



Towards Green Growth - Green and Growth Go Hand in Hand!

Workshop

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Bio-based Industries Joint Technology Initiative

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*Research and
Innovation*

- Worldwide, the bioeconomy race is on!
 - ✓ According to Pike Research almost 1800 biorefineries to be commissioned globally until 2022 (e.g. US, Brazil, China, Malaysia, India, Thailand);
 - ✓ \$ 1.4 billion of public funding was allocated to the development of advanced biofuels in the US in 2011;
- Third country investments focussed mainly on using food crops;
- EU focusses on advanced biorefineries, utilizing residues from agriculture, forestry and biowaste fractions, while respecting sustainability criteria.

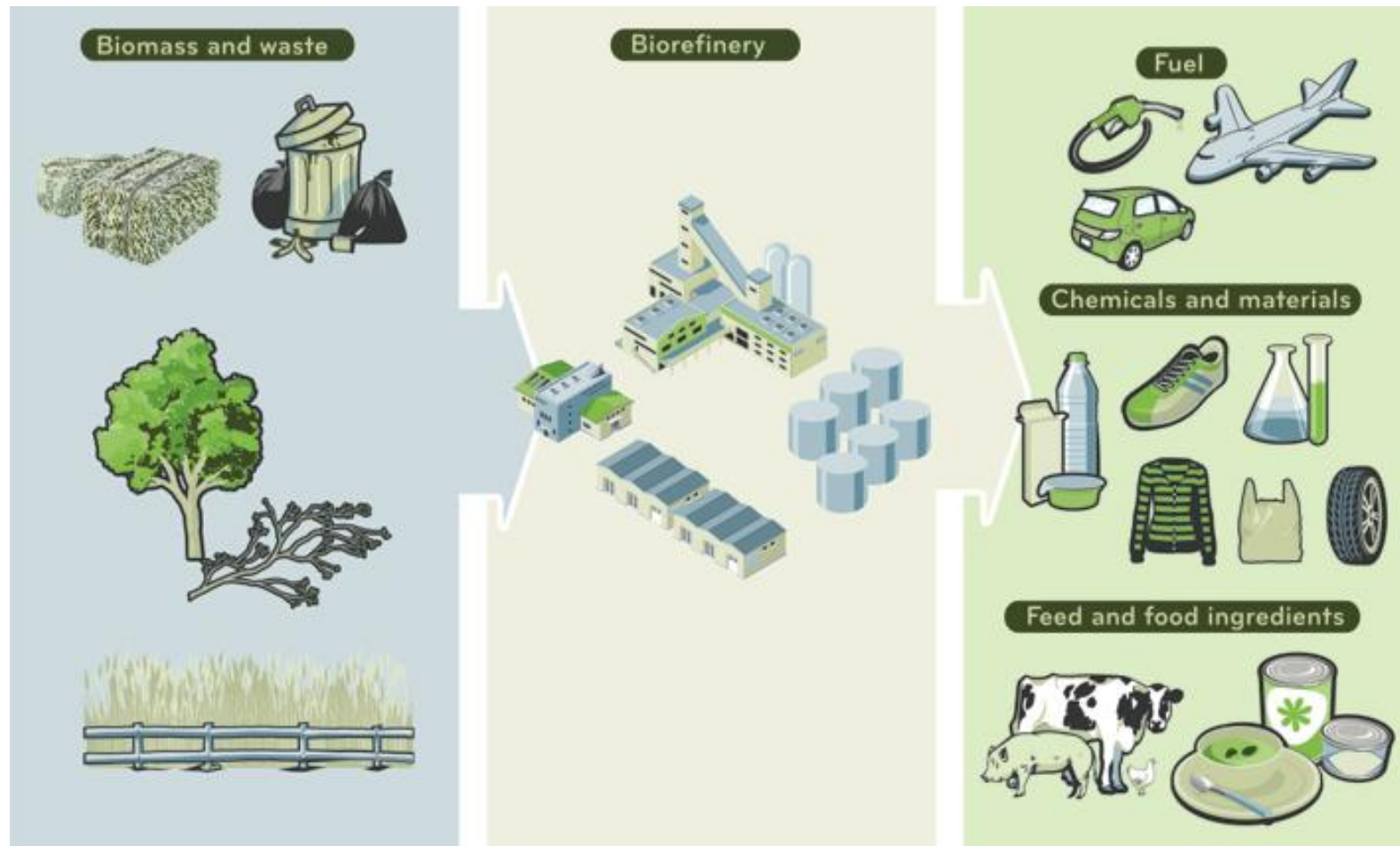
The EU Bio-Based Industries today

- Nascent and fragmented industrial sector today, many small and mid-cap companies lacking critical mass;
- Agriculture and Forestry are the prime biomass suppliers;
- EU producers and industries global market leaders, e.g. in enzyme technology (64% of all companies operate from within the EU);
- About 10% of EU chemicals today produced from renewable biomass, expected to rise to 30% in 2030 globally.
- Several EU industrial sectors concerned: chemical, textile, pulp and paper, sugar, starch, woodworking, biotechnology;

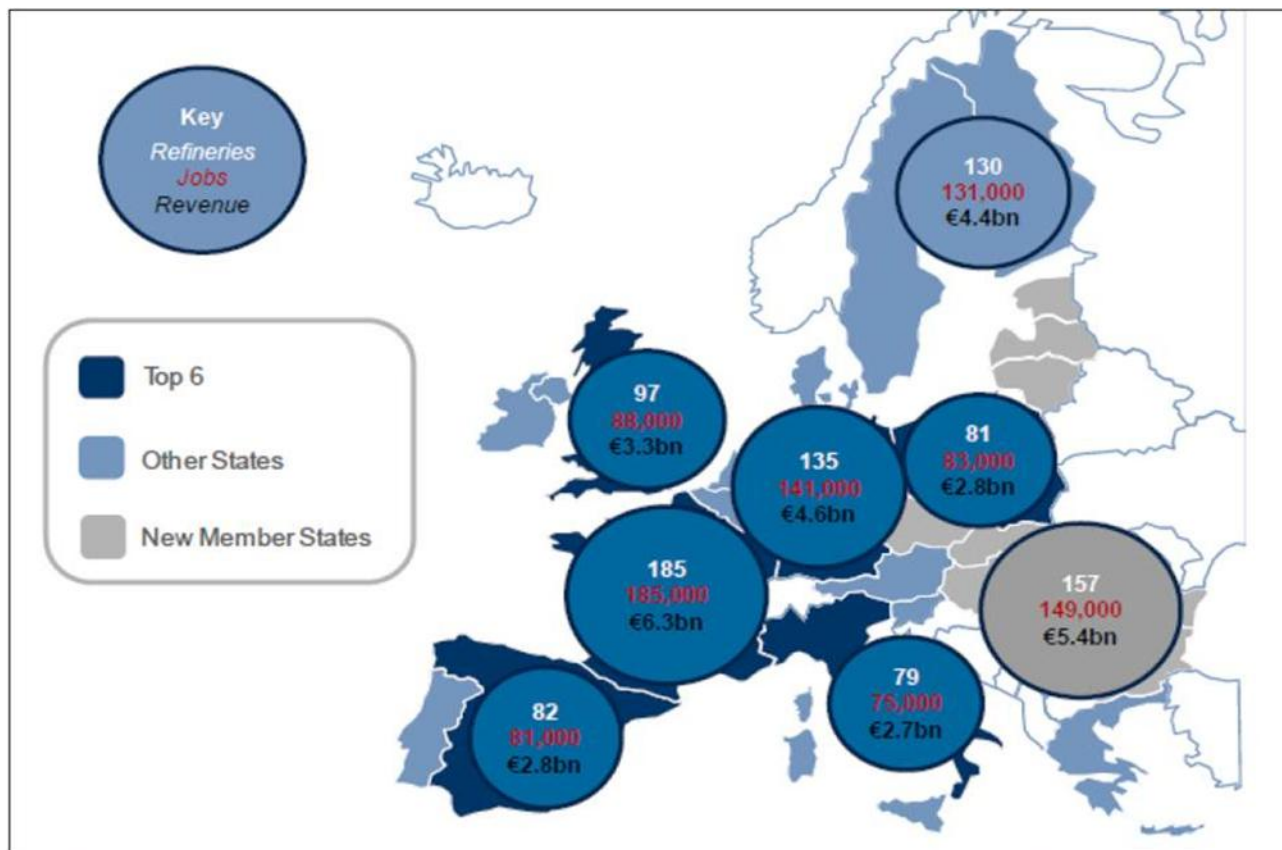


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The bio-based economy concept



The regional potential of bio-based industries



- Building a strong biobased economy in Europe will create both revenues and jobs directly and indirectly
- Next to direct jobs, a biobased economy will also increase farmer income and improve economic activity in developing rural regions

Note: The numbers of biorefineries are determined by the ability of each region or member state within the EU27 to supply bioproducts. Jobs in the chart represent the total man-years of employment between 2010 and 2020, not the number of jobs in 2020 alone. Included jobs are in management, operation and construction of the biorefineries. Revenues are per year
Source: Bloomberg

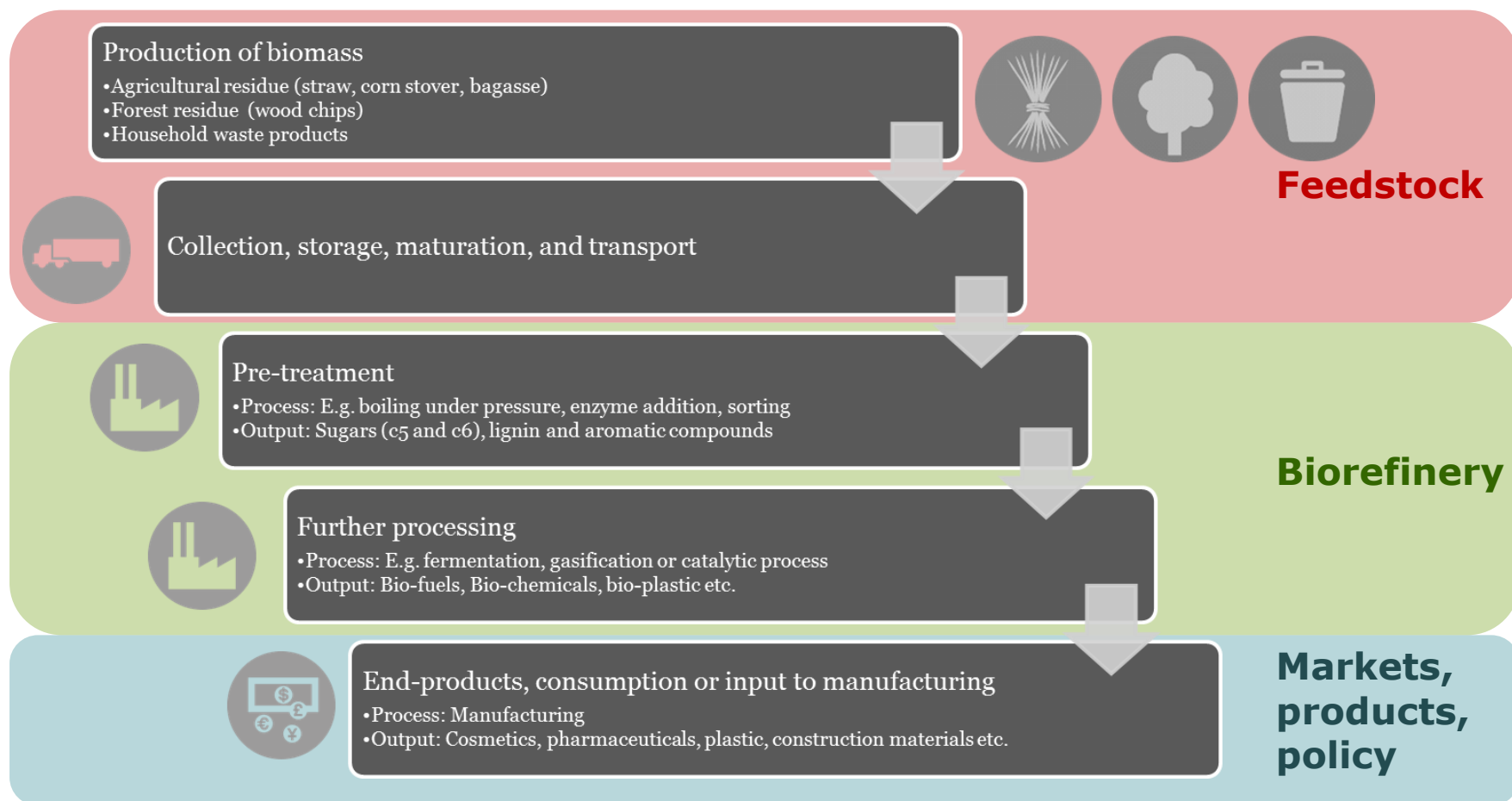
- The example of the EU Chemical Industry
 - ✓ in 2010 combined sales of € 491 billion, € 50 billion or 10% thereof bio-based;
 - ✓ Bio-based chemicals share expected to rise until 2030 to € 150 annual sales billion, affecting up to 400.000 jobs;
 - ✓ Technology leadership in support of competitiveness will be instrumental for securing a high market share of EU industries and EU jobs.

- And EU Agriculture and Forestry?
 - ✓ Feedstock costs in biorefineries typically 25-40% of final product value;
 - ✓ Estimated additional € 100 billion bio-based products in the chemical industry would represent an additional market value of € 25 billion for biomass production and logistics in the EU.

A Bio-Based Industries JTI is needed as a catalyzer for the creation of new value chains

- Cross-sectorial collaboration along value chains of previously unrelated sectors and industries
 - ✓ Pooling of resources
 - ✓ De-risking investments at higher TRL levels
- Develops the necessary range of conversion processes for integrated biorefineries
- Demonstrates and deploys advanced large-scale biorefineries
- Facilitates and promotes the uptake of bio-based products

The value chain of bio-based industries



© Copenhagen Economics, based on Biorefining Alliance (2012b)

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General principles for a JTI under Horizon 2020



- **Clear and ambitious objectives**, contributing directly to competitiveness and EU policy goals;
- Governance to ensure **openness** to new participants, the allocation of funding on the basis of **excellence**, and efficient links with national activities;
- **Simple implementation** structures and rules for participants;
- **Strong commitments from industry**, including substantial financial commitments.

A graphic for the Horizon 2020 program. The word "HORIZON 2020" is written in large, white, sans-serif capital letters. The letter "O" in "HORIZON" is replaced by a realistic image of the Earth from space, showing blue oceans and white clouds. The text is set against a dark blue background with a bright, glowing horizon line and radiating light beams, suggesting a sunrise or a new beginning.

HORIZON 2020

A PUBLIC PRIVATE PARTNERSHIP
ON BIO-BASED INDUSTRIES (BBI)

Realising the bio-based economy potential in Europe



 Biobased Industries
Consortium



Proposed budget

Overall budget: € 3 800 million

EU contribution



Industry contribution



Leverage

2,8 € private investment for every 1 € public investment

Biomass supply

Primary
conversion
processes

Secondary
conversion
processes

Products and
Markets

Lignocellulose
based



Forest based



Agro based



Waste based



Bioenergy
based



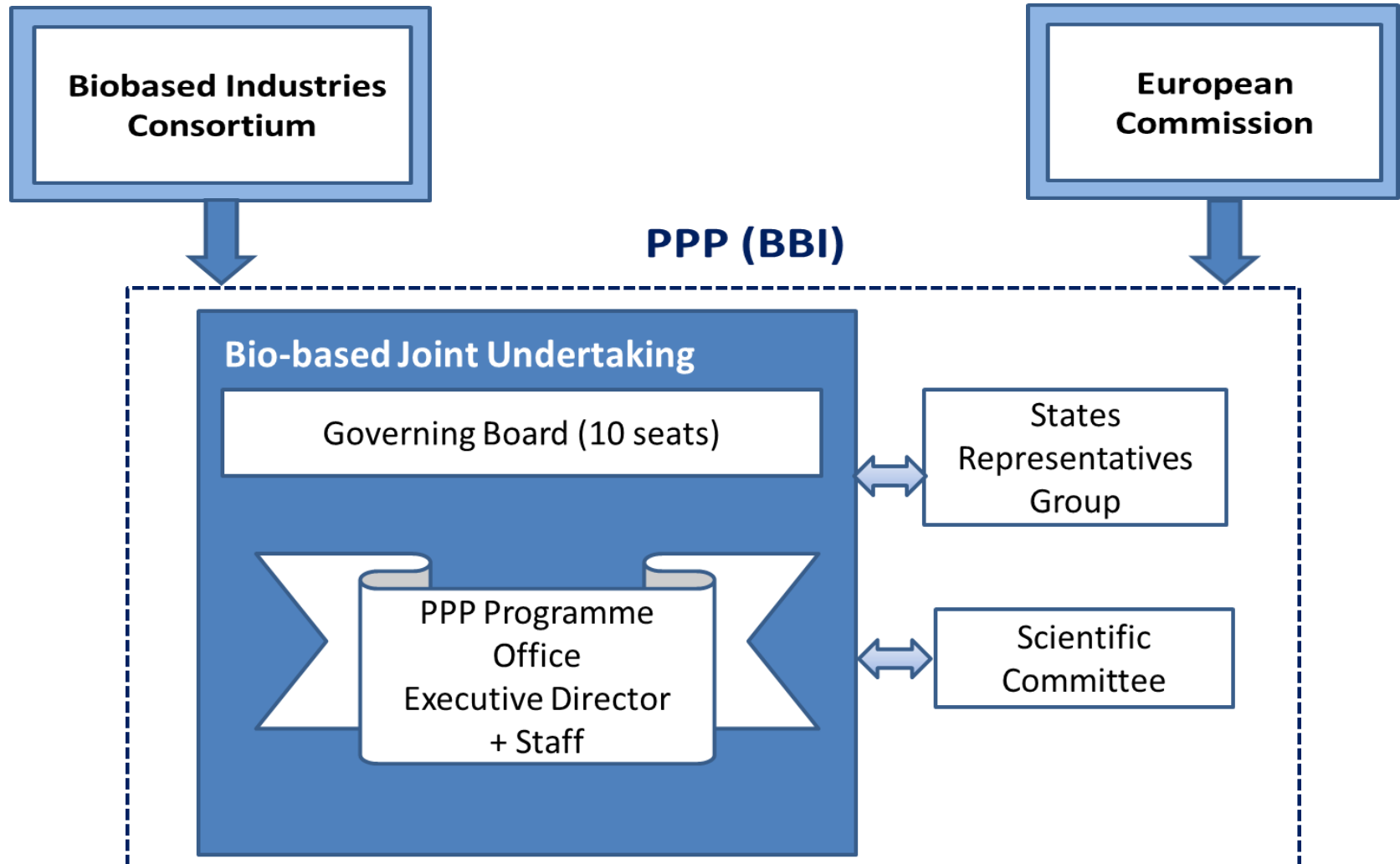


Different types of projects

The SIRA includes a balanced combination of projects:

- **R&D PROJECTS** focused on filling the gaps in technological innovations: dedicated projects on the development of specific technologies and concepts needed to realise the value chains, and proving the principles in pilot installations
- **DEMONSTRATION PROJECTS**
 - To integrate and deploy technologies and R&D results into actual value chains
 - To bring technology close to commercial scale through upscaling in demonstration activities
- **FLAGSHIP PROJECTS**
 - To optimise technology for biomass conversion and ensure price-competitiveness: both by building new operations and upgrading existing and abandoned industrial sites to be converted into biorefinery operations
 - Each value chain area will lead to at least one flagship project.
- **SUPPORTING PROJECTS** mainly include Research activities, focused on solving cross-cutting issues arising from the Value Chain demonstration projects.

Governance: structure



- Decision making process in Council (and European Parliament)
- Adoption Horizon 2020
- Adoption Council regulation on JTI on Bio-based Industries