



POWER4BIO
REGIONS FOR
BIOECONOMY



Bioeconomy Innovation Week, 03.03.2021

Robert M'barek – EC Joint Research Centre



FOR BOOSTING THE REGIONAL BIOECONOMY IN CEEC

This project has received funding from the European
Union's
Horizon 2020 research and innovation programme
under grant agreement No 818351



Elements of the future prospects for the bioeconomies in the CEE countries - a socioeconomic view

Bioeconomy Innovation Week



POWER4BIO
REGIONS FOR
BIOECONOMY

Robert M'barek, Tevecia Ronzon, Patricia Gurria

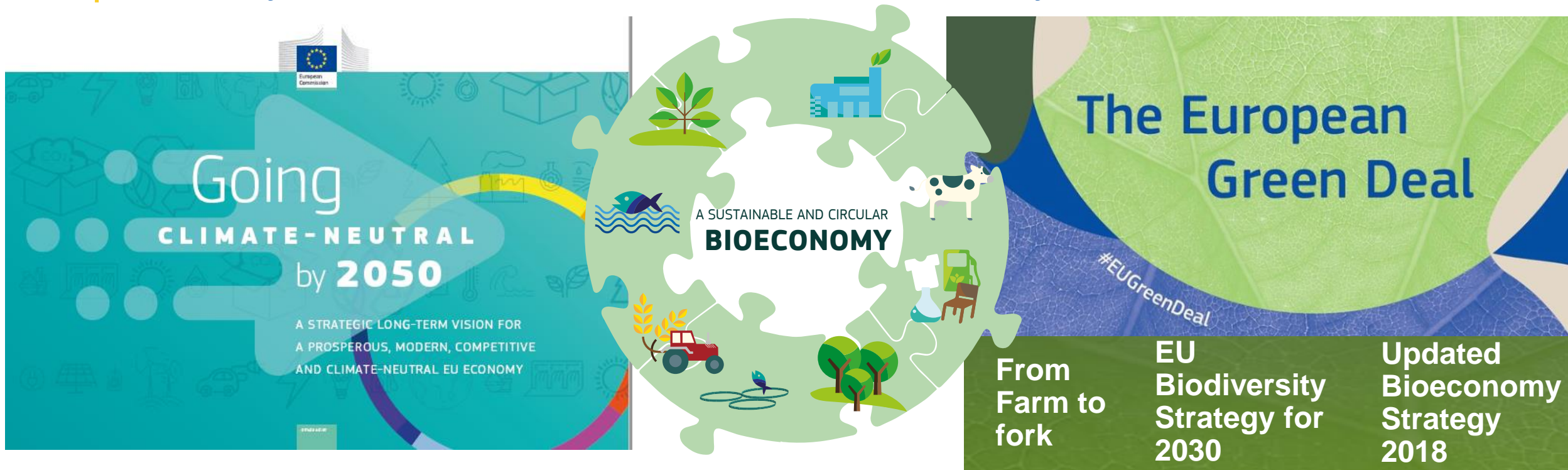
EC Joint Research Centre,

Directorate for Sustainable Resources;

Economics of Agriculture

3.3.2021

Policy context of the Bioeconomy



Ensuring there is enough food for a growing population



Mitigating and adapting to climate change



Reducing our dependence on non-renewable resources

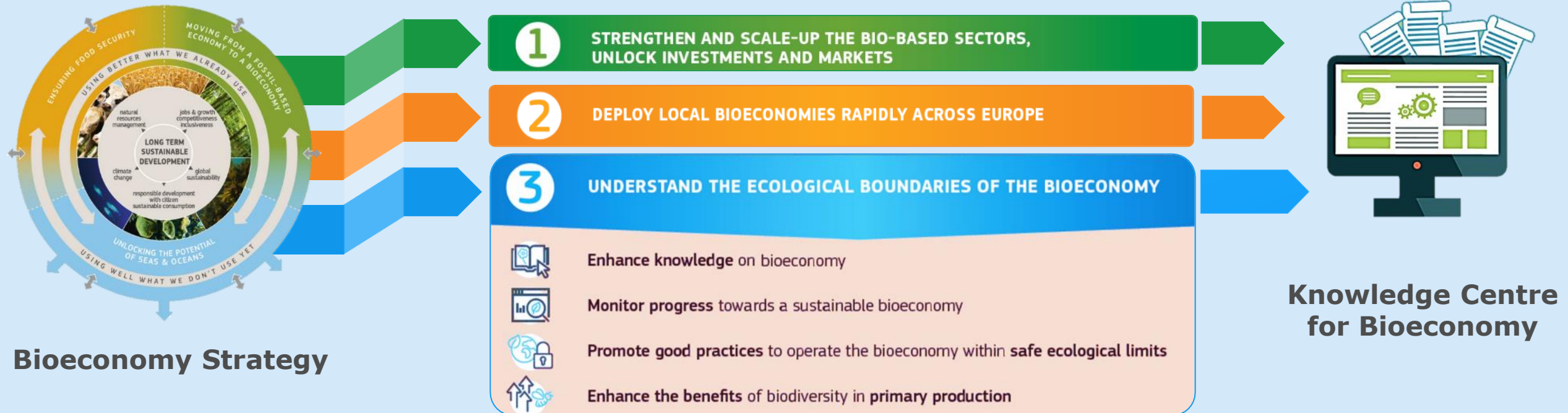


Strengthening European competitiveness and creating jobs



Managing our natural resources in a sustainable way

Implementing the European Bioeconomy Strategy



https://knowledge4policy.ec.europa.eu/bioeconomy_en

(Bio-)economic and –social context

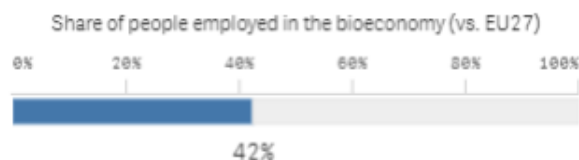
BioEAST at a glance

7.41M

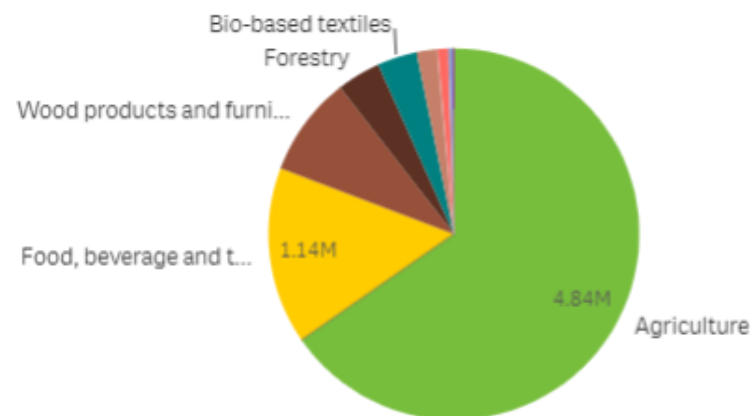
€85

Value added per person employed...

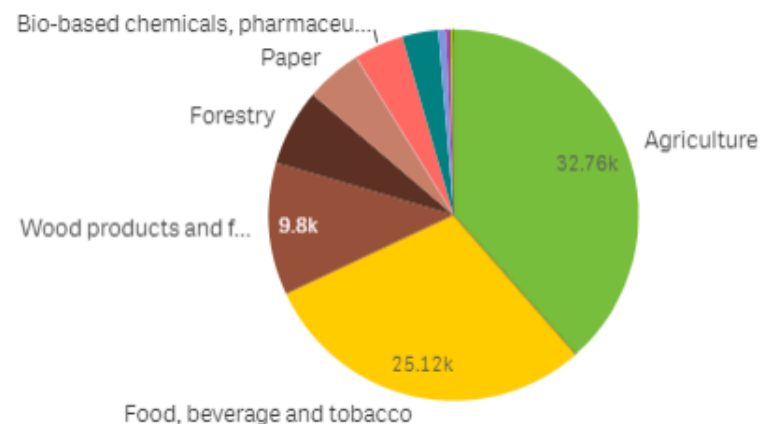
11 k€^{35 k}
EU27



Employment in the bioeconomy by sectors in selected countries (2017)
(number of people employed)

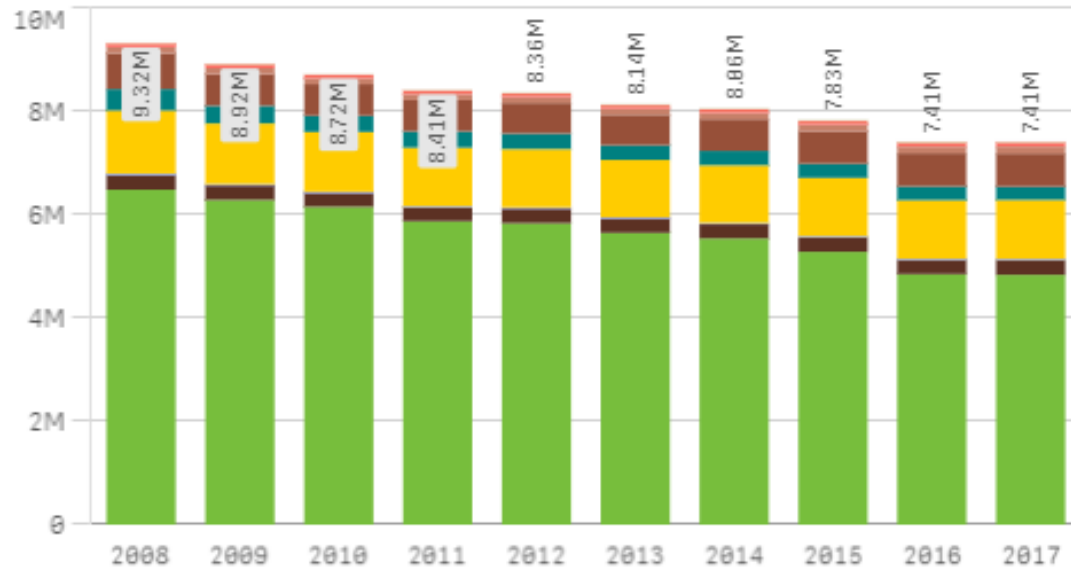


Value added in the bioeconomy by sectors in selected countries (2017)
(million €)

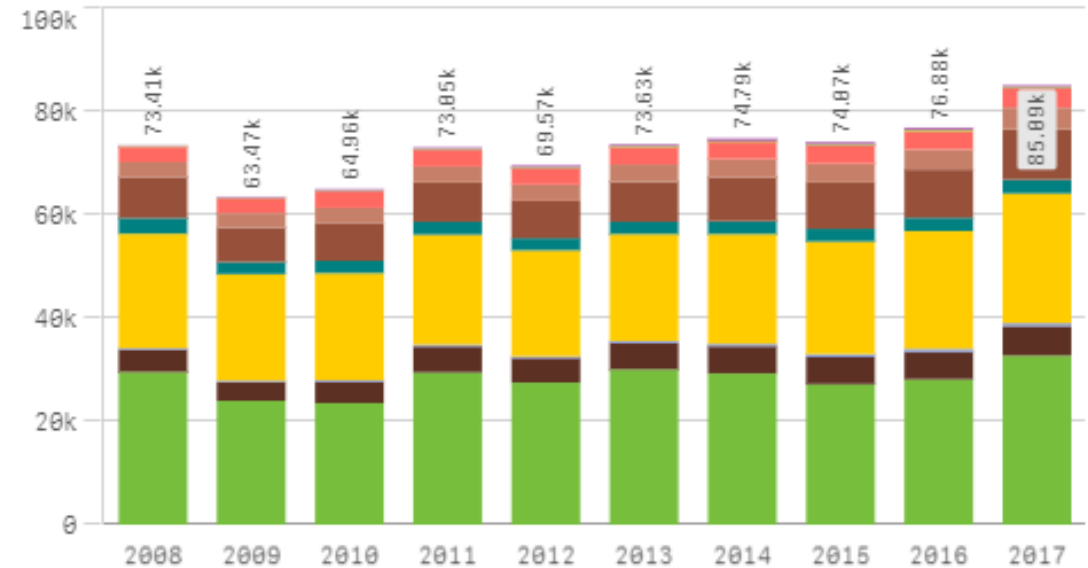


More efficiency: decrease of employment, increase of VA

Development of the number of people employed by sectors of the bioeconomy...
(number of people employed)

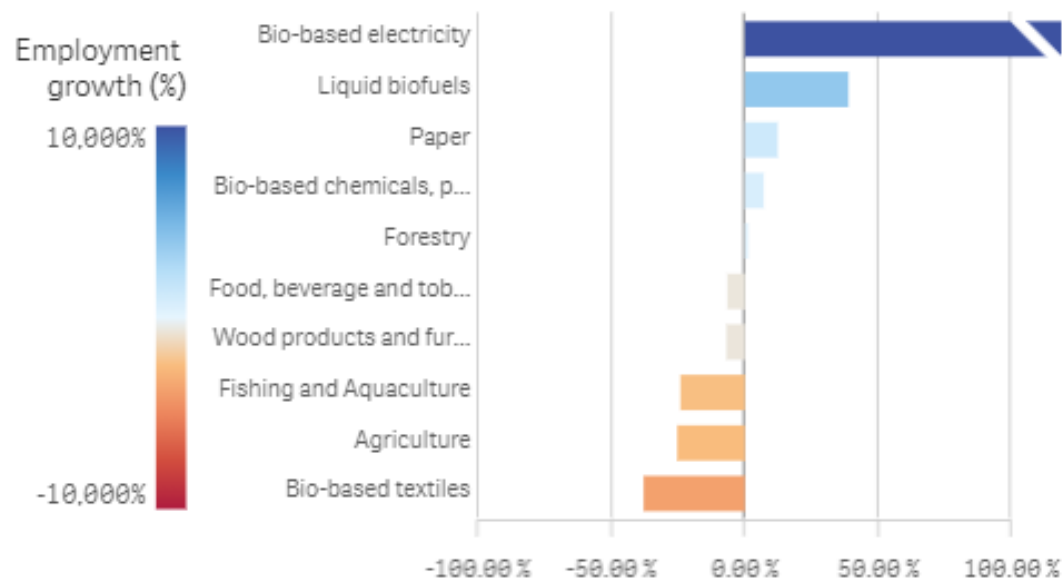


Development of sectorial value added in the bioeconomy (selected countries...
(million €)

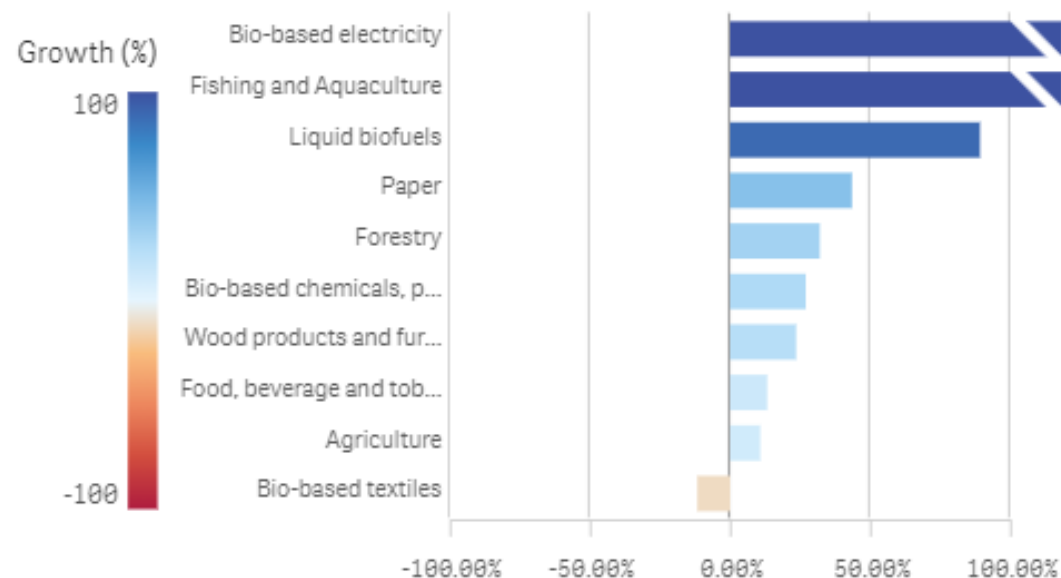


Jobs and value added in non-food on the rise

Employment growth between 2008 and 2017 in selected countries

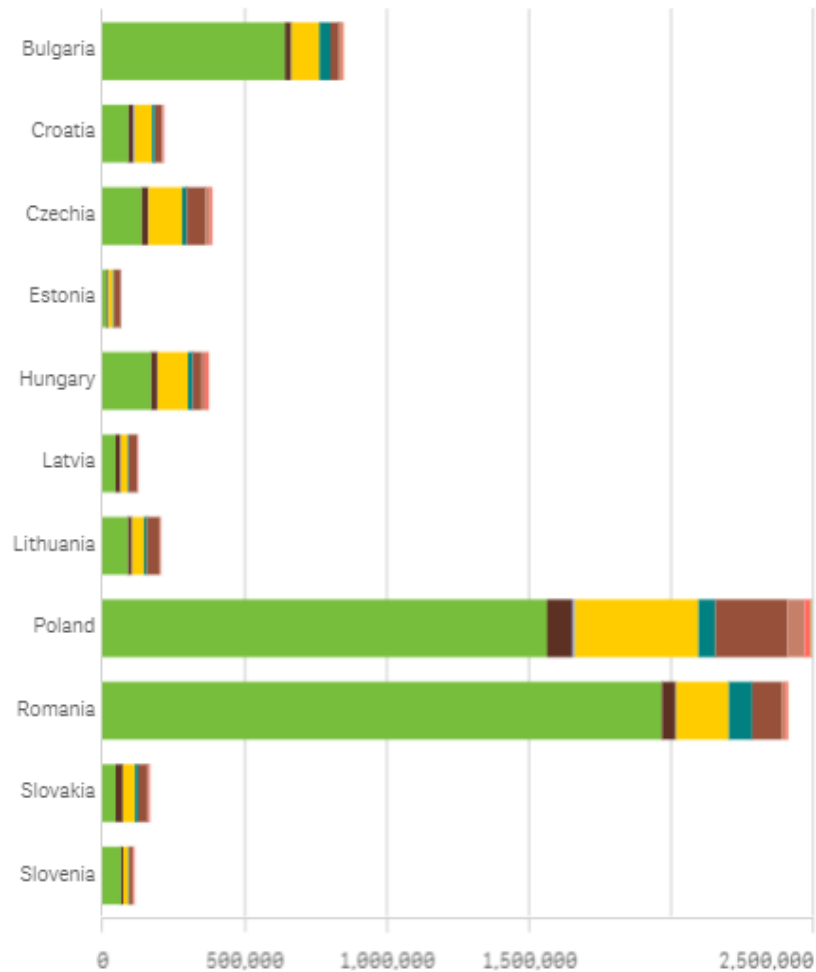


Value added growth between 2008 and 2017 in selected countries

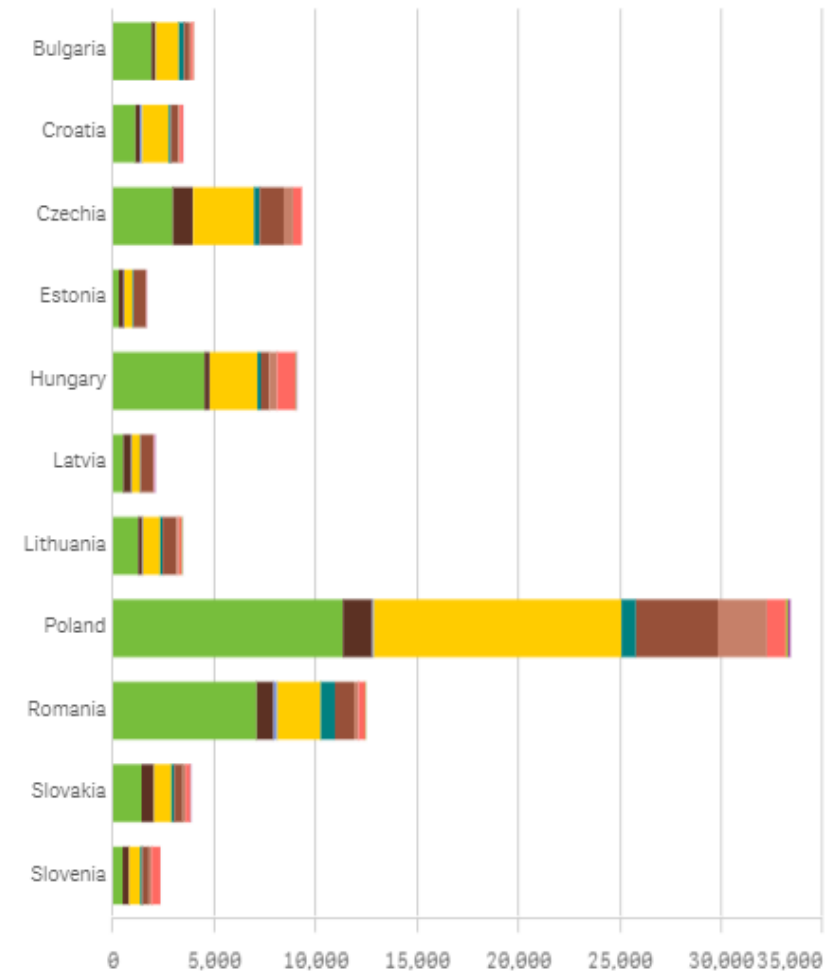


The big two and the big one – numbers behind the aggregate

Number of people employed in 2017

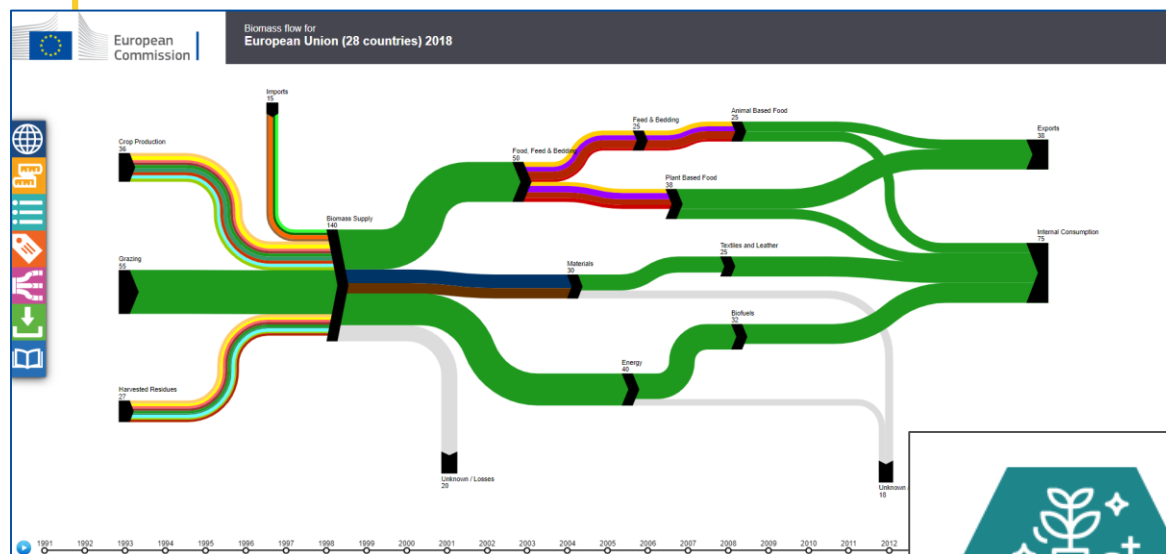


Value added in 2017 (in million €)



Biomass supply and use today

EU Biomass Flows tool



Flows of biomass for each sector of the bioeconomy, from supply to uses including trade.

https://knowledge4policy.ec.europa.eu/visualisation/biomass-flows_en
https://datam.jrc.ec.europa.eu/datam/mashup/BIOMASS_FLOWS/index.html

New version released in November 2020 with improved capabilities and user experience.

Source: Gurria et al. (2020):
<https://op.europa.eu/en/publication-detail/-/publication/74413f58-32be-11eb-b27b-01aa75ed71a1/language-en>



1.1 billion tdm biomass supply

- 95% domestically sourced
- 68% agricultural origin



756 million tdm biomass supply

- 67% from crop production
- 72% used for food & feed



348 million tdm biomass supply

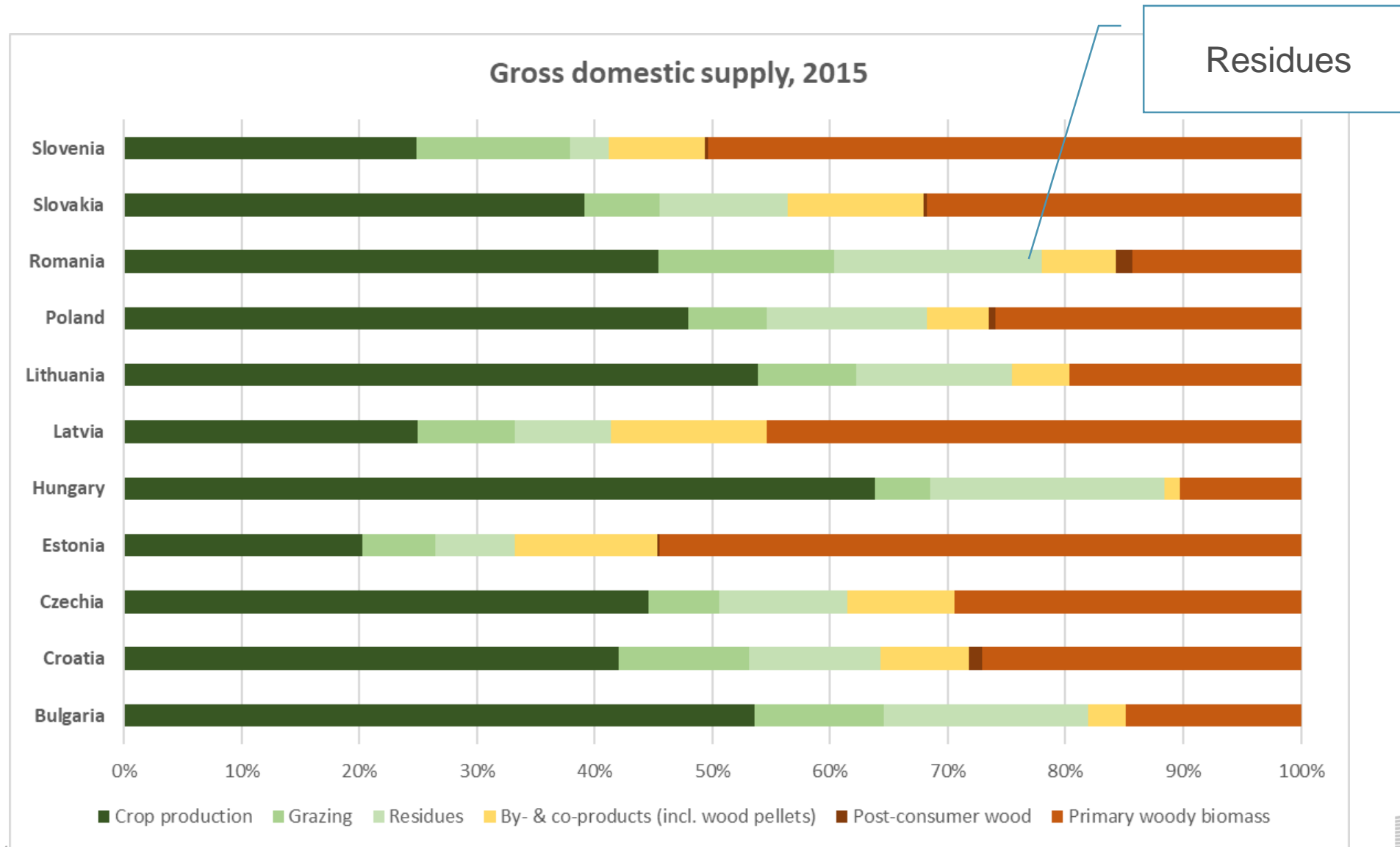
- 68% primary woody biomass
- 49% used for heat & power



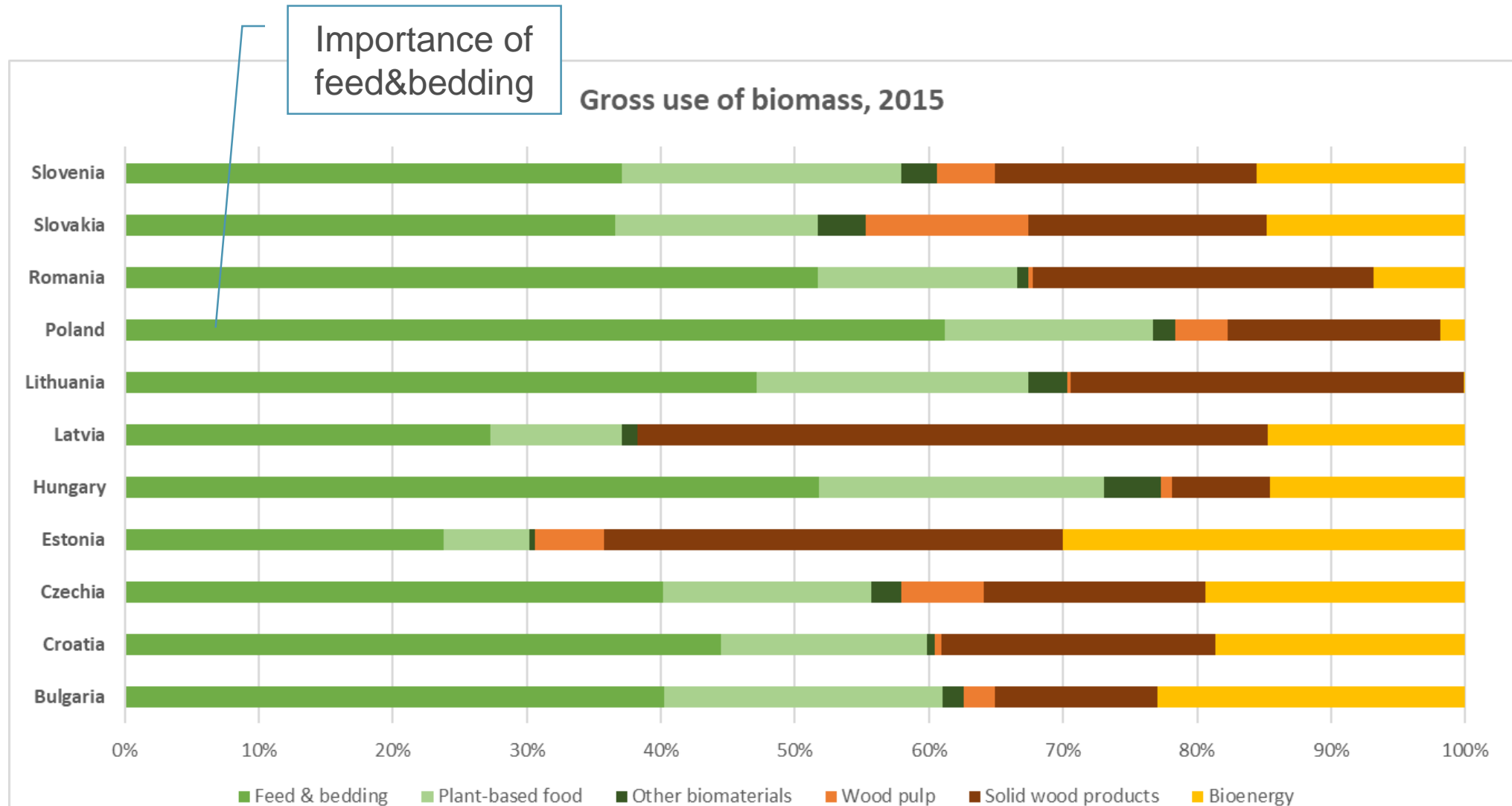
3.5 million tdm biomass supply

- 44% are imports
- 76% directly used for food

BioEAST countries mainly agriculture oriented



BioEAST countries biomass use



Food security: apparently still an issue



Global Food Security Index



[Home](#) [Baseline index](#) [Resource library](#) [Download the index](#)

[Methodology](#) [About](#)

Rankings and trends

Explore the year-on-year trends for the Global Food Security Index.
Figures are from annual baseline model (December 2020).



FREE
Download the index
GFSI 2020 Model
(Excel file 5.43mb)

Country rankings 2020

Year-on-year trends

Biggest changes

Visual analysis

Performance of countries based on their 2020 food security score

Score

Rank

Global Regional

Global ranking	Country	Overall score	Affordability	Availability	Quality and Safety	Natural Resources and Resilience
1st	Finland	85.3	90.6	82.0	93.8	73.2
2nd	Ireland	83.8	92.2	75.7	94.0	73.2
3rd	Netherlands	79.9	90.7	74.5	88.7	61.5
4th	Austria	79.4	89.5	70.8	94.3	61.8
5th	Czech Republic	78.6	86.3	70.4	87.1	70.9

“The researcher explained that the level of food security in the EU is not uniform as the performances of both Mediterranean countries and Central and Eastern Europe are significantly lower than in Western and Northern Europe.”

Euractiv.com

(Bio)-industrial structure

Bio-based plants

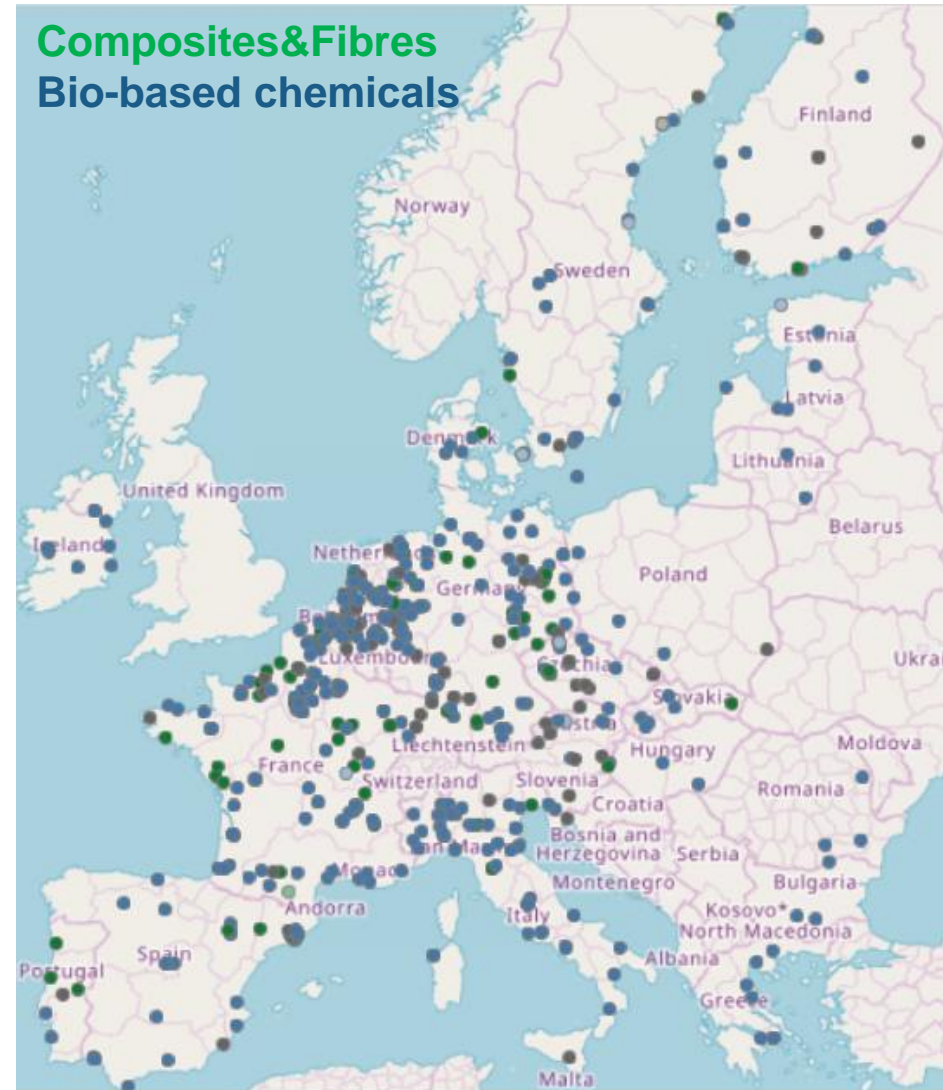
Liquid Biofuels

Pulp&Paper mills

Starch&Sugar plants



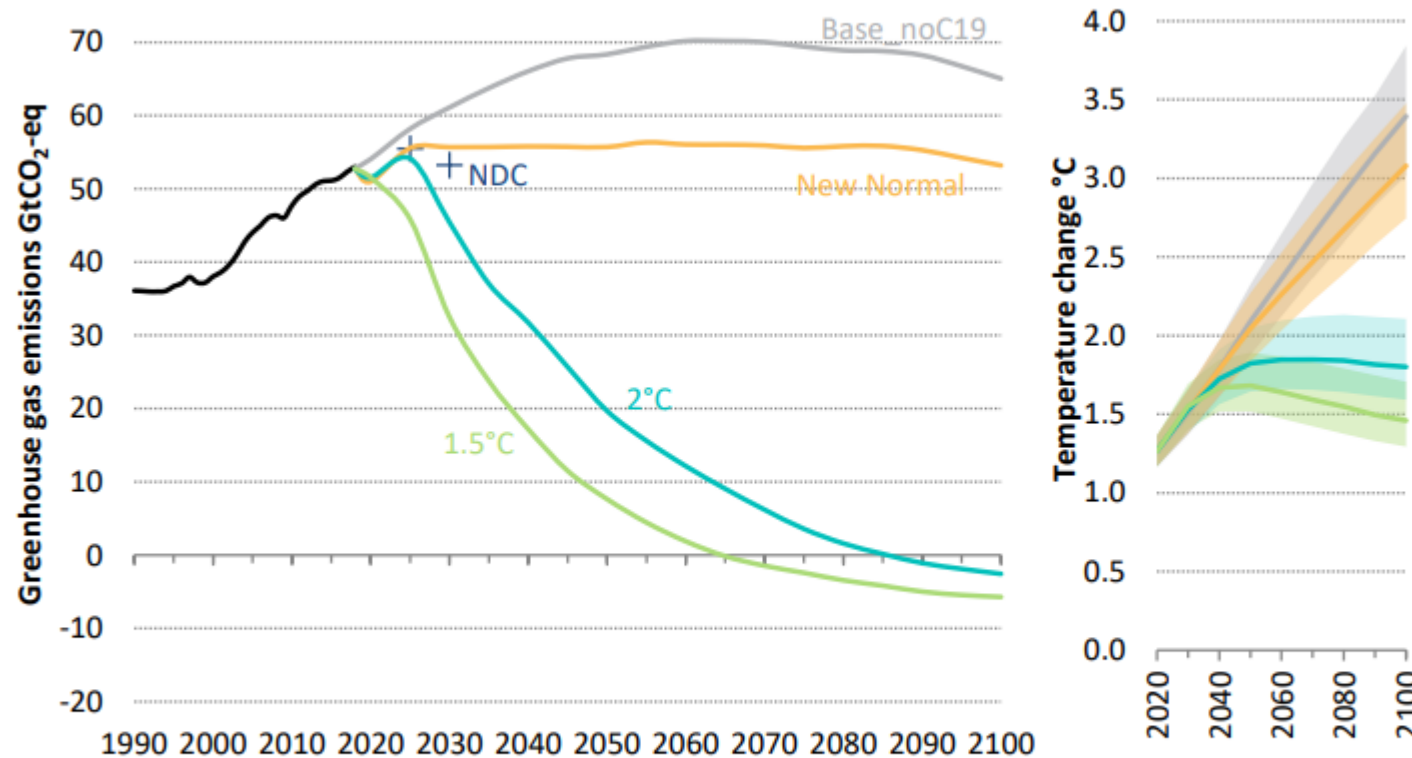
Composites&Fibres
Bio-based chemicals



Framing conditions for the future

Boundary conditions of the future: new normal does not take away the challenges

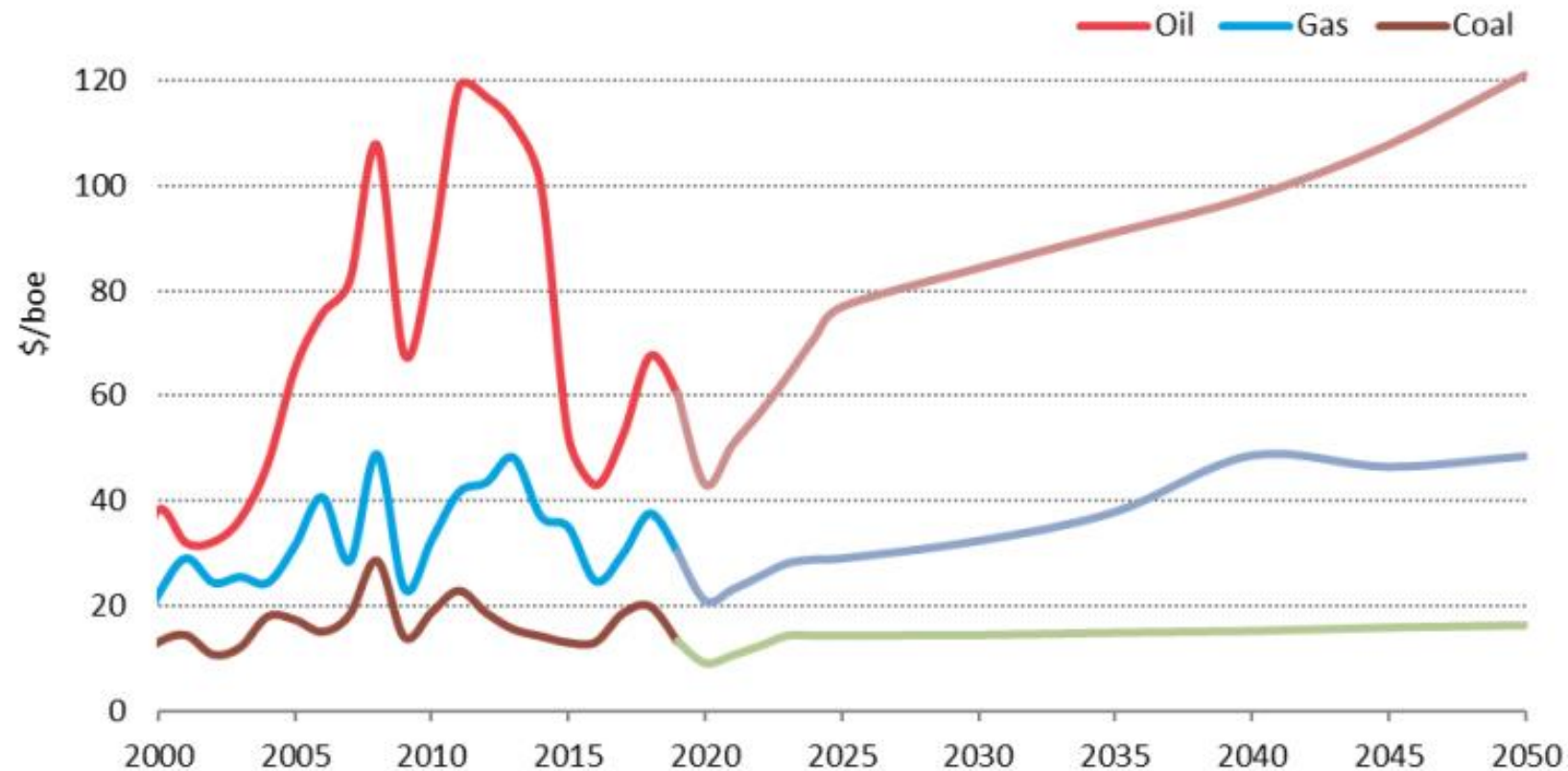
Figure 1: Global GHG emissions and global mean temperature increase



Note: Base_noC19 is a hypothetical projection without the inclusion of Covid-19 effects. New Normal is but one possible pathway of future post-Covid development, it differs from the Base_noC19 scenario in three groups of modelled parameters: macroeconomic parameters; transport changes; and new policies. The 2°C and 1.5°C scenarios were designed with a probability not to exceed their temperature change at the end of the century of 66% and 50%, respectively. NDC is the NDC scenario from GECO 2019.

Future fossil fuel price – back to higher prices

Figure 37: International fossil fuel prices in the New Normal scenario



Note: Oil prices refer to Brent; gas and coal prices refer to the average imports to the European market. Source: POLES-JRC model.

Source: Global Energy and Climate Outlook

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC123203/kjna30558enn_geco2020.pdf

Bioeconomy in a climate-neutral future: a key role

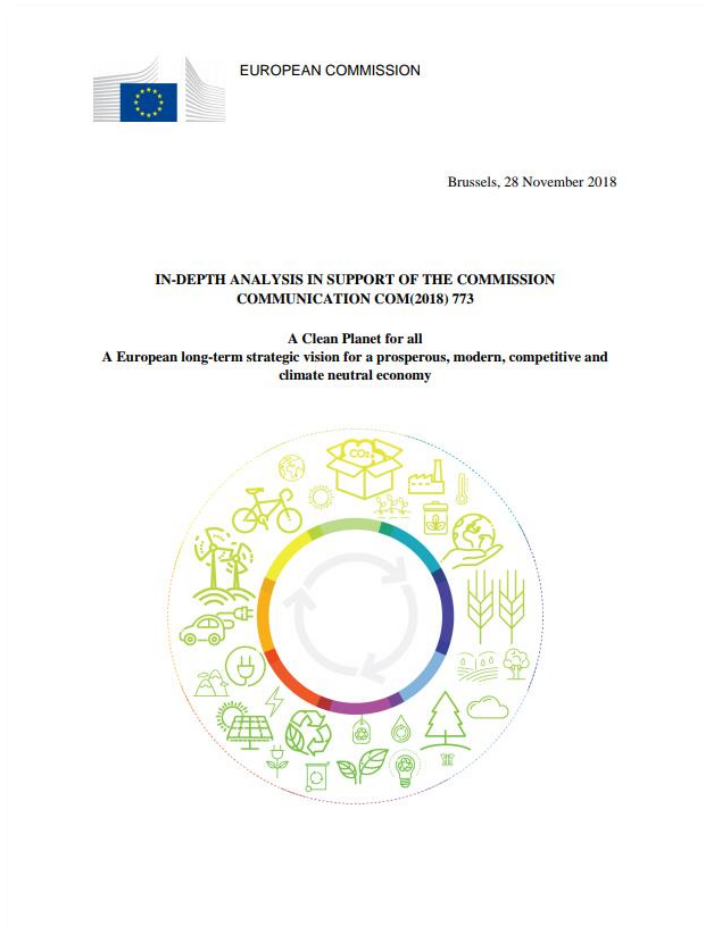
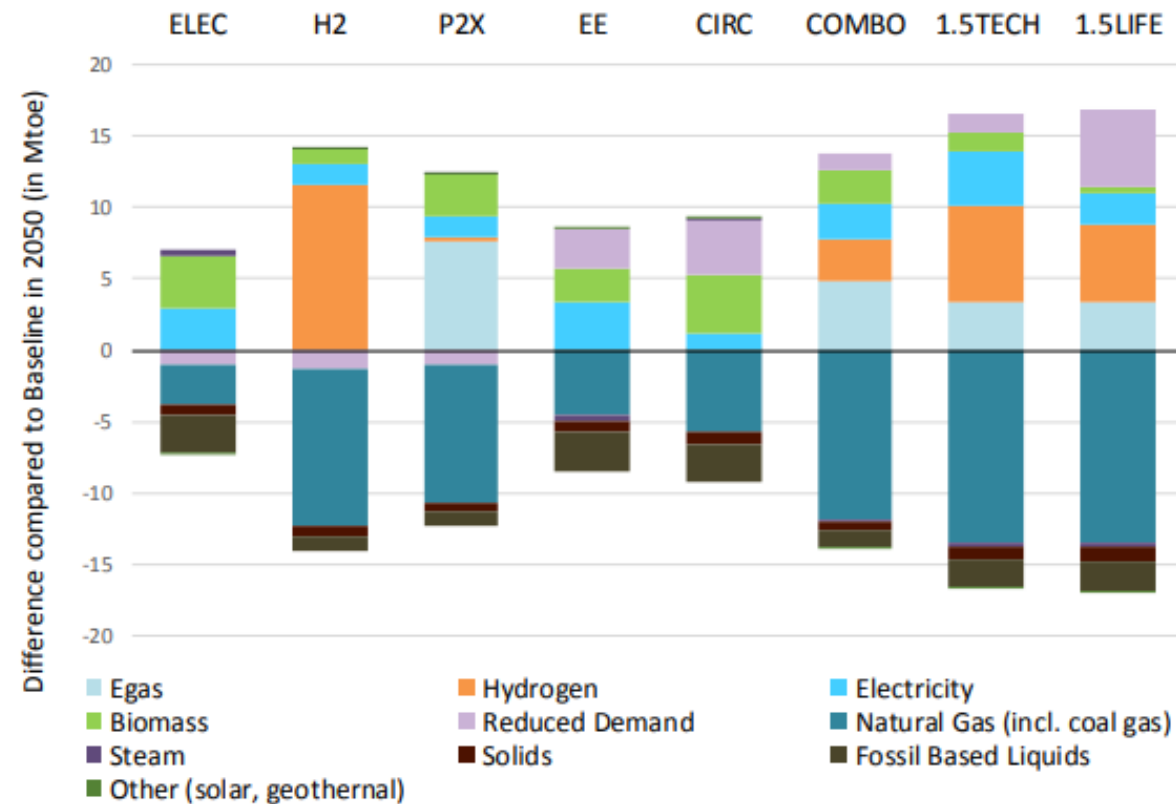
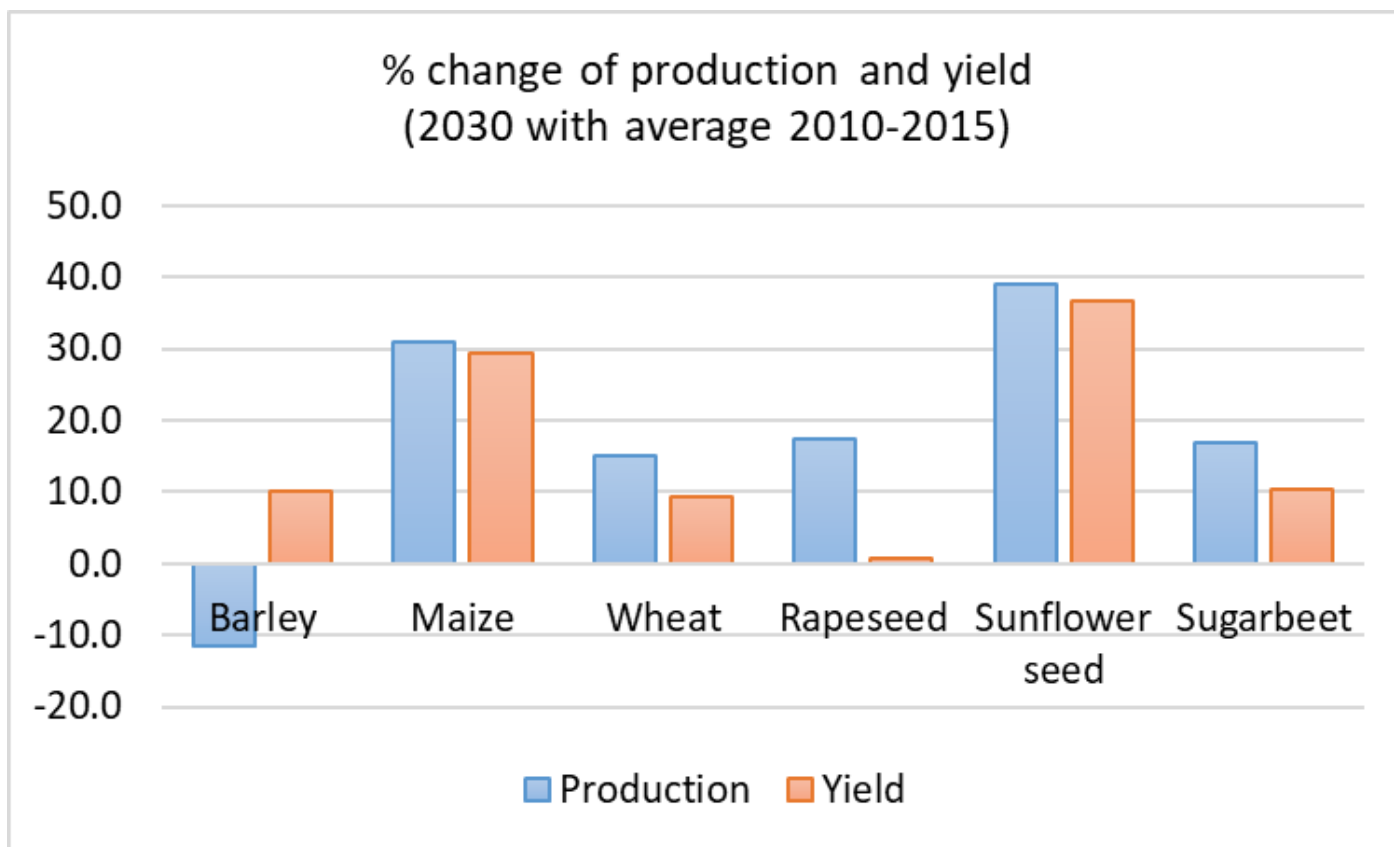


Figure 142: Differences in final energy consumption in Non-Metallic Minerals compared to Baseline in 2050 by fuel and scenario



Source: PRIMES.

Market outlook in CEEC: more output per ha



- Production of most arable crops increasing (also animal production)
- Mainly driven by yield improvements
- Scope for alternative uses

Opportunities for the bio-based industry



[Home](#) [About](#) [Portfolio](#) [Network](#) [Media](#) [Contact](#)



COMMISSION GIVES THE GREEN LIGHT TO THE SUCCESSOR OF BBI JU

23 February 2021

The European Commission has agreed on the successor of BBI JU – the Circular Bio-based Europe Joint Undertaking (CBE JU) in a legislative proposal adopted today. The new partnership between the EU and the Bio-based Industries Consortium (BIC) is expected to build on the success of BBI JU while stepping up its contribution to the EU's climate targets, in line with the European Green Deal. The European Parliament and Council will now study the proposal before adopting its final version towards the end of the year.

The European Commission has adopted today a proposal for the Council Regulation establishing nine joint undertakings under Horizon Europe, the EU's research and innovation framework programme for the 2021-2027 period. The proposal puts forward CBE JU, the Circular Bio-based Europe Joint Undertaking, as a programme building on the achievements of BBI JU.

**Circular
Bio-based
Europe**



Initiatives of the industry: an example



Leading the Loop – EU beverage packaging aims to be fully circular by 2030

The European soft drinks industry's Circular Packaging Vision 2030:

- **90% collection of all packaging**
- **PET bottles made from 100% recycled and/or renewable material**
- **Reduced packaging footprint and increased use of refillables**

Brussels, 22 February 2021: UNESDA Soft Drinks Europe pledges that EU¹ beverage packaging² will be fully circular by 2030.

Launching its Circular Packaging Vision 2030 today, the industry commits that by 2025 its packaging will be 100% recyclable and its PET bottles using 50% recycled content. It ambitions that by 2030, its PET bottles will be made from 100% recycled and/or renewable PET, where technically and economically feasible. It also pledges that more than 90% of its packaging will be collected and that it will use more refillable packaging. These actions are directly contributing to the EU circular economy transition and surpassing EU targets set out in legislation.

Financial support to public investments and reforms



Twin Transitions: Green and Digital

Each recovery and resilience plan will have to include

a minimum of

37 %
of expenditure

for
CLIMATE
investments
and reforms

a minimum of

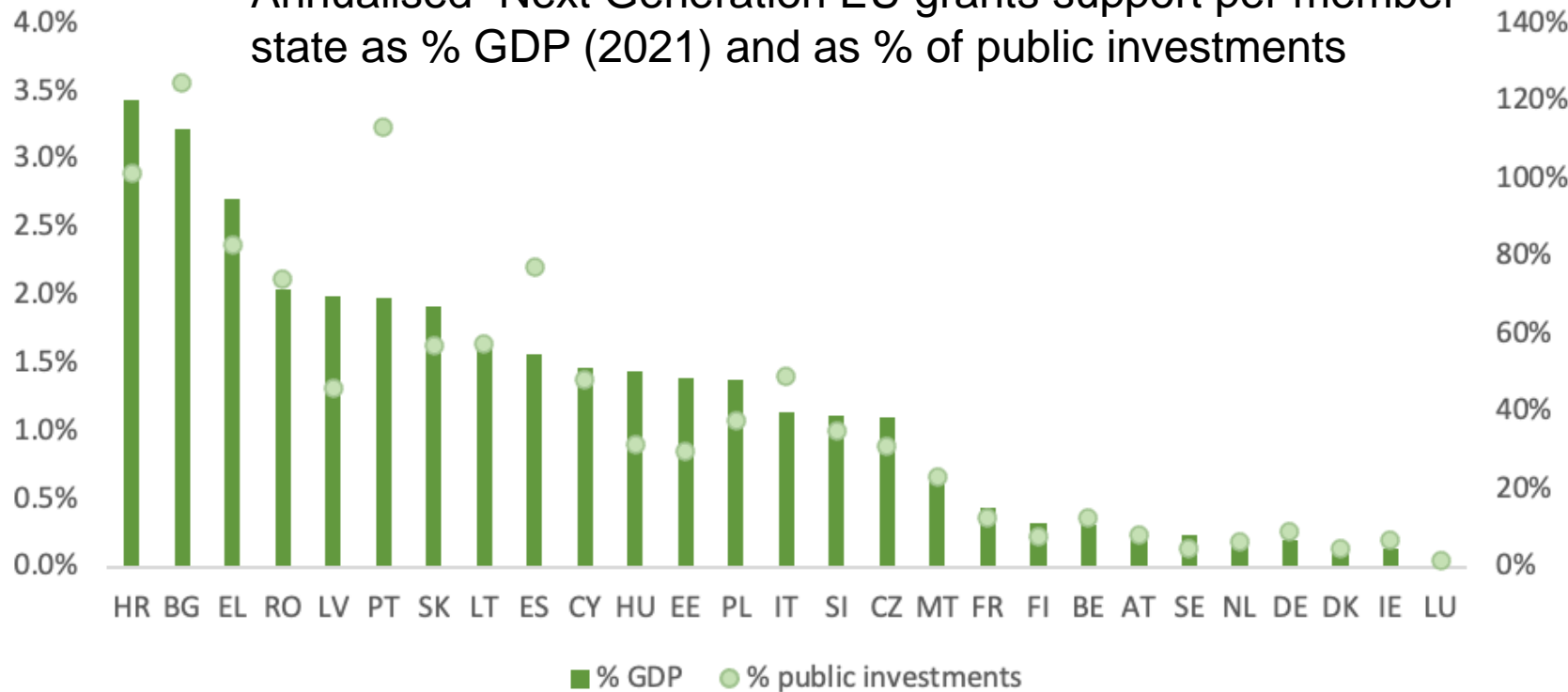
20 %
of expenditure

to foster the
DIGITAL
transition

The Commission will assess national plans against these targets.



Annualised Next Generation EU grants support per member state as % GDP (2021) and as % of public investments



<http://www.euvisions.eu/towards-a-next-generation-eu-for-an-inclusive-recovery/>

Final observations

Transformation



Brief Report

Developments of Economic Growth and Employment in Bioeconomy Sectors across the EU

Tévécia Ronzon ^{1,2,*}, Stephan Piotrowski ³, Saulius Tamosiunas ¹, Lara Dammer ³, Michael Carus ³ and Robert M'barek ¹

<https://www.mdpi.com/2071-1050/12/11/4507>

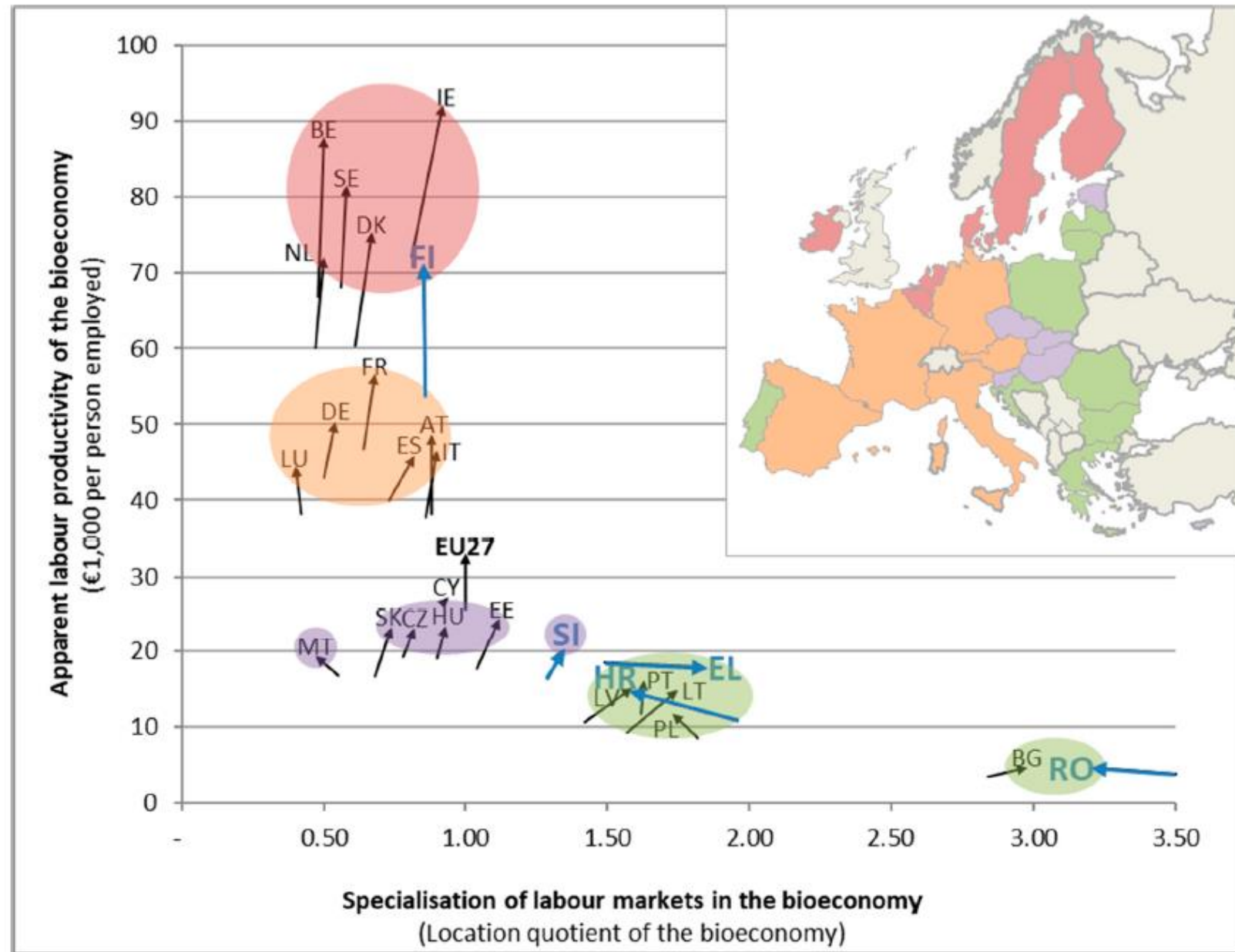
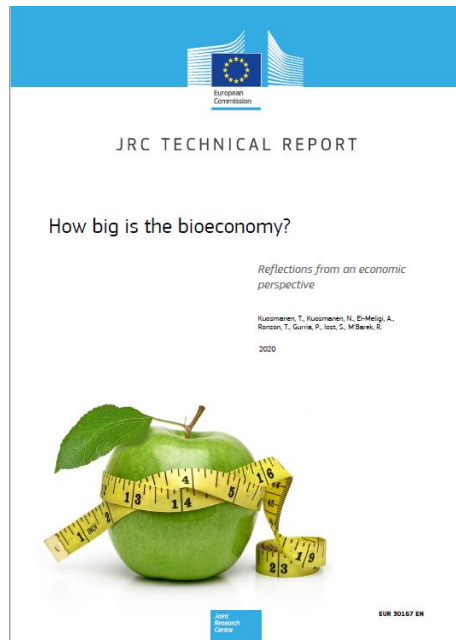


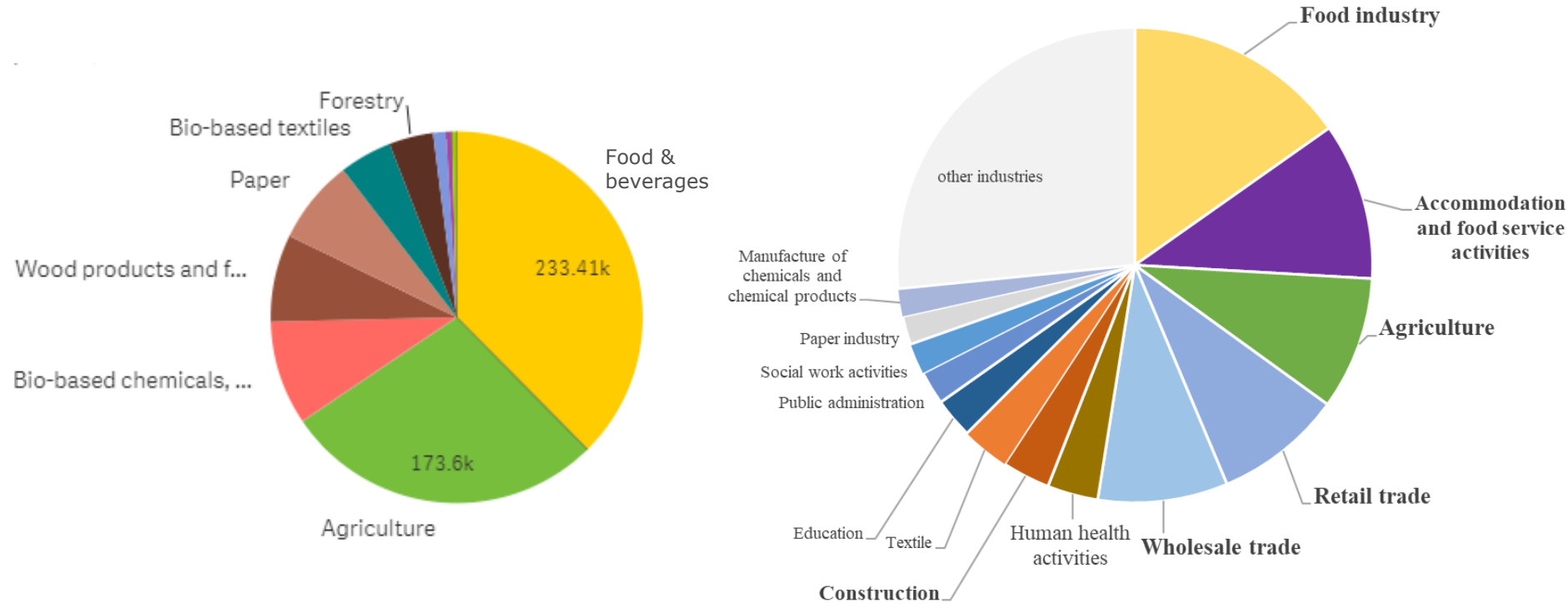
Figure 3. Evolution of the location quotient and apparent labour productivity in the bioeconomy of the 27 EU Member States, 2008–2010 to 2015–2017 (cases shown in blue are those discussed in Section 3.4 below).

'How big is the bioeconomy?'



New approach under development:

- Inclusion of all sectors using biomass.
- Combination of input- and output based approach (*ongoing work*).



Value added in the bioeconomy by sector in EU-28 (2015)

EUR 621 million
(2012 definition)

EUR 1,667 million
(2018 definition)

References

References of data behind figures:

Ronzon, T.; Piotrowski, S.; Tamosiunas, S.; Dammer, L.; Carus, M.; M'barek, R. Developments of Economic Growth and Employment in Bioeconomy Sectors across the EU. *Sustainability* **2020**, *12*, 4507. <https://doi.org/10.3390/su12114507>

Gurría, P., González, H., Ronzon, T., Tamosiunas, S., López, R., García Condado, S., Ronchetti, G., Guillén, J., Banja, M., Fiore, G., M'Barek R., Biomass flows in the European Union: The EU Biomass Flows tool, version 2020, Publications Office of the European Union, 2020, [doi:10.2760/14342](https://doi.org/10.2760/14342)

Parisi, C., Distribution of the bio-based industry in the EU, Publications Office of the European Union, 2020, [doi:10.2760/745867](https://doi.org/10.2760/745867)

Kuosmanen, T., Kuosmanen, N., El Meligi, A., Ronzon, T., Gurria Albusac, P., Iost, S. and M'barek, R., How big is the bioeconomy?, Publications Office of the European Union, 2020, <http://dx.doi.org/10.2760/144526>

Keep in touch

Robert.M'barek@ec.europa.eu

Knowledge Center for Bioeconomy: https://ec.europa.eu/knowledge4policy/bioeconomy_en



EU Science Hub: ec.europa.eu/jrc



@EU_ScienceHub



EU Science Hub – Joint Research Centre



EU Science, Research and Innovation



EU Science Hub

Thank you



© European Union 2020

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.