Executive Summary: Current Situation Analysis of Lithuania's Bioeconomy

WHAT IS THE BIOECONOMY?

The bioeconomy refers to the range of **economic activities** that **transform renewable biological resources**, such as plants and microorganisms, **into bio-based products**, such as food, feed and energy.[1] It spans **four pillars**: ecosystem condition, primary production, secondary processing, and waste and circularity. *(See page 1)*

€6 BILLION VALUE ADDED (2022)

WHY IS THE BIOECONOMY IMPORTANT?

The bioeconomy is a key driver of strategic and sustainable growth, accelerating the transition into a more **competitive** and **circular economy**. The **new EU Bioeconomy Strategy (2025)** and **Lithuania's 2027 EU Council Presidency** present an opportunity to align EU and national strategic goals. (*See page 2)*

WHAT IS THE CURRENT SITUATION IN LITHUANIA?

In Lithuania, the bioeconomy's contributions to GDP **grew** from **6,8%** in 2010 to **8,9%** in 2022. Agriculture remains Lithuania's dominant bioeconomy sector in value, biomass output, and funding. (*See page 3)*

71% HARVESTED GRAIN EXPORTED (2023)

WHAT ARE THE MAIN CHALLENGES?

The main challenges relate to a **reliance on low value primary sectors**, environmental sustainability gaps, technological and innovation bottlenecks, and strategic fragmentation. *(See page 4)*

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Four Pillars of the Bioeconomy

Ecosystem condition describes the quality of freshwater, marine, agricultural, forest and urban ecosystems. It includes ecosystem management services, which help maintain ecosystems in a healthy and well-functioning state.

Primary production is the part of the economy that produces biomass. Included within this sector are the agricultural, forestry, fishing and aquaculture industries.

Secondary production transforms raw biomass into value-added products. This sector includes the food, bioenergy, biochemical and biomaterial industries.

Waste and circularity are the processes of recovering and managing biowaste and food waste. It includes waste management services that recover or recycle these materials so that they can be transformed into new products or energy.

Low- vs. High-Value Added Applications in Bioeconomy

Low Value	High Value
Selling forestry residues as low-value raw material like **fuel**.	Manufacturing **bio-based composites** and **lignin-derived materials** through biorefinery processes.
Using sugar beet or starch by-products for animal **feed**.	Converting them into **bioplastics** (PLA, PHA) and platform **biochemicals** via microbial or enzymatic processes.

[1] Vitunskienė V., Aleksandravičienė, A. *Bioeconomy Concept Paper – Lithuania*, 2023 https://bioeast.eu/knowledge-platform/bioeconomy-concept-paper-lithuania-2023/; Directorate-General for Environment, *A Strategic Framework for a Competitive and Sustainable EU Bioeconomy, European Commission*, European Commission, November 27, 2025. https://environment.ec.europa.eu/document/download/dbf8d2ba-9332-4f7a-b336-f356fa4b7236_en?filename=COM_2025_960_1_EN_ACT_part1_v10_0.pdf

WHY IS THE BIOECONOMY IMPORTANT?

The bioeconomy is a key driver of strategic and sustainable growth, accelerating the transition to a more competitive and circular economy.[2]

Economic importance

- The EU bioeconomy generates **€2.3 trillion** in turnover and **18 million jobs**.
- It is a cornerstone of **rural development**, **resilience**, and **industrial competitiveness.**

Environmental importance

A strong bioeconomy helps Lithuania and the EU to:

- reduce fossil-based material use,
- restore soils and ecosystems,
- lower greenhouse gas emissions,
- advance circularity and reduce waste,
- support climate adaptation.

The bioeconomy directly contributes to **13 of 17 Sustainable Development Goals**, including climate action, biodiversity, clean energy, water, and sustainable production.

Strategic political opportunity

The adoption of the **2025 EU Bioeconomy Strategy**[3] underscores the importance of the bioeconomy in the EU's strategic agenda, with policy actions planned for implementation between 2025 and 2030. Lithuania's **2027 EU Council presidency** presents a timely opportunity to align Council discussions with the Strategy's priorities and help shape the future direction of the EU bioeconomy.

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[2] Maguire, B., *EU Eyes New Bioeconomy Strategy to Boost Competitiveness*, Euractiv, July 3, 2025. https://www.euractiv.com/news/eu-prepping-a-new-bioeconomy-strategy-to-boost-competitiveness/; https://biconsortium.eu/sites/biconsortium.eu/files/publications/Bioeconomy%20Strategy%202025.pdf

[3] Directorate-General for Environment, *A Strategic Framework for a Competitive and Sustainable EU Bioeconomy, European Commission*, European Commission, November 27, 2025. https://environment.ec.europa.eu/document/download/dbf8d2ba-9332-4f7a-b336-f356fa4b7236_en?filename=COM_2025_960_1_EN_ACT_part1_v10_0.pdf

WHAT IS THE CURRENT SITUATION IN LITHUANIA?

Economic structure[4]

- **€6 billion** value added, or **8.9% of GDP** (2022)
- Employment: **180,700 people**
- Growth rate: **+5.5% annually** (outpacing overall GDP).

Sector distribution[5]

The agricultural sector, and primary production in general, are key drivers of economic growth in Lithuania's bioeconomy:

- **Agriculture** – 35% of value added; 38% of employment (2022)
- **Wood, furniture, food processing** – key sectors with significant shares in value added and the labour market
- **Forestry & paper** – moderate contributions
- Emerging sectors (marginal contributions): biochemicals, biomaterials, textiles, bioenergy

Biomass

Biomass production is a key strength of Lithuania's bioeconomy, driven by the country's abundant natural resources:

- 50% agricultural land and 33% forest.
- Biomass production has grown **1.6× since 2008**, with grain production nearly doubling
- Grain self-sufficiency rate: **313%** (2023)[6]

Policy landscape

An analysis based on interministerial data identified key areas of support within Lithuania's policy landscape.

- Strongest policy support: **ecosystem condition** and **primary production.**
- Weakest policy support: waste & circularity.
- **Funding heavily concentrated in agriculture**.

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4 Lasarte López, Jesús; González Hermoso, Hugo; Tamošiūnas, Saulius; Porc, Olaf; Poranki, Narendar; M'barek, Robert (2022): *Jobs and wealth in the EU bioeconomy,* European Commission, Joint Research Centre (JRC) [Dataset] PID: http://data.europa.eu/89h/7d7d5481-2d02-4b36-8e79-697b04fa4278

5 *Ibid*

6 Invest Lithuania, *Life Sciences in Lithuania*, n.d., https://investlithuania.com/wp-content/uploads/Life-Sciences-in-Lithuania.pdf

WHAT ARE THE MAIN CHALLENGES?

Though biomass production is a key strength of Lithuania's bioeconomy, the practice of exporting biomass primarily as a raw material limits the growth and development of higher value-added bioeconomic sectors. The main barriers include:

1. Reliance on low-value added activities

- **Ranked 4th in EU** for wheat exports with **71%** of grain exported as **raw material (2023)**.[7]
- In 2018, only **18% of mill outputs were processed** into products.[8]
- High-value applications (biochemicals, biomaterials, fermentation-based products) remain underdeveloped **despite biomass potential** (313% grain self-sufficiency).

2. Environmental sustainability gap

- Intensive conventional agriculture strains soils and ecosystems.
- **Circularity rate: 3.9%** (EU average: 11.8%),[9] with waste, biowaste, and nutrient recycling systems lagging behind.

3. Technological and innovation bottlenecks

- Lack of **biorefineries** and **modern processing facilities**.
- Limited integration of biotechnology into traditional sectors, prevents upscaling despite biomass surplus.[10]
- Producers often face low global commodity prices and few local alternatives.

4. Strategic fragmentation

- **No dedicated national bioeconomy strategy.**
- Policy efforts concentrated in ecosystems and agriculture, with more limited support for innovation, circularity, or industry scale-up.

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[7] Ministry of Agriculture of the Republic of Lithuania, *Lithuanian Agrifood Sector*, February 18, 2021,https://zum.lrv.lt/uploads/zum/documents/files/LT_versija/Naujiena/Leidiniai/Lithuanian_agrifood_sector_2020.pdf

[8] Bio-based Industries Consortium, *Mapping Lithuania's bio-based potential*, May 4, 2020, https://biconsortium.eu/publication/mapping-lithuanias-bio-based-potential

[9] *Circular Material Use Rate*, Lithuania: Europe's Environment 2025 (EEA), September 29, 2025. https://www.eea.europa.eu/en/europe-environment-2025/countries/lithuania/circular-material-use-rate.

[10] Kubilius, E., *Food or Fuel? As Wheat Prices Fall, Some Lithuanian Farmers Are Burning Their Crops, LRT*, October 23, 2025. https://www.lrt.lt/en/news-in-english/19/2722503/food-or-fuel-as-wheat-prices-fall-some-lithuanian-farmers-are-burning-their-crops?srsltid=AfmBOorIxy-oJDM9wH2v3sLASmfSwEbzOqORrRa7opOh330tf9_iKevp