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EU Biorefinery Outlook to 2030

Studies to support R&I policy in the area of bio-based products and services

Moving towards a competitive European bioeconomy: Rollout of biorefinery technologies - policy perspective

Research and Innovation

Part of three studies for The Directorate-General for Research and Innovation (DG RTD)

The overall objective is to provide a range of new information and analysis that will help identify **future policy directions, emerging technologies, societal demands, challenges and opportunities** in the fields of the **Bioeconomy** related to **bio-based products** and the **bio-based innovation**.

LOT 1 – Carbon economy

LOT 2 – Life and biological sciences and technologies as engines for bio-based innovation

LOT 3 – Biorefinery pathways and outlook for deployment (lot 3) "EU Biorefinery Outlook to 2030"

The study can be used to help make decisions & take actions to accelerate biorefinery deployment to 2030

AIM: To provide an **outlook for chemical and material driven biorefineries** enabling **stakeholders** such as the scientific community, industry (primary producers and manufacturers), investors, policymakers, and NGOs to take the present-day **decisions** necessary **to shape the future** sustainable bioeconomy

A circular biobased economy is important to help build a sustainable future and meet the EU Green Deal's targets

EU Bioeconomy Strategy 2018

- The study supports the **action** to **facilitate** the **development and deployment of new sustainable biorefineries**.
- **Biorefineries** have the potential to play an **important role** for the development of a **carbon-neutral economy**.
- Biorefineries **can increase EU security** of **raw materials** and improve business opportunities by **creating local jobs**.

Biodiversity Strategy

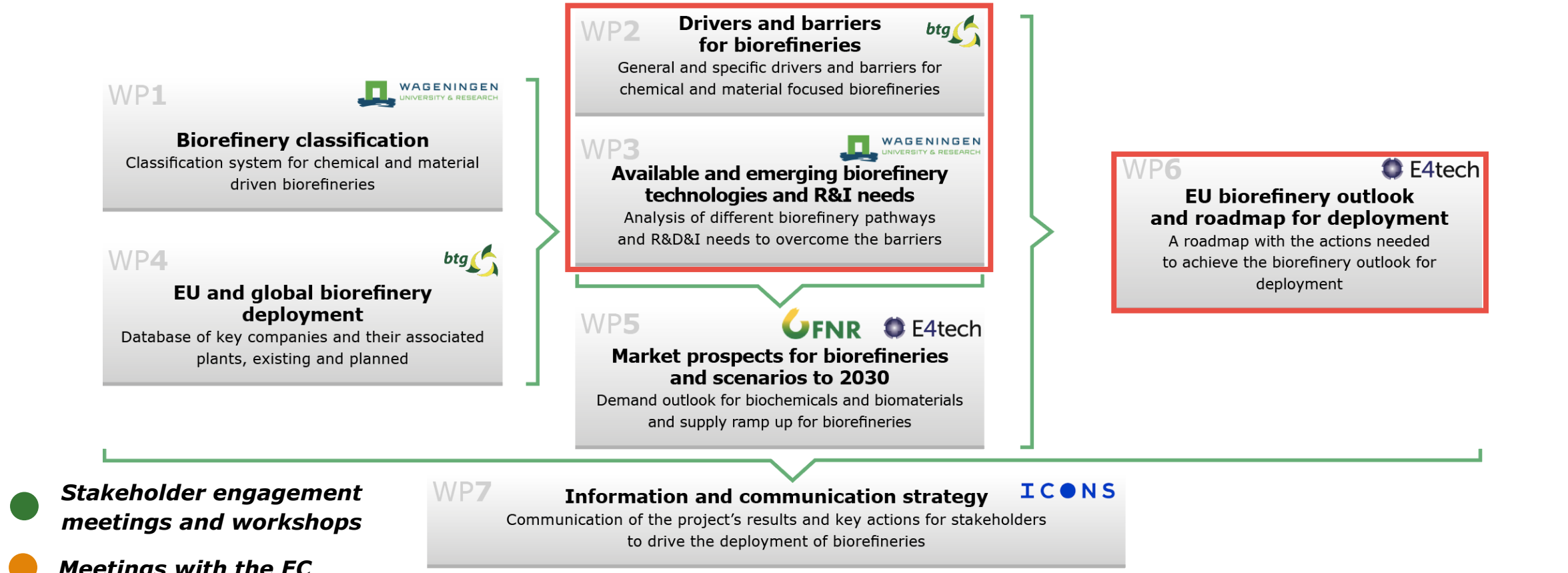
Farm-to-Fork Strategy

EU GHG reduction by min. 55% by 2030 compared to 1990 levels

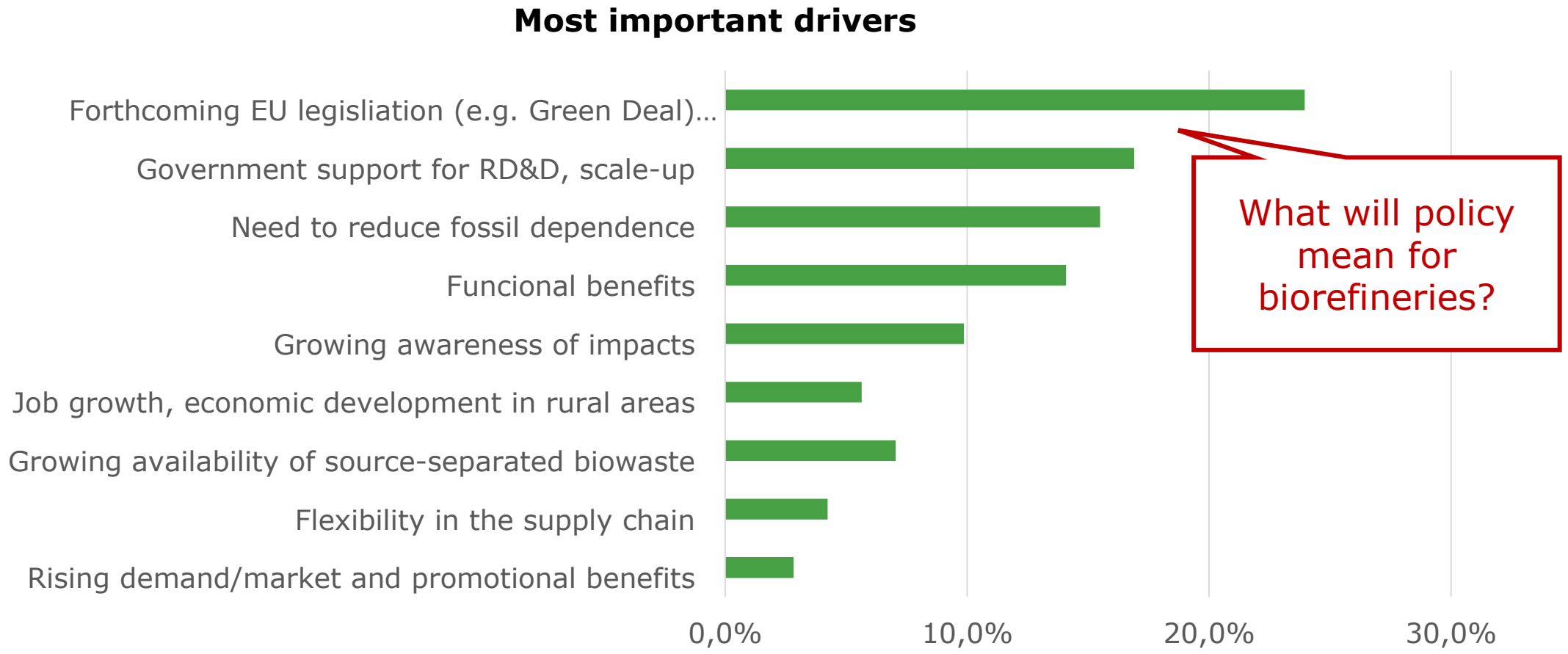
Circular Economy Action Plan

- This study can help **inform policy** and biorefinery deployment can help achieve **objectives** at EU level

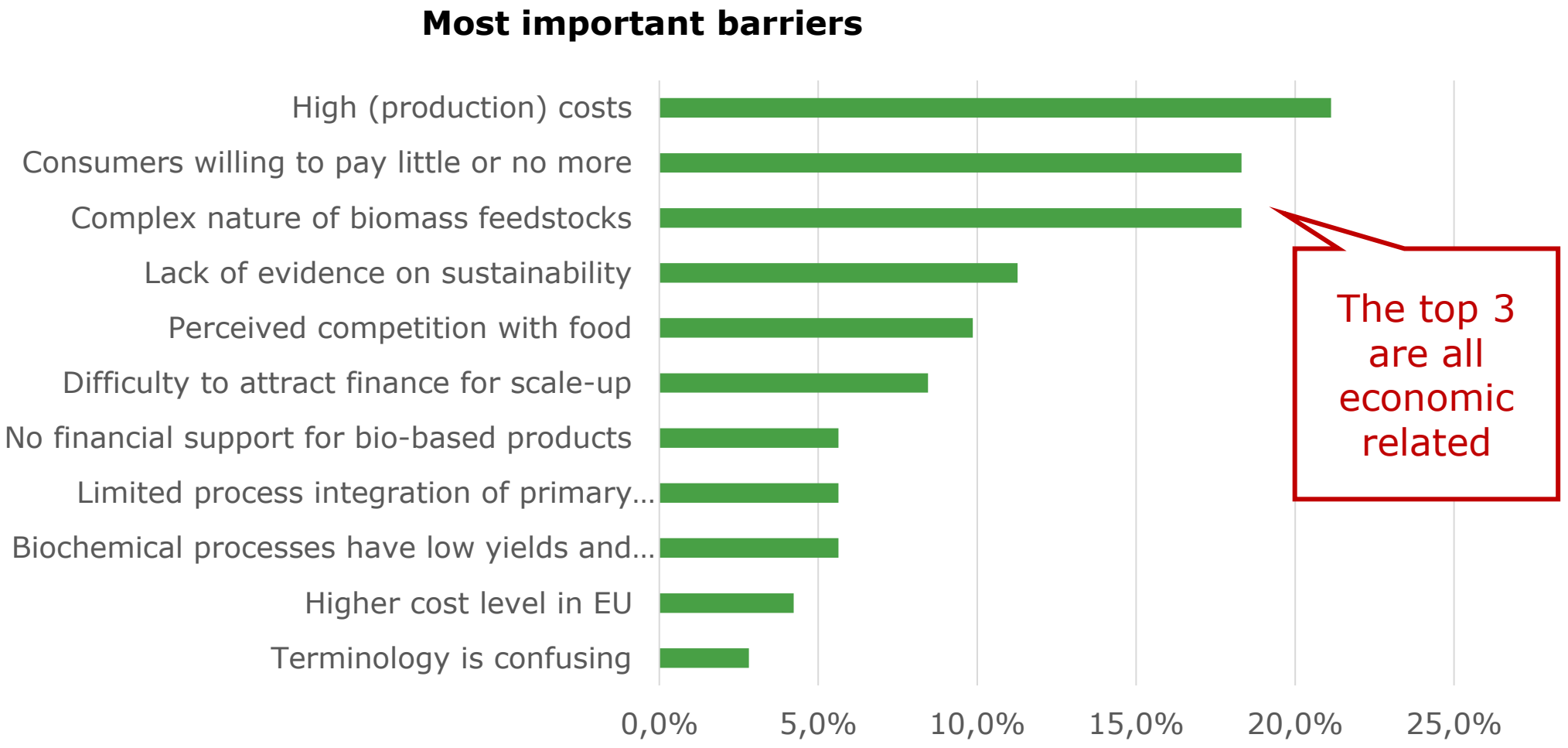
The focus today is on the drivers and barriers to biorefinery deployment and how policy could help overcome these



Stakeholder identified the main drivers as environmental, government support and awareness…

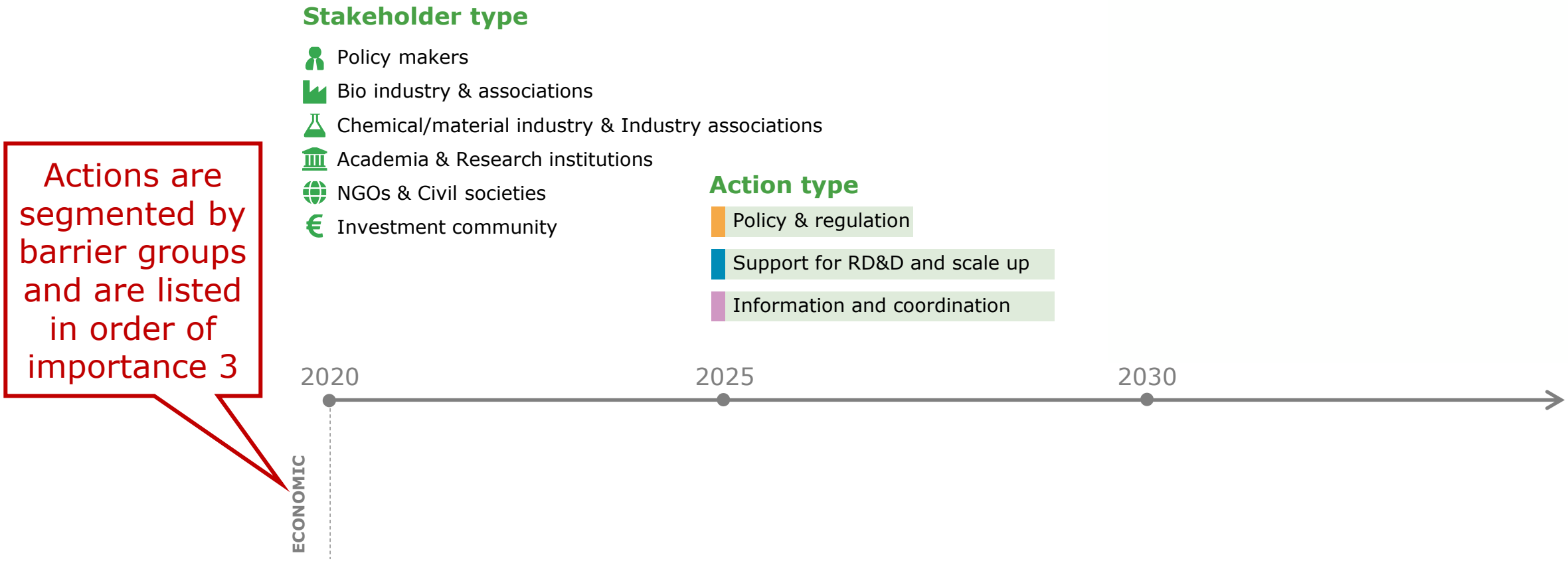


…and the main barriers as economic viability and scale-up challenges



Stakeholders and policy makers need to take action to accelerate towards the high deployment scenario

- The roadmap **actions** aim to **overcome barriers** to increase the likelihood of **reaching** the **outlook for deployment**



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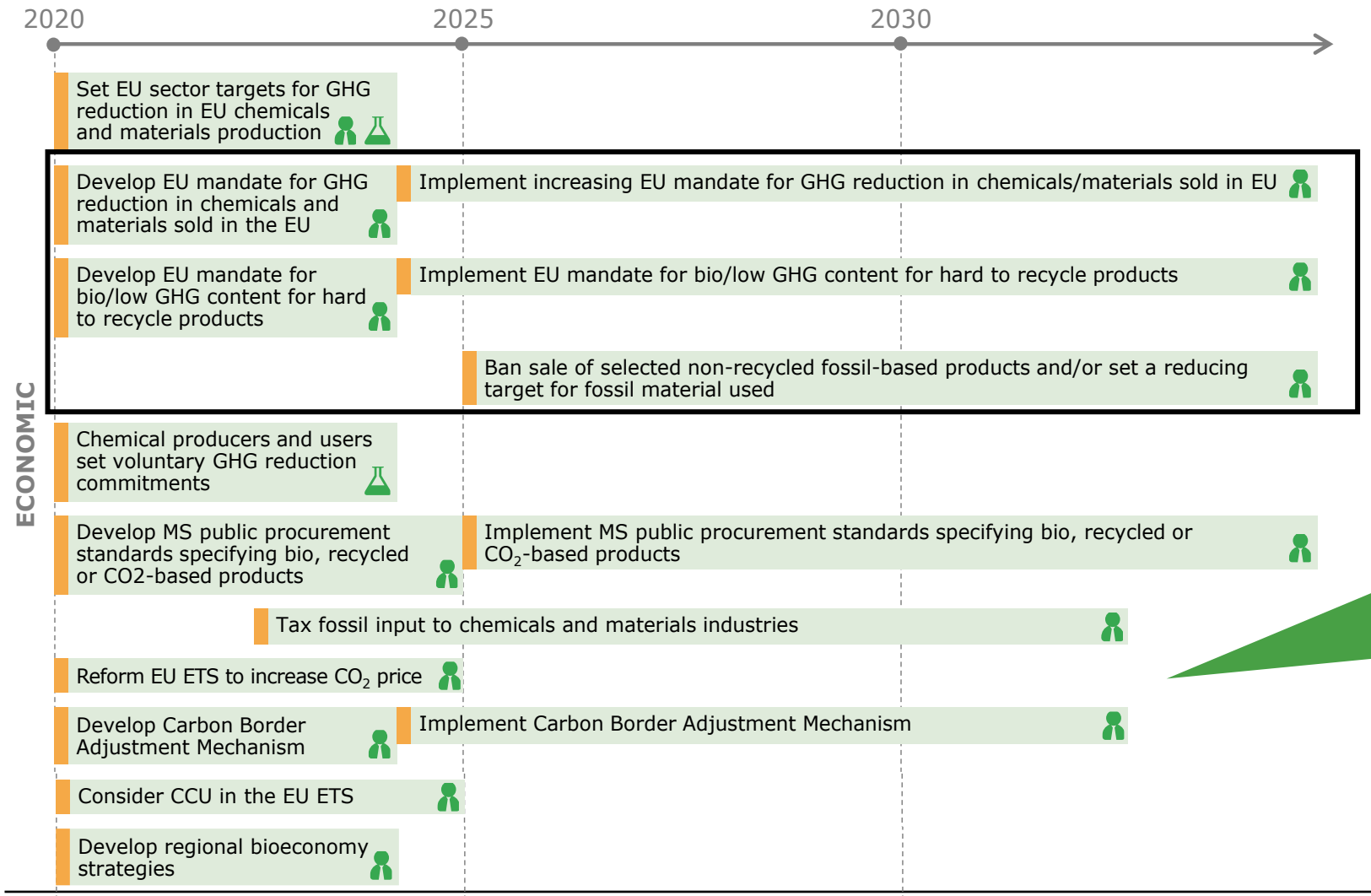
Policy & regulation is essential to close the large gap between the market's willingness to pay and costs

Policy & regulation is required to achieve this through:

- **Policy** that supports **chemicals and materials** that provide **environmental benefits** (focused on GHG savings): bio-based, recycled, CO_2
  - GHG reduction targets, mandates (e.g. on products sold, in public procurement etc…), bans/reducing targets on use of fossil and non-recycled products, taxes on some fossil products and carbon
- Ensuring that **where production costs are higher** as a result of the above actions, **EU competitiveness is supported** (e.g. through the Carbon Border Adjustment Mechanism)
  - The requirement for this depends on which actions are taken

Policy & regulations need to be developed and implemented over in 5 years to have an impact on deployment by 2030



One of these actions is required at least – a GHG reduction mandate on sales is recommended

If mandates on sales are **not** developed, these actions could help support biorefineries and EU competitiveness

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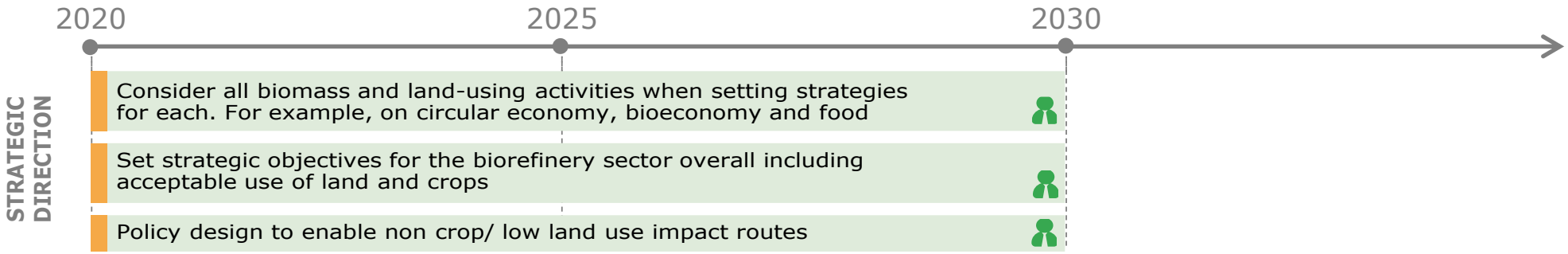
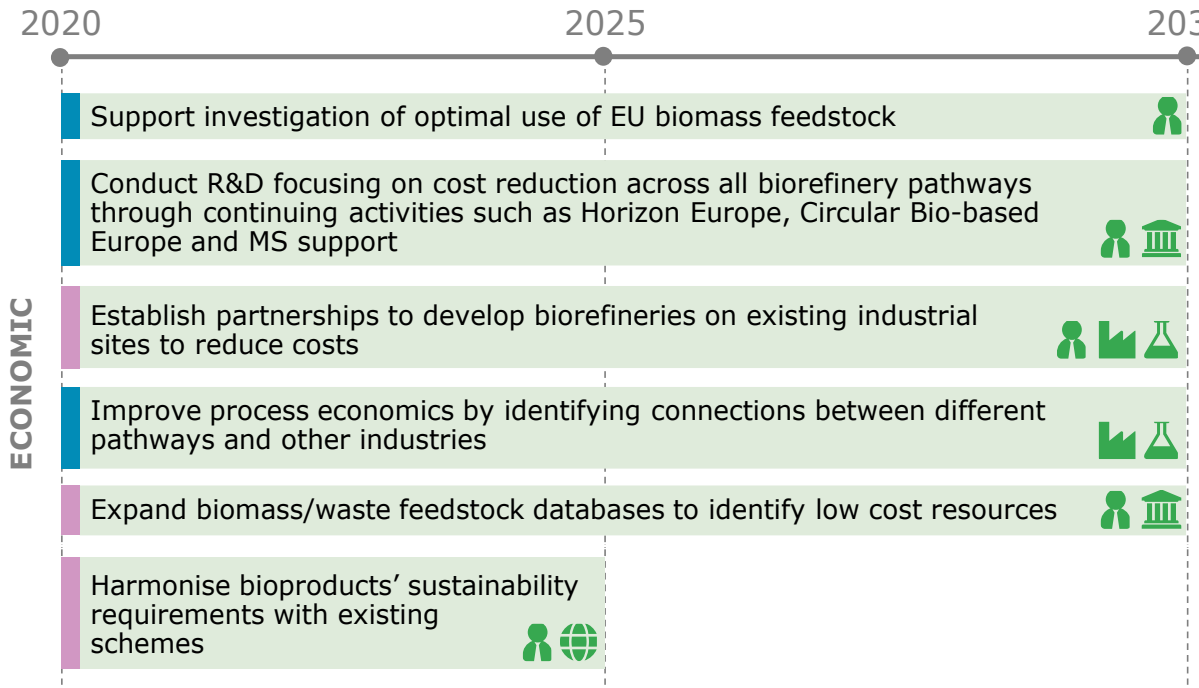
To achieve lower environmental impacts the strategic policy & RD&D direction should be focused on selected pathways



Policy & regulation **strategic direction** is required to:

- Develop **chemical and materials policies** alongside **other biomass and land uses policy** – currently strategies and policies, for example on biofuels, bioeconomy, circular economy and Farm to Fork strategy, renewable energy, can overlap and conflict.
- **Scale up pathways** with **lower environmental impacts** that are currently more **expensive** and at an **earlier stage** of commercialisation

Supporting Research, Development & Demonstration (RD&D) and feedstock sourcing can help accelerate cost reduction



Support for RD&D and scale up:

- **RD&D** on all pathways to bring **cost savings** (Horizon Europe, Circular Bio-based Europe, MS level support)

Information and coordination:

- **Lower costs** by developing on **existing industrial** sites
- **Connections** between different pathways
- Identification of **low-cost feedstock**

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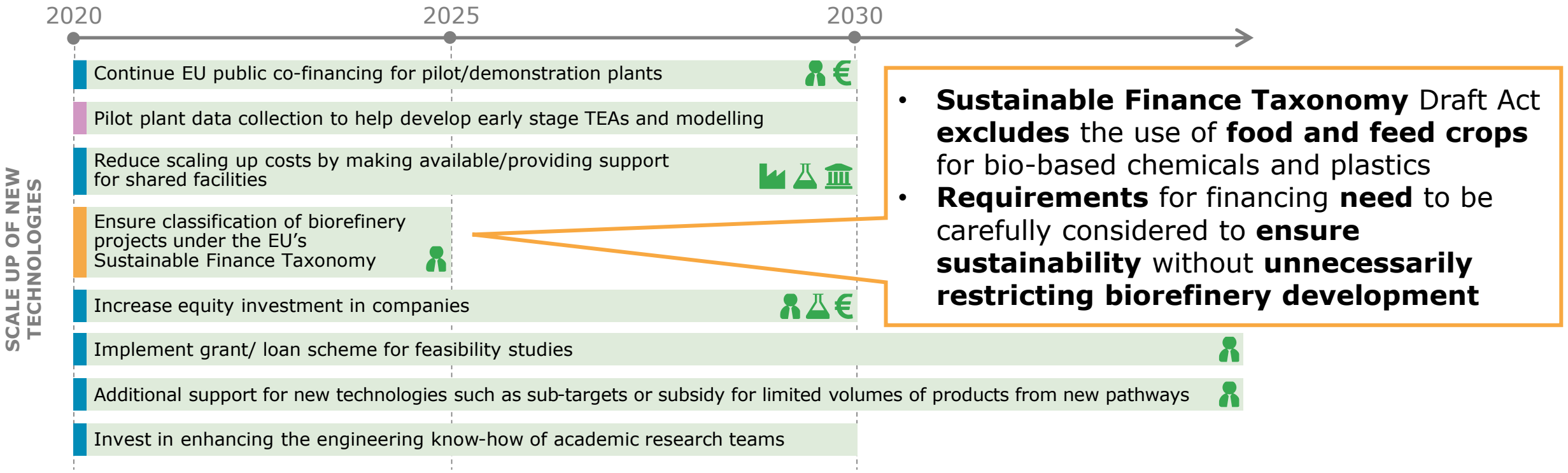
Public finance for RD&D and scale up is crucial to commercialise lower TRL pathways by 2030



- **Sustainable Finance Taxonomy** Draft Act **excludes** the use of **food and feed crops** for bio-based chemicals and plastics
- **Requirements** for financing **need** to be carefully considered to **ensure sustainability** without **unnecessarily restricting biorefinery development**

Support for RD&D and scale up actions focus on **ensuring** the level of **investment required** is provided, by **co-financing** with public funds via **equity** in companies and **financing projects**, as well as reducing costs through **supporting shared facilities**

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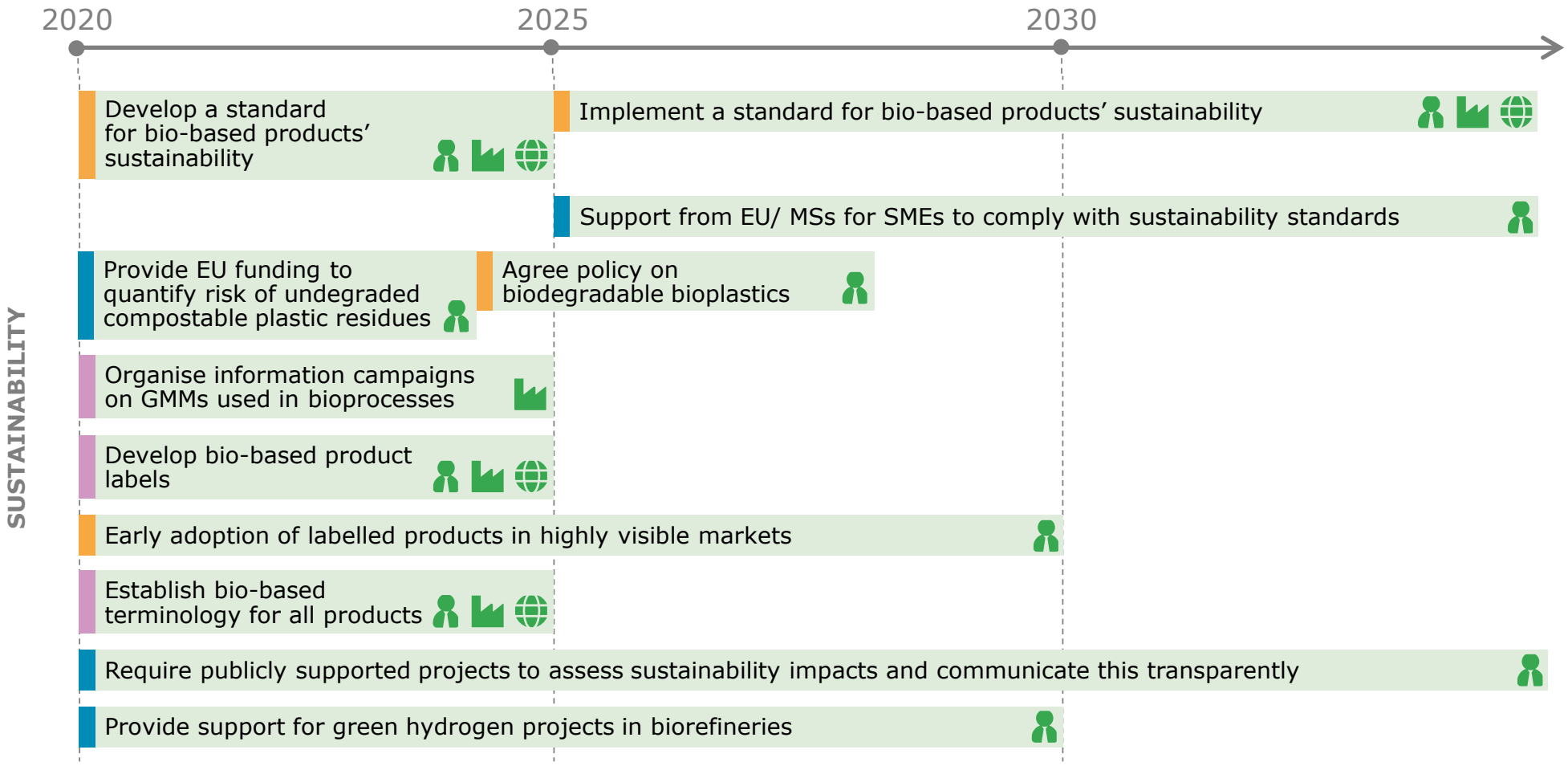
Environmental benefits need to be measured and broadly understood by all stakeholders



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Thanks

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