" emissions associated with the production of packaging materials.

Reduction of Generated Waste

As a result of production process optimization, a substantial reduction has been achieved, calculated per 100 kg of produced biscuits:

- ✓ Plastic packaging waste (code 15 01 02): 61.19%
- ✓ Other mixed waste (code 19 12 12): 62.13%.

Table 1. Waste Reduction

Waste type	Before investment	After investment	Reduction
Materials unfit for consumption (020601)	2,740 kg / 100 kg	1,475 kg / 100 kg	46,15%
Plastic packaging (150102)	0,178 kg / 100 kg	0,069 kg / 100 kg	61,19%
Other waste (191212)	0,486 kg / 100 kg	0,184 kg / 100 kg	62,13%

Table 2. Optimization of Plastic Use

Indicator	Before	After	Change
PP film used	9,332 g/kg	8,700 g/kg	-6,77%

Quantitative Assessment of Carbon Footprint Reduction

Methodological Approach

The assessment of carbon emission reductions was conducted based on material balance principles (Mass Balance Logic) used in Life Cycle Assessment (LCA). Reductions were determined by comparing actual reported data on material use and waste generation before and after the investment and by applying conservative average emission factors. The assessment is indicative in nature and intended to inform consumers and stakeholders.

Based on the recorded reductions in material use and waste generation and the application of average expert emission factors, the implemented packaging lines result in an indicative annual reduction of carbon emissions of approximately 13.4 t CO_2e.

Table 3. Expected CO_2e Savings

Source	t CO_2e /year	Nature
Lower PP film use	≈ 0,4	Indicative
Reduced plastic waste	≈ 2,9	Indicative
Reduced food waste	≈ 10,1	Indicative
Total	≈ 13,4	Expected

Carbon Footprint Indicator per Unit of Product: CO_2e per 100 kg of Biscuits

With an estimated annual production of approximately 1,606,390 kg of biscuits (rectangular-shaped and coated), the indicative reduction of the carbon footprint amounts to approximately 0.8 kg CO_2e per 100 kg of produced biscuits. The values presented are indicative, based on averaged expert data, and are intended for informational purposes.

Reduction of materials unfit for consumption (02 06 01) leads to lower consumption of primary food raw materials for the production of the same quantity of final product. This avoids emissions associated with the cultivation, processing, transport, and storage of these raw materials – the so-called "embedded" emissions.

Quantitative results:

- Reduction:

2,740→1,475 kg / 100 kg

Δ = 1,265 kg food waste/ 100 kg

- Annual production:

1 606 390 kg

- Annual saved raw material mass:

1 606 390 × 1,265% ≈ 20,3 t/year

- Typical emission factor for processed food products::

0,5 – 1,2 t CO_2e / t (LCA literature)

Avoided emissions: ≈ 10,1 – 24,4 t CO_2e / year.

(For conservative reporting purposes, 10.1 t CO_2e/year is applied

Avoided Emissions from Reduced Plastic Use (PP Film)

Reduction per 1 kg of biscuits

- Δ PP film = 9,332 – 8,700 = 0,632 g/kg

The reduction applies to a share of the total annual production packaged on the specific production line.

Based on actual production data, this corresponds to approximately:

≈ 0.22 tonnes of PP film saved annually

Using an average emission factor for polypropylene production of ≈ 1.7 – 2.0 t CO_2e /t, the estimated annual emission reduction is: ≈ 0.4 t CO_2e / year.

Avoided Emissions from Reduced Plastic Packaging Waste:

In this category the following reduction is generated: 0,178 kg - 0,069 kg -> Δ = 0,109 kg / 100 kg
Annual production 1 606 390 kg = 16 063,9 × 100 kg
Plastic waste avoided annually: 16063,9×0,109kg≈1751kg≈1,75t plastic waste
Emission factors for mixed plastic waste treatment 1,5 – 2,0 t CO_2e / t
Conservative estimate: 1,75t × 1,65≈2,9 tCO_2 /year.

Downstream Waste Treatment Impacts

Additional emission reductions arise from lower volumes of waste from transport and treatment.

Estimated savings range between: 0.1 – 0.3 t CO_2e / t of mixed waste.

Company Policy of Pobeda AD for Sustainable Production and Consumer Information

Pobeda AD is a Bulgarian company with established positions on the Bulgarian and international markets, known for its long-standing traditions combined with a modern, responsible, and future-oriented corporate policy. In its activities, the Company consistently applies European and international requirements and standards for high quality, safety, and environmentally friendly production.

In carrying out its production activities, Pobeda AD purposefully invests in the implementation of modern, highly efficient, and energy-saving machinery and equipment, as well as in the optimization of its production processes. A key focus of the Company's corporate policy is the reduction of resource consumption, the limitation of waste generation, and the promotion of waste recycling, in line with the principles of the circular economy. In today's economic and societal context, the issue of carbon footprint is gaining increasing importance. The carbon footprint serves as an indicator of the amount of greenhouse gas emissions generated throughout the entire life cycle of a product — from the extraction and processing of raw materials, through manufacturing and packaging, to distribution and final consumption.

Through the implementation of a project under BG-RRP-3.008 "Support for the Transition to a Circular Economy of Enterprises", Pobeda AD introduced two new packaging lines into regular production – for rectangular-shaped biscuits and for coated biscuits – which contribute to reducing packaging material use and waste generation. The management of Pobeda AD assumes a long-term commitment to consistently inform consumers about the applied circular models through the company product catalog, technological documentation, and product packaging.

Methodological Framework and Sources Used

The indicative calculations of carbon footprint reduction (CO_2e) presented in this document are intended to inform consumers and stakeholders and do not constitute a full or certified Life Cycle Assessment (LCA). The applied approach is $CO_2e_saved = \Delta m \times EF$, where Δm = saved material quantity (t) and EF = emission factor (t CO_2e / t).

The methodology is based on material balance principles (Mass Balance Logic), widely used in environmental assessments and life cycle analysis. Carbon emission reductions are assessed based on actual differences in material use and waste quantities before and after the investment.

The calculations are based on established methodologies and publicly available sources, including:

- GHG Protocol – Corporate Accounting and Reporting Standard;
- ISO 14064 и ISO 14067;
- European Environment Agency (EEA);
- IPCC Guidelines for National Greenhouse Gas Inventories (2006);
- Published LCA studies on plastic production and waste treatment.