The Transition Pathway for the Chemical Industry

International Green Chemistry Symposium
La Rochelle (FR), 13/05/2025

European Commission

Overview

1) The rationale behind and its co-development;

2) The co-implementation;

3) Next steps.

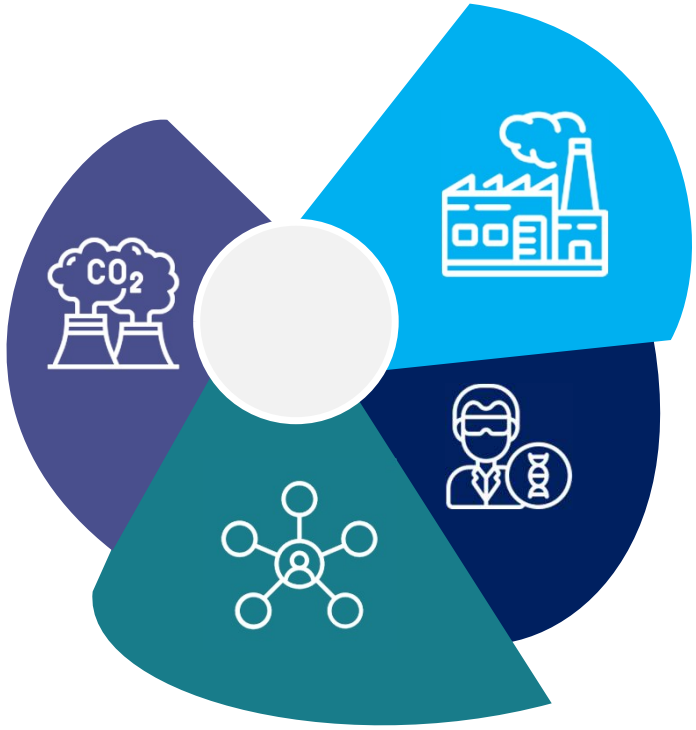
1. The rationale behind and its co-development

European Commission

The EU Chemical Industry

Among the largest CO_2 emitters with the cement and steel industries.

Global direct CO_2 emission from primary chemical production in 2022: 935Mt[3]



Europe is the **2nd largest chemical producer** in the world with €760 billions of sales in 2022[1]

4th largest manufacturing industry with
7% of EU manufacturing turnover
1.2 million direct highly skilled jobs[2]
3.6 million indirect jobs
19 million jobs across all value supply chains

The chemical industry is at the heart of many value chains: ≈ 56% of chemicals are sold to other industries[2]

European Commission

The Transition Pathway for the Chemical Industry

- Publication: 27 January 2023
- It is an **actionable plan co-created** by the European Commission with EU countries, industry, NGOs and other stakeholders
- Based on **8 building blocks**

Sustainable competitiveness | Investment and funding | Research and Innovation | Regulation and Public Governance | Access to energy and feedstock | Infrastructure | Skills | Social dimension

- It identifies about **190 actions, grouped in 26 topics**, needed for the **twin transition and increased resilience** of the EU chemical industry

European Commission

The content: CHEMTP topics

Building Blocks	Topics
Sustainable Competitiveness	Topic 1: International Competitiveness
	Topic 2: Reduction of unsustainable dependencies and supply chains vulnerabilities
	Topic 3: Safety and Sustainability
	Topic 4: Innovation and growth of SMEs
	Topic 5: New synergies
Investments and Funding	Topic 6: Fund for Green Investments
	Topic 7: Access to Funding
R&I, Techniques and Technological Solutions	Topic 8: Better conceptualisation of new techniques and technical solutions (TRL 1 to 5)
	Topic 9: Developing new techniques and technological solutions (TRL 6 to 7)
	Topic 10: Deployment of new techniques and technological solutions (TRL 8 to 9)
Regulation and Public Governance (Legislation)	Topic 11: More effective and predictable regulation
	Topic 12: Vertically and horizontally coherent legislation
	Topic 13: Effective and efficient enforcement
Access to energy and feedstock	Topic 14: Anticipate long-term needs for Energy and Resource Supply
	Topic 15: Economically viable purchase of clean energy
	Topic 16: Feedstock Substitution
	Topic 17: Process and resource efficiency
Infrastructure	Topic 18: Large-scale electricity and hydrogen infrastructure
	Topic 19: Development of new sustainable production facilities
	Topic 20: Sustainable transport of raw materials and chemical products
	Topic 21: Deployment of digital technologies
	Topic 22: Circularity: recycling and reuse infrastructure
Skills	Topic 23: Education (reskilling/upskilling the workforce)
	Topic 24: Sufficient supply of jobs at technical level
Social Dimension	Topic 25: Impact on workforce and consumers
	Topic 26: Improve gender diversity and equality in the sector

Example: Sustainable Competitiveness

Why is sustainable competitiveness important?

- 4th largest manufacturing industry in Europe (€760 billions of sales in 2022)
- However, its global market share is declining and forecasted to decline
- Therefore, need to ensure industry's **continued competitiveness becoming more sustainable.**

Actions

Topic 1: International Competitiveness		
Action	**Actor**	**Time**
KPIs and Sustainable Development Indicators	Industry/ EU/MS	S
Develop, commercialise and promote the uptake of SSbD substances	Industry/ EU/MS	S
Market pull and incentives for sustainable products	EU/MS	M

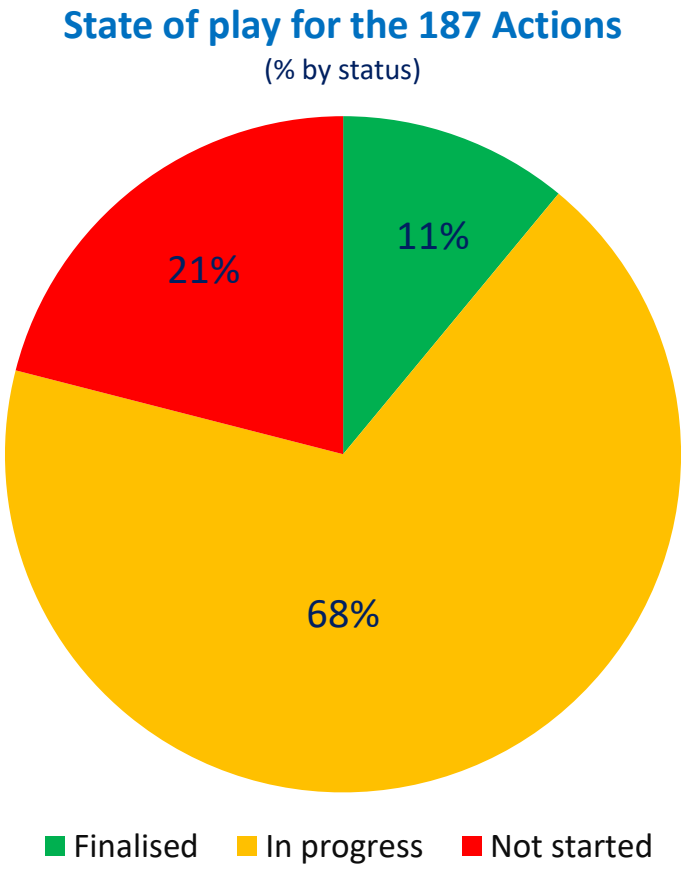
Topic 5: New Synergies		
Action	**Actor**	**Time**
Maintain the Euro-clusters Initiative	EU/MS	S
Increase joint projects to de-risk investments	Industry	S
Support new data-driven business models based on Common European Data Space	Industry/ EU/MS	M

2. Co-implementation state of play

European Commission

Co-implementation of the Pathway: key elements

- Call for **transition initiatives** to map relevant projects and investments
- **Dedicated Task Forces** on high priorities: energy and feedstock needs; **market creation for sustainable products**
- Guide on **EU Funding Opportunities** published
- **Continuous dialogue** with stakeholders to **inform policy making** and discuss **regulatory updates**
- **Annual Progress Report 2025** ongoing

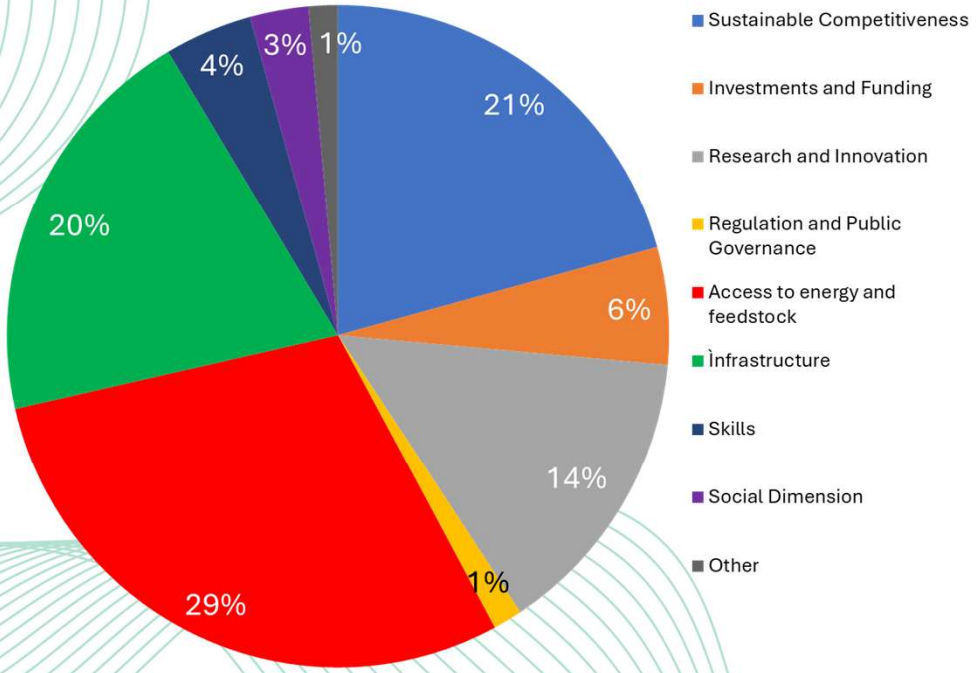


European Commission

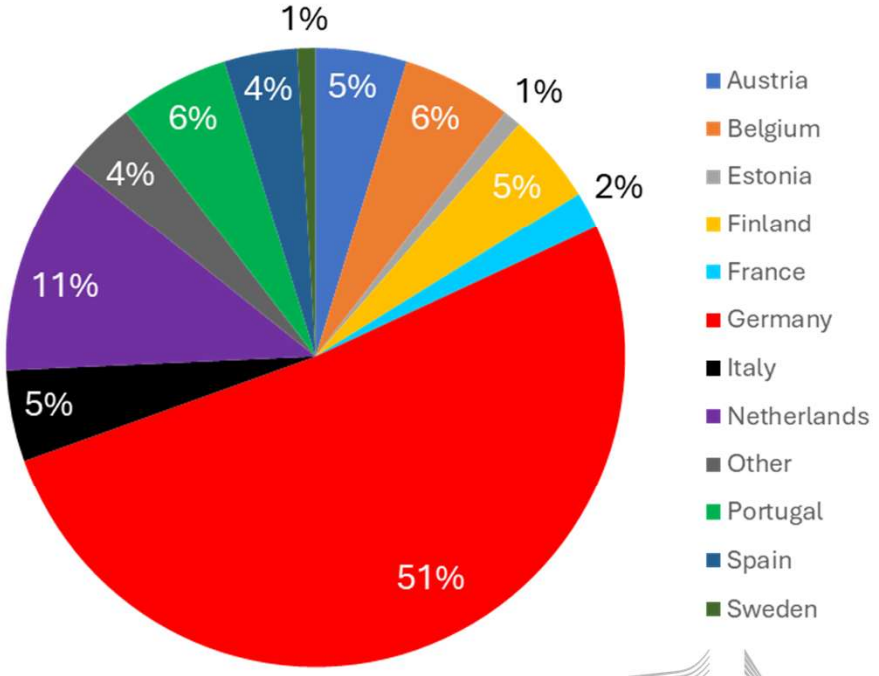
Call for transition initiatives: results as of Jan 2025

- 140 initiatives received by Jan 2025
- Germany accounts for more than half of the initiatives, followed by the Netherlands (11%)
- Large companies are the largest contributor with 49% of the initiatives, followed by trade associations (25%) and SMEs (13%). Around 1/3 of these initiatives focus on energy and feedstocks.

Call for transition initiatives
% submissions (by building block)



Call for transition initiatives
% submissions (by country)



*Trade and business associations have not been considered for the submissions by country

European Commission

Task force 1: market pull measures for sustainable products

- **Measures** to promote the uptake of sustainable products from alternative feedstocks to fossil fuels – **biomass, CO_2 and waste**
- Objective to **stimulate demand** from B2B, B2C, intermediate and final consumers

Suggestions from stakeholders:

Sustainable carbon targets, e.g. at raw materials level.

Labels to enhance transparency and reduce consumer confusion

Green Public Procurement criteria for public authorities

Price incentives, for more affordable products

Sustainable Finance for ESG investments

Note: the list of measures is purely indicative and summarises the suggestions from stakeholders during the co-implementation of the Transition Pathway for the Chemical Industry. Stakeholders also remarked the importance to focus not only on market pull measures but also to address the costs of implementing non-fossil feedstocks.

European Commission

Task force 2: long-term energy and feedstock needs

- Technological Pathways and Uncertainty:
  - ✓ Key solutions include electrification, bio-based routes, chemical recycling, and carbon capture
  - ✓ Contribution of each solution depends on availability and cost, with numerous influencing factors creating significant uncertainty.
  - ✓ Restricting access to technologies or resources increases costs and risks not meeting climate and circularity targets.
- Biomass and Geopolitics:
  - ✓ Biomass is crucial for replacing fossil molecules but has limited availability, necessitating increased crop yields and prioritization for best climate benefits.
  - ✓ Geopolitical developments affect the EU's ability to secure green molecules, with competition from other sectors
- Investments:
  - Enabling conditions to prevent weakening climate action and deteriorating the EU's economic fabric.
  - Investments in the transition must be financed by higher revenues, with increased demand for net-zero, low-carbon, and circular products being crucial.

Main programmes for the EU chemical industry twin transition

Budget **€ 724** (billion) — **Recovery and Resilience facility (RRF)**

Budget **€ 348** (billion) — **Regional Development and Cohesion Funds**

Budget **€ 40** (billion) — **The Innovation Fund**

Budget **€ 19** (billion) — **Just Transition Fund**

Budget **€ 7.6** (billion) — **The Digital Europe Programme**

Budget **€ 87** (billion) — **The Social Climate Fund**

Budget **€ 95** (billion) — **Horizon Europe**

Budget **€ 4.2** (billion) — **The Single Market Programme**

Budget **€ 26** (billion) — **Erasmus +**

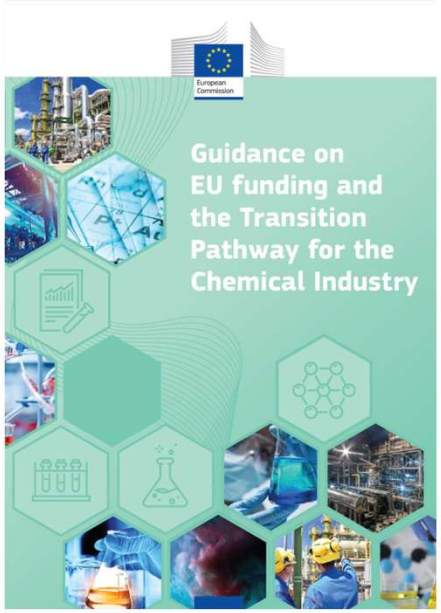
Budget **€ 26** (billion) — **InvestEU**

Budget **€ 5.4** (billion) — **LIFE**

European Commission

EU funding opportunities: a guidance

- Relevant funding programmes and calls that can finance investments in the twin transition of the EU chemical industry, who can apply and by when.



2.2.2 Marie Skłodowska-Curie Actions (MSCA)

The Marie Skłodowska-Curie Actions (MSCA) are the EU's flagship funding programme for doctoral education and postdoctoral training of researchers. With a budget of EUR 6.6 billion under Horizon Europe, the MSCA supports the EU's capacity for research and innovation by investing in the long-term careers of excellent researchers. The European Research Executive Agency (REA) manages the MSCA on behalf of the Commission. Specifically, the MSCA targets four intervention areas:

- supporting researchers in their training, skills and career development;
- fostering transnational, cross-sectoral and interdisciplinary mobility;
- funding excellent doctoral and postdoctoral programmes, and collaborative projects;
- promoting public outreach.

The MSCA can offer funding opportunities to foster research and training on technological solutions for the green and digital transitions of the EU's chemical industry. For instance, the SeaChem project provides training in offshore seaweed aquaculture to produce chemicals.

Table 6 – Examples of relevant projects for the chemical industry supported by the MSCA

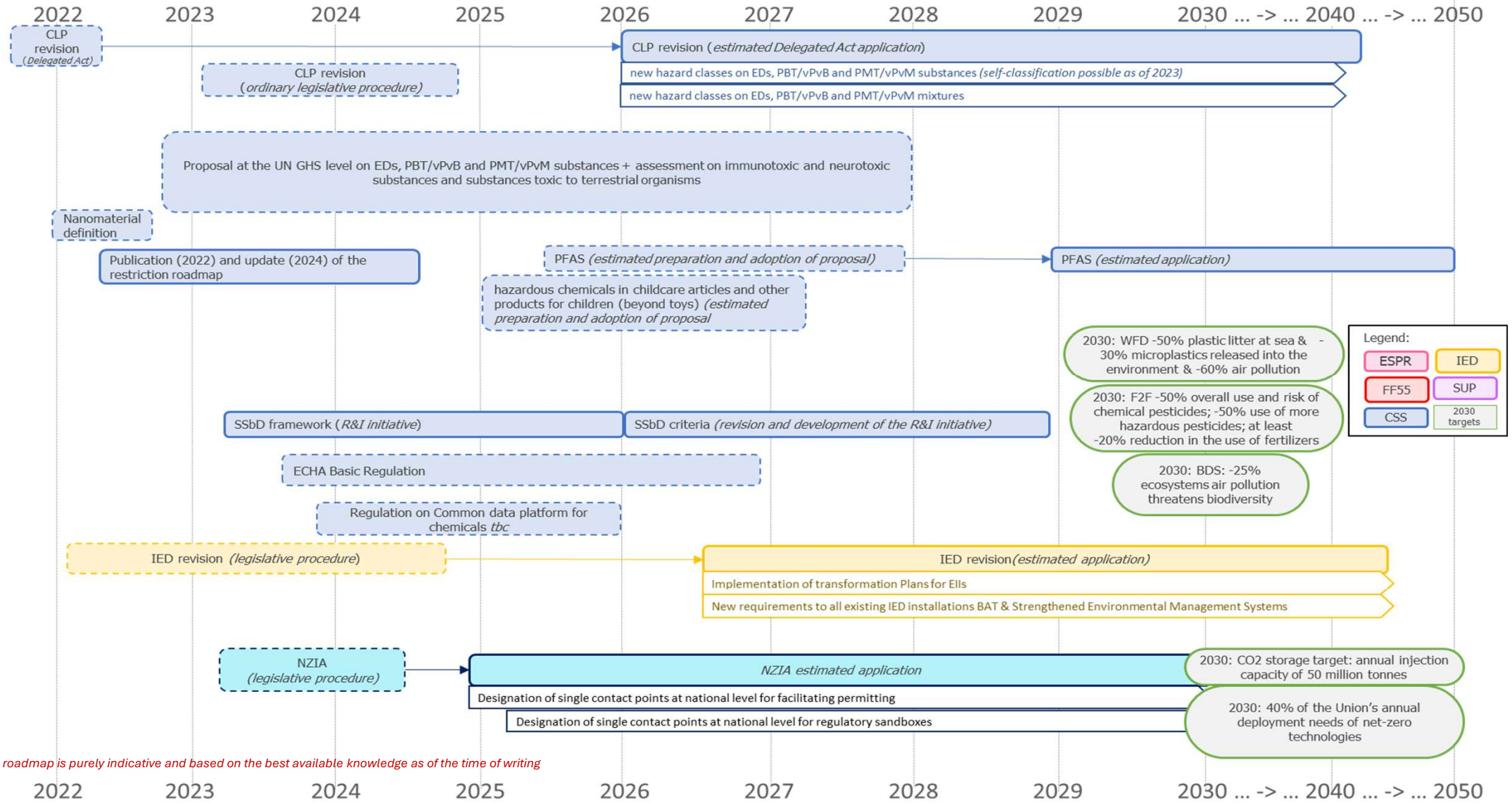
Project	Description	Timeline	Links with the Transition Pathway
SEACHEM [35]	The overarching aim of the SeaChem project is to provide high-level training in the offshore cultivation and valorisation of seaweed to a new generation of 10 high-achieving doctoral candidates; and to equip them with the transferable and scientific skills necessary for thriving careers in the growing area of non-land-based biomass cultivation and use. This international training programme, which involves 6 intersectoral partners in 4 countries, focuses on innovative technological developments across a range of interdisciplinary fields such as construction engineering, materials science, (micro)biology, (bio)chemical engineering, environmental biotechnology and machine learning. **Project coordinator:** Katholieke Universiteit Leuven (BE)	• Starting date: 1 Oct 2022 • End date: 30 Sep 2026	• Topic 16: feedstock substitution • Topic 23: education (reskilling/upskilling the workforce)

[34] https://www.cbe.europa.eu/projects/afterbiochem.
[35] https://sea-chem.eu/project/.

01/04/ 2025

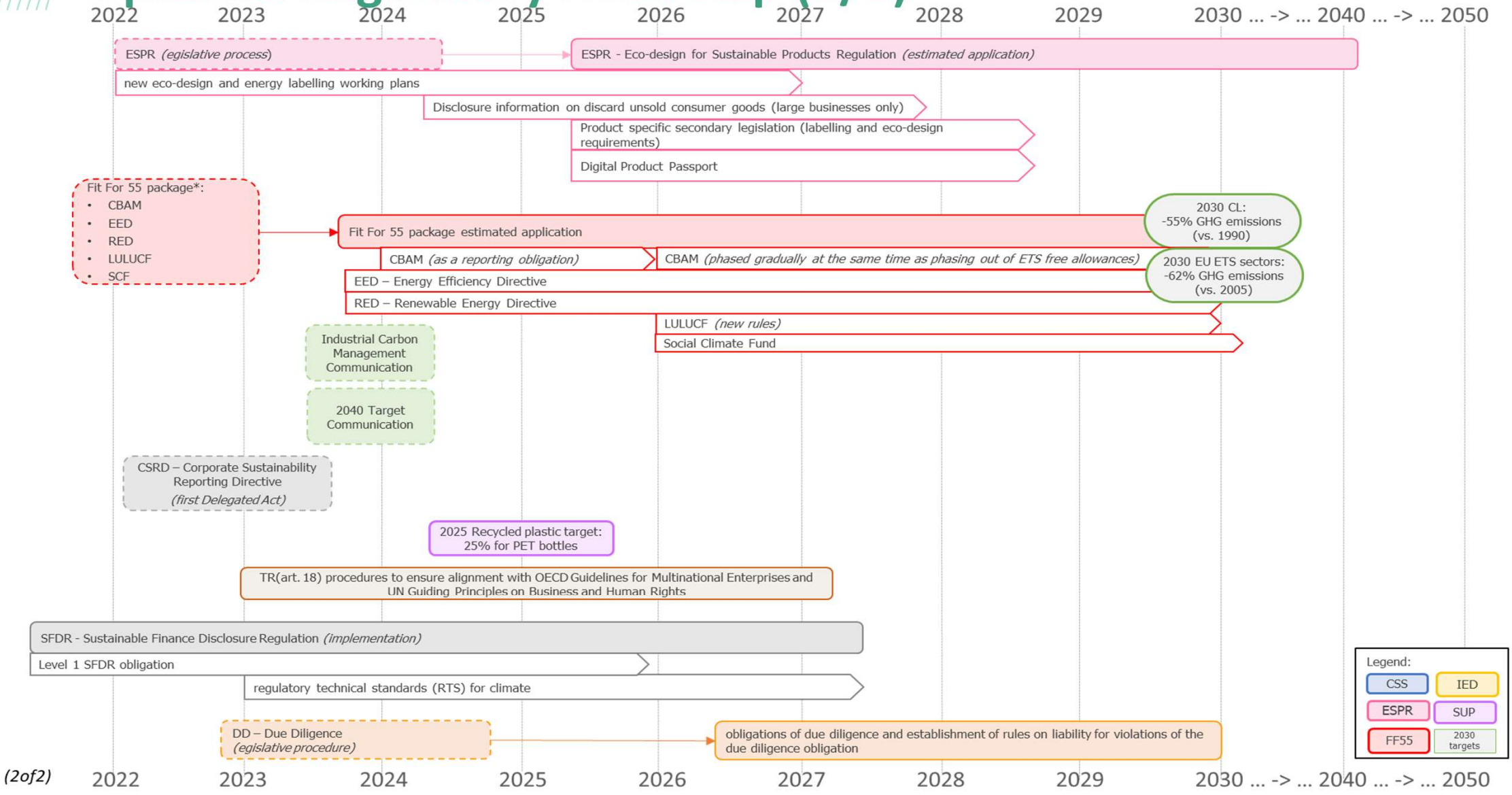
Note: the content included in the Guidance on Funding is based on the best available information as of the

Updated Regulatory Roadmap (1/2)



Note: this roadmap is purely indicative and based on the best available knowledge as of the time of writing

Updated Regulatory Roadmap (2/2)

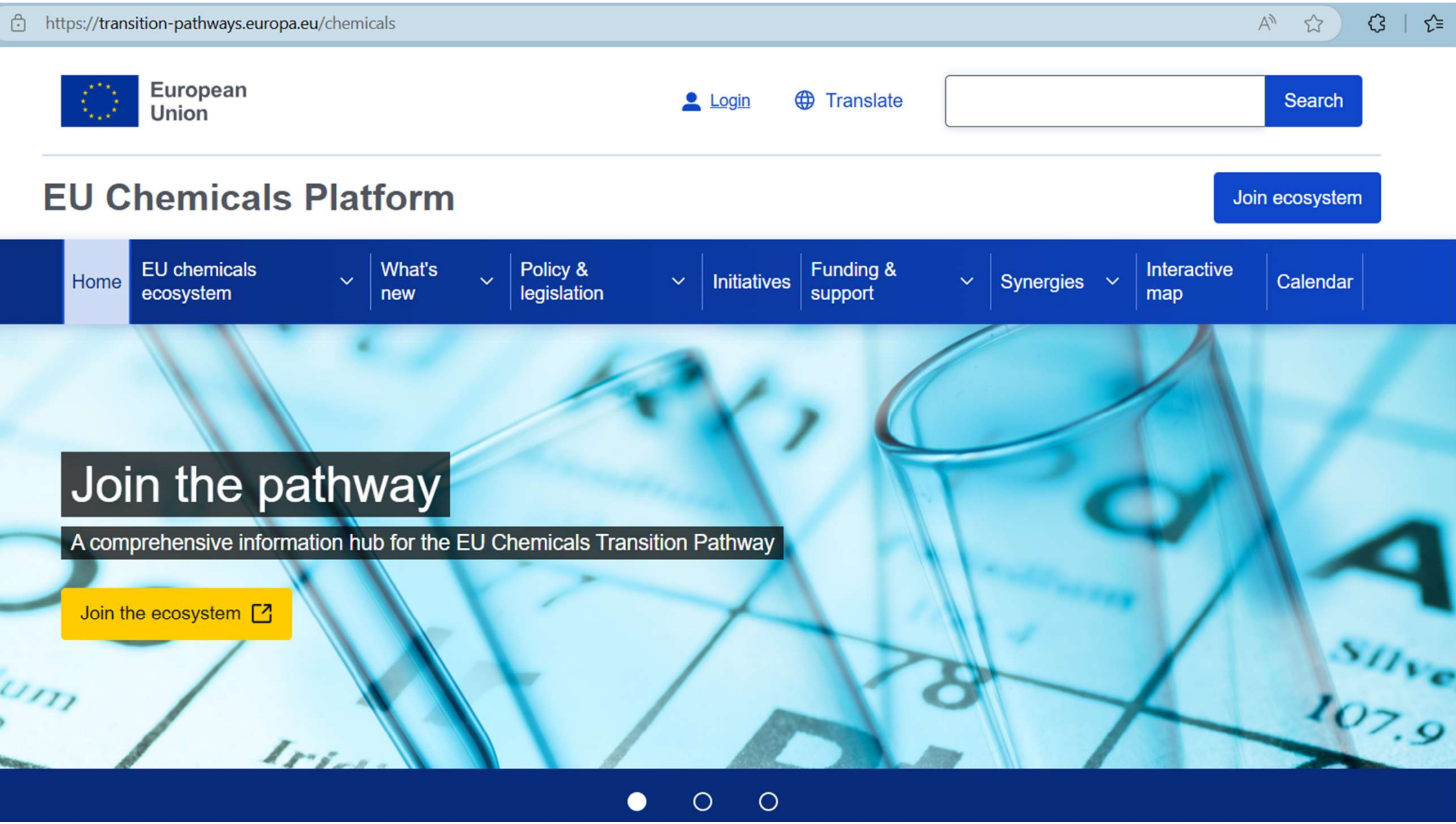


Transition Pathways Stakeholders Support Platform

A One-Stop-Shop for stakeholders

https://transition-pathways.europa.eu/chemicals

European Commission


https://transition-pathways.europa.eu/chemicals
European Union
Login
Translate
Search
EU Chemicals Platform
Join ecosystem
Home
EU chemicals ecosystem
What's new
Policy & legislation
Initiatives
Funding & support
Synergies
Interactive map
Calendar
Join the pathway
A comprehensive information hub for the EU Chemicals Transition Pathway
Join the ecosystem

3. Next steps

European Commission

Proposed timeline

European Commission

More information:

GROW-CHEMTP@EC.EUROPA.EU