BOOST

Bioeconomy project accelerator

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De-risking Bioeconomy Projects

Mechanisms and Opportunities in Catalonia

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Why de-risking matters

The bioeconomy is a key pillar of Europe's green and industrial transition. However, many bioeconomy projects still struggle to progress beyond pilot and demonstration stages due to technical uncertainty, high capital requirements, regulatory complexity and immature markets.

De-risking mechanisms help reduce, redistribute or stabilise these risks, making projects more bankable and better aligned with investor expectations. De-risking does not eliminate risk; it brings it within acceptable risk-return expectations for investors, financial institutions and industrial stakeholders.

No single instrument is sufficient. Effective de-risking requires a coordinated combination of financial and non-financial mechanisms.

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Risks across the project lifecycle

FEASIBILITY
TRL 3-5

- Low technological maturity
- Lack of data and validation
- Limited early-stage capital
- Weak investment readiness

DEMONSTRATION
TRL 5–7

- Scale-up and FOAK risk
- High pilot and demonstration CAPEX
- Limited access to infrastructure
- Permitting and coordination bottlenecks

SCALE-UP
TRL 7–9

- Very high industrial CAPEX
- Financing gaps and long payback periods
- Limited risk-sharing mechanisms
- Need to demonstrate commercial and financial credibility

MARKET DEPLOYMENT
TRL 9

- Weak demand and market pull
- Low price competitiveness
- Uncertain revenues
- Unstable policy and market conditions

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As risks evolve, the mechanisms used to address them must also change.

The de-risking toolkit

1

Financial mechanisms
Reduce capital exposure, financing gaps and perceived investment risk.

2

Technical and project-development mechanisms
Support validation, scale-up, project structuring and investment readiness.

Regulatory and permitting mechanisms
Reduce delays, unclear compliance pathways and policy uncertainty.

3

Market and value-chain mechanisms
Improve feedstock security, demand visibility and revenue predictability.

4

Mechanisms at a glance

1 Financial mechanisms

Blended finance
Combines grants, guarantees, concessional loans, equity and private capital to improve bankability and optimise risk allocation.

Public guarantees
Cover part of potential losses and can unlock private debt for near-bankable and FOAK projects.

Equity co-investment
Provides patient capital and shares risk with private investors, particularly at early stages.

Subsidies
Reduce the cost of technical validation, demonstration and early industrial deployment.

Tax reductions
Lower R&D and investment costs but do not solve high CAPEX or market barriers alone.

Output- and performance-based financing
Links support or revenues to verified outputs, milestones or environmental performance.

Mechanisms at a glance

2 Technical and project development

Shared pilot and demonstration infrastructure
Allows companies to test and validate processes without building their own facilities.

Advisory platforms
Provide technical assistance, resource mapping, legal and governance support, business-model development and connections with financiers.

Mechanisms at a glance

3 Regulatory and permitting

Regulatory support and permitting facilitation
Includes guidance, one-stop shops, fast-track procedures and regulatory sandboxes.

Standardisation and certification support
Improves compliance clarity, comparability, credibility and buyer confidence.

Long-term policy frameworks
Provide predictable signals for investors and support long-term planning.

Mechanisms at a glance

4 Market and value chain

Long-term feedstock agreements
Improve supply and price visibility.

Long-term offtake agreements
Secure demand and stabilise future revenues.

Volume guarantees
Reduce first-market deployment uncertainty in selected sectors.

Public procurement policies
Use public demand to support emerging bio-based products and create early markets.

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Matching mechanisms to project phases

FEASIBILITY
TRL 3-5

Subsidies, advisory support, shared validation infrastructure and equity co-investment

DEMONSTRATION
TRL 5–7

Blended finance, subsidies, shared pilot facilities, permitting facilitation and feedstock agreements

SCALE-UP
TRL 7–9

Blended finance, public guarantees, equity co-investment, permitting support and offtake agreements

MARKET DEPLOYMENT
TRL 9

Public procurement, offtake agreements or volume guarantees, output-based financing, tax incentives and stable policy signals

Risks change as projects mature. De-risking support should therefore combine the mechanisms best suited to each development phase.

The Catalan context

Catalonia has a favourable starting point: a clear strategic orientation through the Bioeconomy Strategy of Catalonia 2030, recognised research and innovation capacity, an important agri-food and industrial base, and abundant and diverse biomass resources.

The main challenge is not the absence of potential, but converting this potential into a stable pipeline of mature and investable projects.

Despite these favourable conditions, bioeconomy projects still face interconnected technical, financial, regulatory and market barriers that can prevent them from progressing towards industrial scale and commercial deployment.

The following barriers affect project maturity, investment readiness and commercial viability. They are closely interconnected and often reinforce one another, meaning that addressing a single barrier may not be enough to unlock investment.

The Catalan context

What is holding projects back?

Technical barriers to scale-up
Technology readiness gaps, scale-up and process-integration risks, limited access to validation infrastructure and operational variability.

Capital intensity and FOAK risk
High upfront CAPEX, long payback periods, FOAK cost uncertainty and limited access to traditional project finance.

Supply-chain, feedstock and offtake risk
Feedstock availability and price volatility, competition for biomass, logistical limitations and limited long-term offtake agreements.

Regulatory and permitting uncertainty
Lengthy permitting procedures, unclear administrative pathways, regulatory uncertainty and a lack of harmonised standards.

Market immaturity and undefined demand
Uncertain markets, price competitiveness challenges, limited buyer commitment and dependence on policy support.

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The Catalan context

Potential applicability in Catalonia

VERY HIGH OPPORTUNITY

- Blended finance
- Subsidies for technical validation and R&D
- Advisory platform or publicly backed BioBoost Accelerator
- Regulatory support and permitting facilitation

HIGH OPPORTUNITY

- Shared pilot and demonstration infrastructure
- Public procurement policies
- Long-term offtake agreements
- Long-term feedstock agreements

MEDIUM OPPORTUNITY

- Tax reductions
- Output- and performance-based financing

MORE TARGETED OR COMPLEMENTARY OPPORTUNITY

- Volume guarantees
- Long-term policy frameworks
- Equity co-investment and dedicated bioeconomy funds
- Public guarantees
- Standardisation and certification support

Four priorities for Catalonia

The analysis shows that bioeconomy projects require more than access to finance. They need coordinated support that responds to their maturity, combines complementary de-risking mechanisms and addresses technical, financial, regulatory and market barriers. Based on these findings, four priorities emerge for Catalonia.

1

Build a pipeline of investment-ready projects

Continue identifying and assessing promising bioeconomy projects, prioritising those with clear scale-up potential. Each project should receive a tailored development roadmap based on its maturity, risks and financing needs.

2

Provide integrated project-development support

Combine technical validation, business-model development, governance, regulatory guidance and investment preparation. A BioBoost-type advisory platform could provide a coordinated entry point to this support.

Final recommendations

3

Match de-risking mechanisms to project maturity

Apply different combinations of support throughout the project lifecycle: grants and advisory services during feasibility, blended finance and risk-sharing mechanisms during demonstration and scale-up, and market-creation mechanisms during commercial deployment.

4

Strengthen market demand and value-chain security

Complement supply-side support with public procurement, long-term feedstock and offtake agreements, and other mechanisms that improve demand visibility and revenue predictability.

Catalonia does not need a single stand-alone solution. It needs a coordinated de-risking framework that helps promising projects progress from technical potential to investment and market deployment.

Thank you!

Learn more about BioBoost

www.bioboost.cat/en

Scan the QR code to visit our website

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