Innovation towards resource efficiency, jobs and growth

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Overview

1. What is bioeconomy?
2. EU context
3. Economic opportunity
4. EU Bioeconomy policy
5. Delivering the EU bioeconomy: will Europe lead?
1. WHAT IS BIOECONOMY
"The Bioeconomy encompasses those parts of the economy that use renewable biological resources from land and sea to produce food, bio-materials, bio-energy and bio-products."

_EU bioeconomy strategy, 2012_
Life sciences enable the creation of new **bio-based** value chains

**Primary production**
- Sugar beets
- Algae
- Wood residues

**Waste**
- Biological waste
- Fish waste

**INTO**
- Cosmetics
- Plastic bottles
- Natural colourants for candy
- Dashboards
- Bio-based plastics
- Pharmaceuticals
2. EU CONTEXT
1. A new boost for jobs, growth and investment
2. A connected digital single market
3. A resilient Energy Union with a forward looking climate change policy
4. A deeper and fairer internal market with a strengthened industrial base
5. A deeper and fairer EMU
6. A reasonable and balance free-trade agreement with the U.S.
7. An area of justice and fundamental rights based on mutual trust
8. Towards a new policy of migration
9. A stronger global actor
10. A Union of democratic change
Bioeconomy and Circular Economy

The Bioeconomy Strategy is of high relevance to the CE package:

- The package includes sectorial chapters on "biomass and bio-based products" and on "food waste";

- The package includes as an action "the assessment of the contribution of the 2012 Bioeconomy Strategy to the circular economy and to update the Strategy if necessary";

- Proposal to make the separate collection of bio-waste mandatory under conditions, and to ban the landfilling of separately collected waste.

→ Other relevant bioeconomy aspects for the circular economy are sustainable production, biodegradability, use of bio-waste, new circular value chains, etc.
**PRINCIPLE 1**

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows. **ReSOLVE levers:** regenerate, virtualise, exchange.

**Bioeconomy**

- **Renewables**
- **Finite materials**
- **Regenerate**
- **Substitute materials**
- **Virtualise**
- **Restore**

**Renewables flow management**

1. **Farming/collection**
2. **Biochemical feedstock**
3. **Extraction of biochemical feedstock**
4. **Cascades**
5. **Consumer**
6. **Collection**

**Parts manufacturer**

- **Product manufacturer**
- **Service provider**

**Stock management**

1. **Recycle**
2. **Refurbish/ remanufacture**
3. **Reuse/redistribute**
4. **Maintain/prolong**
5. **Share**

**Minimise systematic leakage and negative externalities**

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1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input.

Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Breurang & McDonough, Cradle to Cradle (C2C).
COP21: The role of bioeconomy

- Deep de-carbonisation not possible without the bio-economy:
  - Replacement of fossil resources for energy, fuels, chemicals, materials (plastics) by sustainably produced biomass – without compromising food security
  - Biomass production (agriculture) is major source of GHG emissions (mainly ruminants; fertilizer production) but also possible sink of CO2 (forestry, soils, CCU)
    - Major innovations needed to address deep de-carbonisation in bioeconomy
- Energy Union Research, Innovation and Competitiveness Strategy (EURICS)
3. THE EU'S ECONOMIC OPPORTUNITY
Bioeconomy is an important industrial sector for Europe

**Turnover in the EU-28 by the bioeconomy sector**

- 19% Agriculture
- 2% Forestry
- >1% Fisheries & aquaculture
- 55% Food, beverage & tobacco industry
- 4% Bio-based textiles
- 8% Manufacturing of wood & wood furniture
- 9% Manufacturing of paper & paper products
- 3% Bio-based chemicals, pharmaceuticals and plastics
- >1% Biofuels
- >1% Bio-based electricity

*Based on DataM – Bioeconomics, database elaborated by the EC, JRC IPTS & Nova Institut*
Europe needs to **act** to remain competitive for industrial production and attract **investment** in the bioeconomy.

4. EU BIOECONOMY POLICY
EU Bioeconomy Action Plan

**Investment in R&I**
- Horizon 2020
  - 3.8 bn €
- Increase multi-disciplinary & cross-sectoral R&I
- Smart Specialisation
- EFSI

**Policy interaction & stakeholder engagement**
- Bioeconomy Panel
- Bioeconomy observatory
- EU Policy coherence
- Development of regional and national bioeconomy strategies
- International cooperation

**Enhancement of markets and competitiveness in bioeconomy**
- Sustainable intensification of primary production
- Expansion of new markets
- Increase EU competitiveness
- BBI JU
  - 3.5 bn €
POLICY: Member States & regions are working towards integrated bioeconomy strategies

- dedicated bioeconomy strategy
- partial bioeconomy strategy (e.g. bioenergy, bioindustry, regional strategies)
- bioeconomy strategy under development

Source: German Bioeconomy Council, Maisei/fotolia.com (flags), jktu_21/fotolia.com (world map)
Engagement stakeholders: 4th Bioeconomy Stakeholders Conference

- To foster buy-in from all stakeholders

- As outcome a concept **Bioeconomy Stakeholders' Manifesto** that lists key:
  - Challenges and opportunities, Guiding Principles, Actions

- Actions focusing primarily on contributions stakeholders themselves can make

- Deliberated upon by the renewed Bioeconomy Stakeholders' Panel
INVESTMENT: €3,7bn BioBased Industries Public-Private partnership 2014-2020

- €975 million of EU funds (Horizon 2020), leveraging €2.7 billion of private investments
- Demonstrators, breakthrough research, Flagships
The EU Bioeconomy Strategy Review

SCAR Foresight Conference 8/10/2015

Bioeconomy Investment Summit 25-26/11/2015 Berlin

Global Bioeconomy Summit 25-26/11/2015 Utrecht

European Bioeconomy Stakeholders’ Conference 12-13/4/2016 Utrecht

Knowledge Exchange Platform on Bioeconomy Conference 29/4/2016 CoR

"The role of regions in the Bioeconomy" conference 17/10/2016 Bratislava

Launch of the Bioeconomy Knowledge Centre March 2017 Malta (TBC)

Launch of the International Bioeconomy Forum 13/10/2016

First meeting of Bioeconomy Stakeholders’ Panel 17/6/2016

Launch of the Bioeconomy review experts group Sep 2016

European Bioeconomy Stakeholders’ Manifesto Early 2017

Staff Working Document on the EU Bioeconomy Strategy Review Oct/Nov 2017

Possible new initiative on a sustainable Bioeconomy 2018
5. DELIVER THE EU BIOECONOMY: WILL EUROPE LEAD?
Sustainable development

Non-fossil, post-petroleum society

Flourish local businesses, resources & employment

Source: Finnish Bioeconomy Strategy, 2014
• 2017 Building Europe's Bioeconomy – a strategy for sustainable innovation, re-industrialisation
• Will Europe lead, or will it lose out on THE circular, production economy of the 21th century?!
Thank you for your attention!

For more information:

www.ec.europa.eu/research/bioeconomy