

# **SPIRIT**

# **Sustainable Plastics Industry Transformation**

January 2023



# Borealis at a glance

## Worldwide



Head Office in **Vienna**, Austria.  
Operating on **five continents**  
in **120 countries**

## Market Position



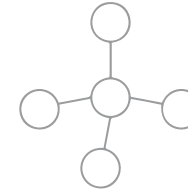
**#2** among polyolefin  
producers in **Europe**  
**#8** worldwide

## Employees



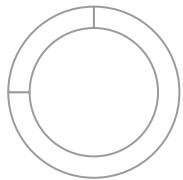
About  
**6,900 employees**

## Line of Business



Production and distribution of  
**polyolefins, base chemicals**  
and **fertilizers**

## Ownership Structure



**75%** OMV, Austria /  
**25%** ADNOC, United Arab  
Emirates

## Financial figures



Net profit 2021 – **1,396** MEUR  
Total sales 2021 – **12,342** MEUR

## Joint Venture



**Borouge** – the world's largest  
integrated polyolefin complex  
in Ruwais, UAE

## Circularity



Three **polyolefin recycling**  
**operations** in Europe

## Borealis in Porvoo



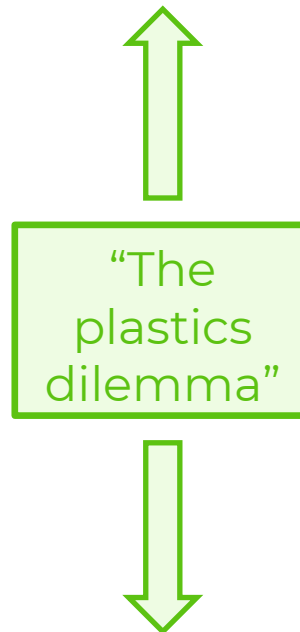
# SPIRIT mission

## Sustainable plastics industry transformation

- Plastics are irreplaceable materials of modern society which enable growth and help us save resources



- To create a more sustainable future, we have to solve the current three key challenges of plastics industry



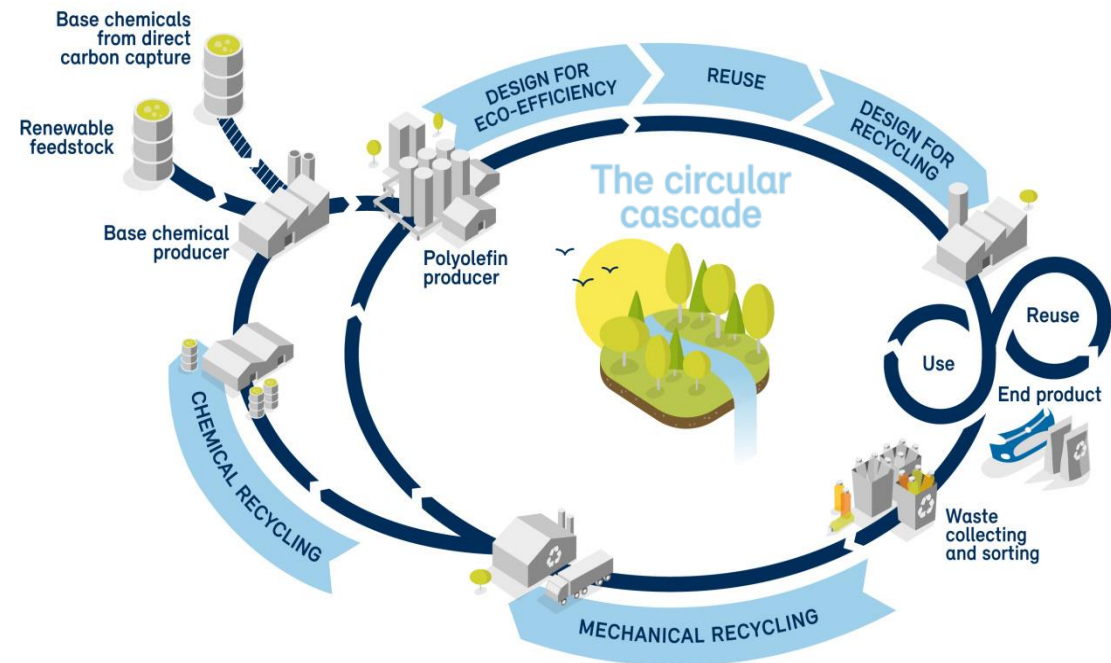
# SPIRIT programme

## Active co-operation across the value circle

- We need to replace fossil raw materials, transform plastics industry into circular economy and achieve carbon-neutral production
- SPIRIT programme leads this transformation via active ecosystem co-operation across the entire value circle

Borealis Finland has set concrete targets:

- Replacing 33% of fossil feedstock with renewable or recycled feedstock by 2030
- Turning production processes carbon neutral latest by 2045
- True circular economy of plastics



# SPIRIT programme themes

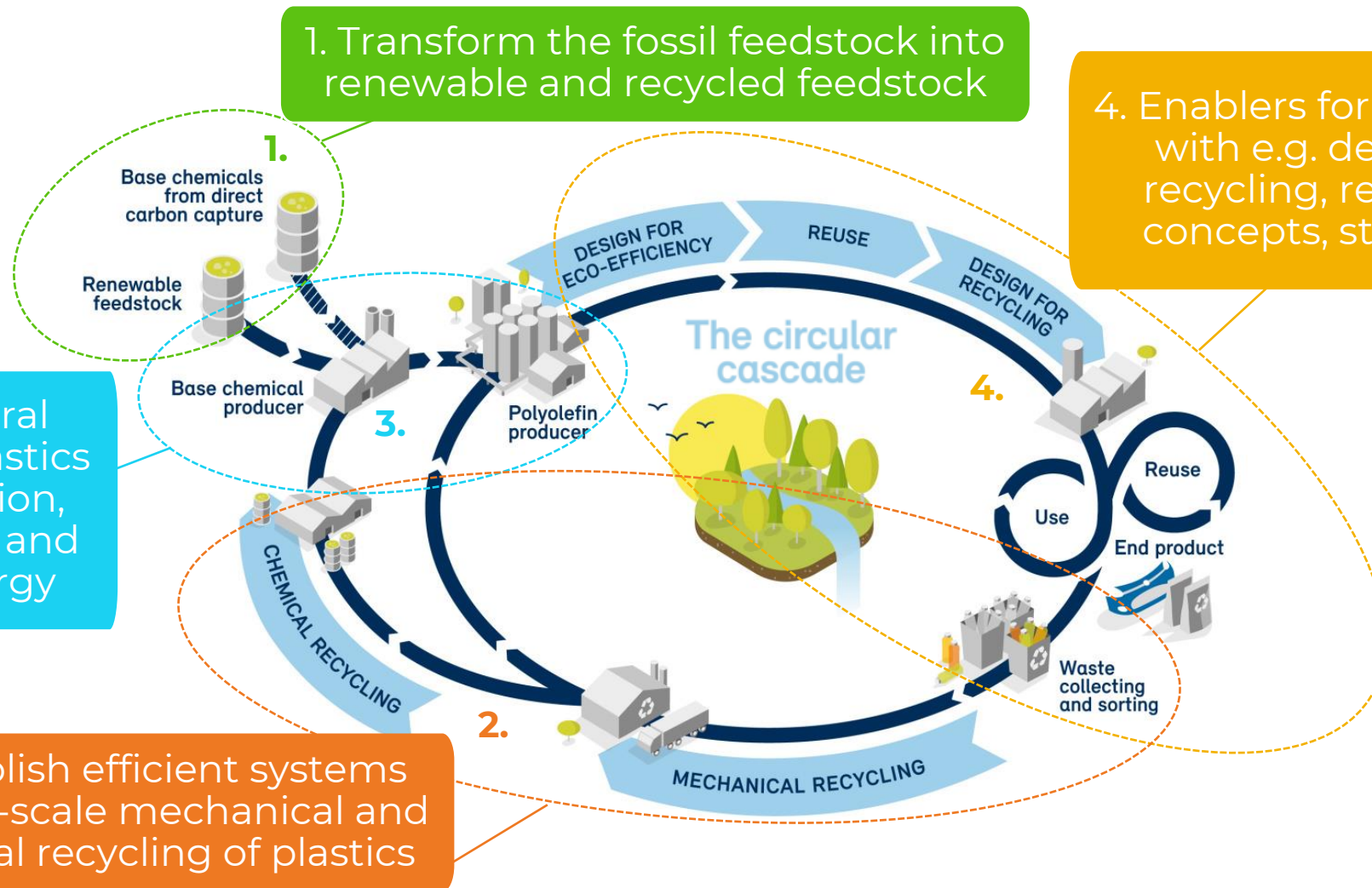
## Four R&D areas

1. Transform the fossil feedstock into renewable and recycled feedstock

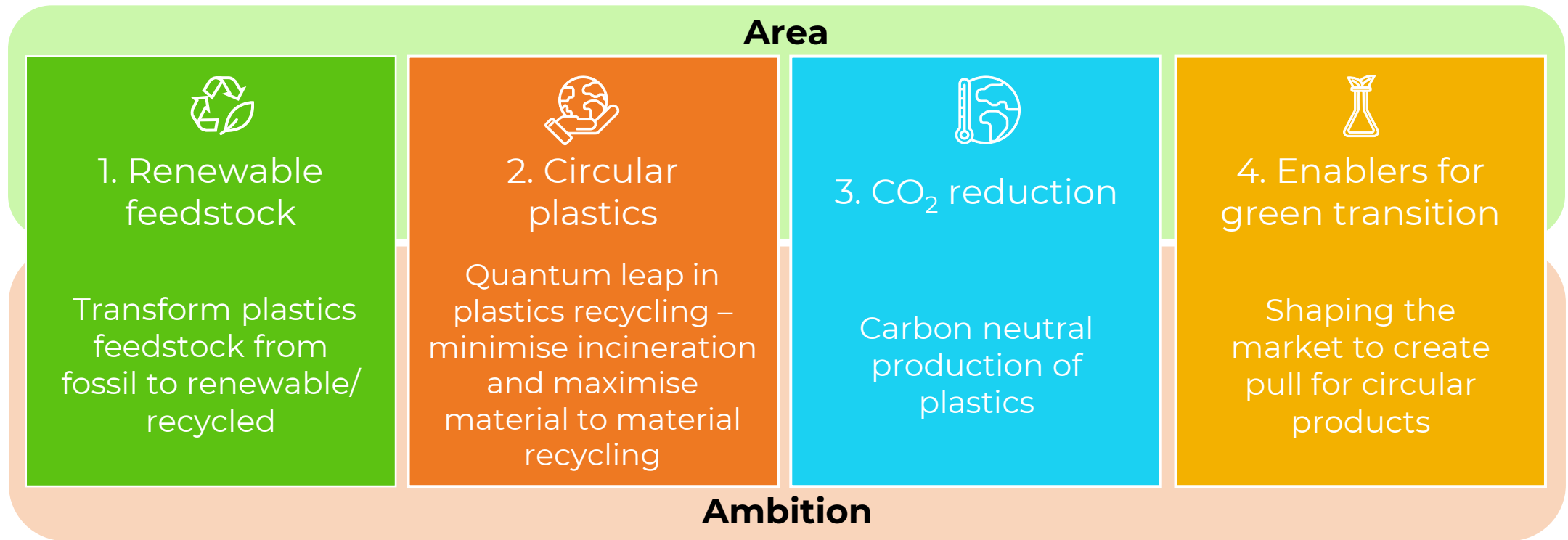
4. Enablers for green transition with e.g. design for/from recycling, reuse, recycling concepts, standardisation

3. Carbon-neutral production of plastics with electrification, green hydrogen and renewable energy

2. Establish efficient systems for large-scale mechanical and chemical recycling of plastics



# SPIRIT programme themes



Cross-cutting topics: new business models, digitalisation solutions, emerging technologies, piloting, analytical methods

[SPIRIT roadmap](#) (available via [Business Finland's home page](#))

# SPIRIT is a Business Finland programme

## Ecosystem funding

- 4-year RD&I programme 2022-2025 (TRL ≤ 6)
  - Borealis won the BF leading companies challenge competition (“Veturi” company)
    - Committed to invest 50 M€ more into R&D, for which 40% funding decision at 20 M€
  - BF reserves additional funding resources
    - Parallel partnership projects fitting the SPIRIT roadmap can separately apply additional funding (40-70% of costs)
    - Up to max 50 M€ budgeted for the entire ecosystem
    - Three calls annually (Jan, Apr, Sep)
- Overall 150 M€ RD&I effort into SPIRIT roadmap!

BUSINESS  
FINLAND



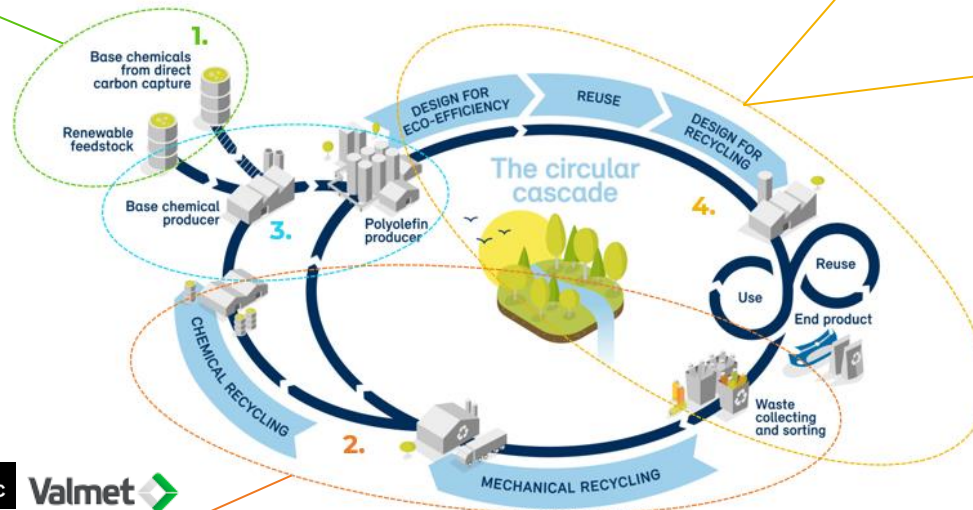
# First partnership projects summer 2022...

**ForestCUMP:** BF approved co-innovation consortium, VTT & LUT + 11 companies, biogenic CO<sub>2</sub> from pulp mills and energy sector, CCU HT-FT technology targeting light hydrocarbons (olefins), public research budget 2.9 M€ (BF 70%) + company projects



**DREAM:** BF approved, Rani Plast company project, data-driven approach for recycling ecosystem and advanced modelling of environmental performance

**SULKI:** BF approved, Orthex company project CirPE evolving into larger SULKI consortium (e.g. brand owners), closed-loop recycling solution for PP products in food-contact applications



**UrbanMill:** BF approved co-innovation consortium, VTT & A! + 13 companies, chemical recycling technology, themes like different plastic types (e.g. liquid packaging, PA, etc.), pre- and post-treatment, public research budget 3.0 M€ (BF 70%) + company projects



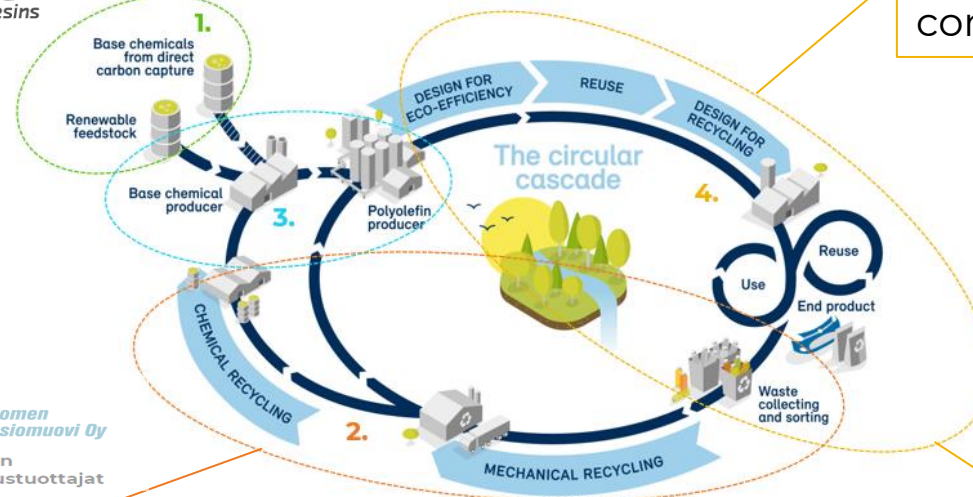


# 2<sup>nd</sup> wave autumn 2022...

**GreenARO:** BF approved co-research consortium, VTT & A! & ÅA + 5 companies, bio-based aromatics, alternative routes and catalysts, public research budget 2 M€ (BF 70%)



**“Plastex”:** BF approved Plastex company project, closed-loop recycling solution for blow moulded HDPE products in food-contact applications (e.g. water containers)



**MSW Plast:** BF approved co-research consortium, VTT & SYKE + 3 companies, municipal solid waste research, e.g. composition, sorting, recyclability, incineration, policy, public research budget ca. 0.6 M€ (BF 70%)

**Zero ink:** BF approved Cajo Technologies company project, laser based marking of plastic products/packaging without labels /stickers/printing



# How to join SPIRIT?

- SPIRIT ecosystem is open for all partners with fresh ideas and commitment to contribute to the sustainable plastics industry transformation
- Visit our website [www.spiritprogramme.com](http://www.spiritprogramme.com) or contact the SPIRIT core team



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## 2. Circular plastics

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## 3. CO<sub>2</sub> reduction

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## 4. Enablers for green transition

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## 5. Programme and ecosystem leadership, communications

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**Thank you!**

[www.spiritprogramme.com](http://www.spiritprogramme.com)