

EU sustainability framework for bioenergy

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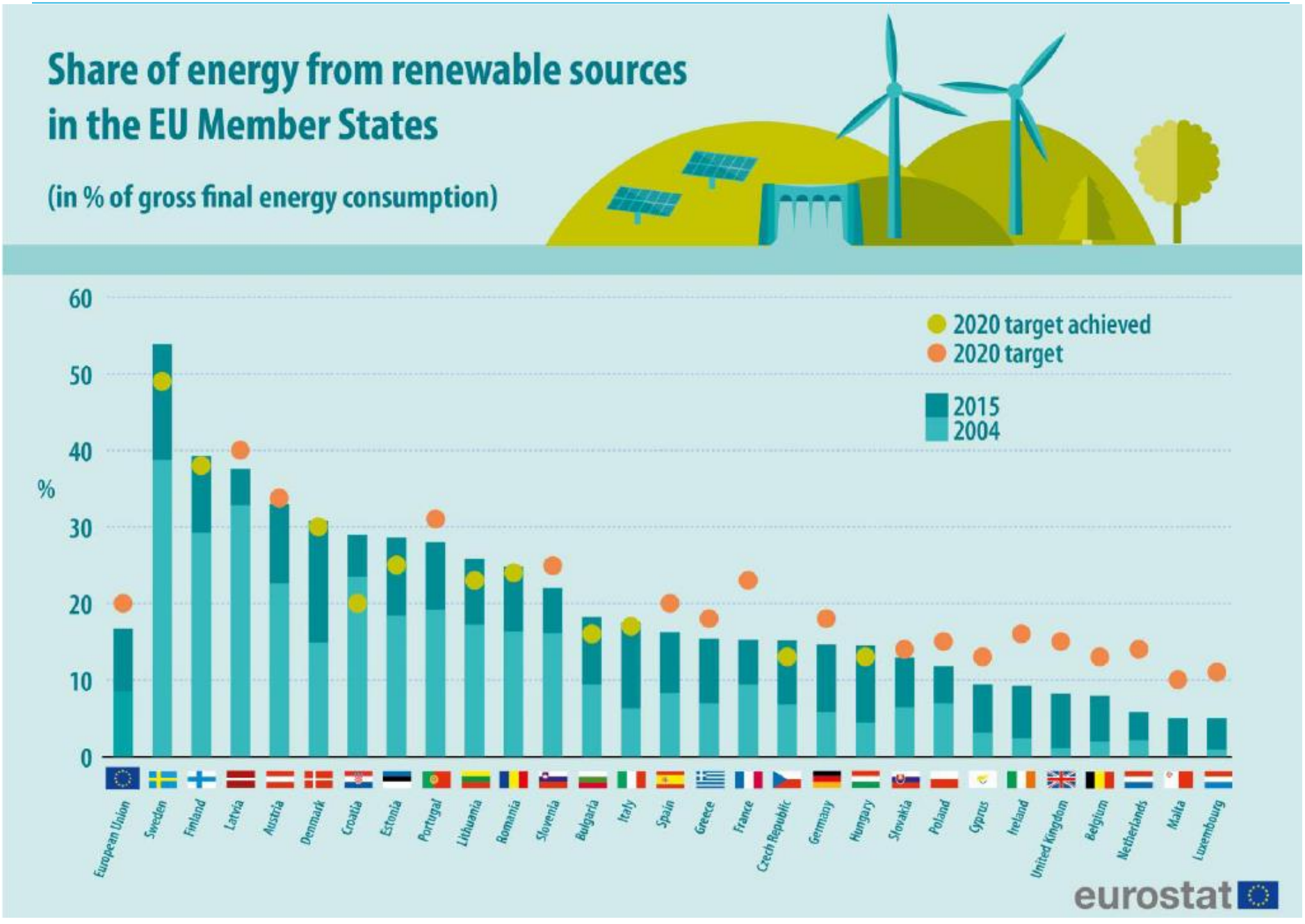
Share of energy from renewable sources in the EU Member States
(in % of gross final energy consumption)
2020 target achieved
2020 target
2015
2004
%
60
50
40
30
20
10
0
European Union
Sweden
Finland
Latvia
Austria
Denmark
Croatia
Estonia
Portugal
Lithuania
Romania
Slovenia
Bulgaria
Italy
Spain
Greece
France
Czech Republic
Germany
Hungary
Slovakia
Poland
Cyprus
Ireland
United Kingdom
Belgium
Netherlands
Malta
Luxembourg
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EU CLIMATE AND ENERGY POLICY FRAMEWORK

2020

-20 % Greenhouse Gas Emissions

20% Renewable Energy 10% RES-T

20 % Energy Efficiency Savings

2030

≤ - 40 % Greenhouse Gas Emissions

≥27 % Renewable Energy

(≥ 27%) 30% Energy Efficiency

Global Leadership on renewables

HOW DO WE GET THERE?

The right regulatory framework for post – 2020

Energy Union Governance

Energy Efficiency (Energy Efficiency Directive, Energy Performance of Buildings Directive)

Renewables (Revised Renewable Energy Directive)

New Electricity Market Design (including Risk Preparedness)

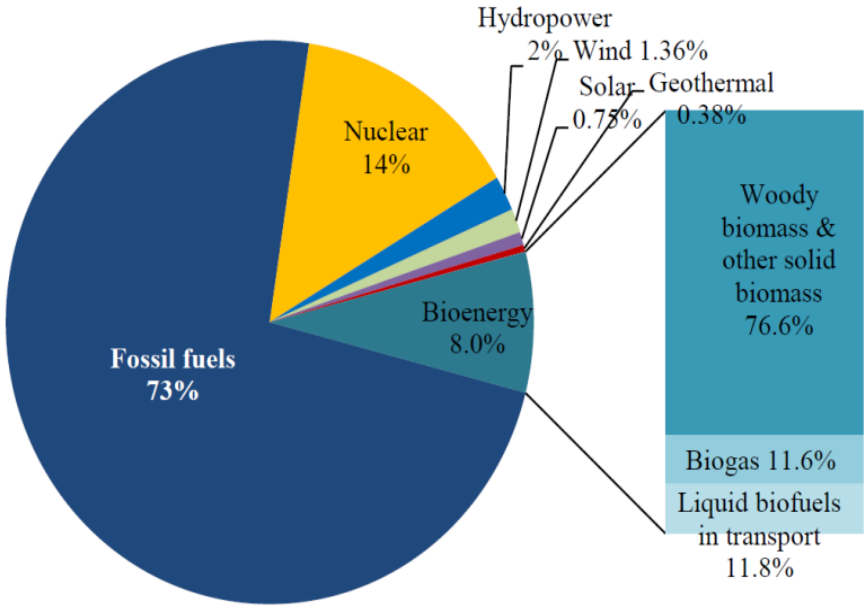
Energy prices and costs report

+

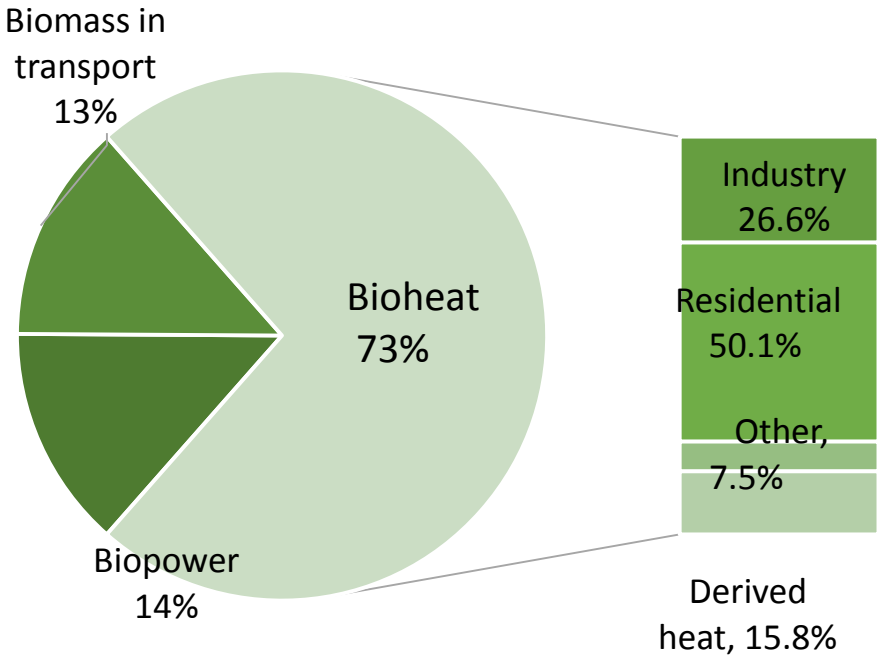
HOW DOES IT LOOK LIKE?

Bioenergy is the main EU renewable energy …

Gross inland energy consumption (2014 , %)

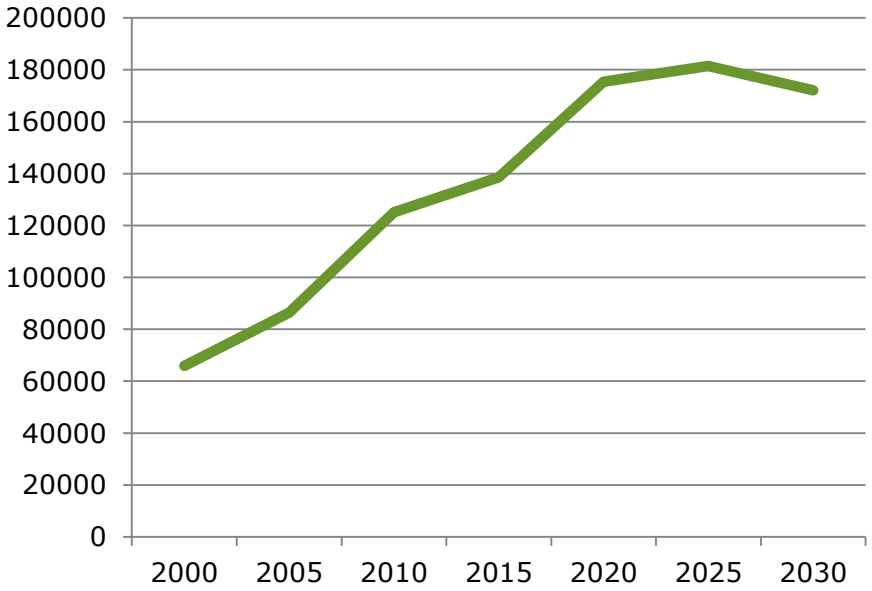


Gross final bioenergy consumption (2014 , %)

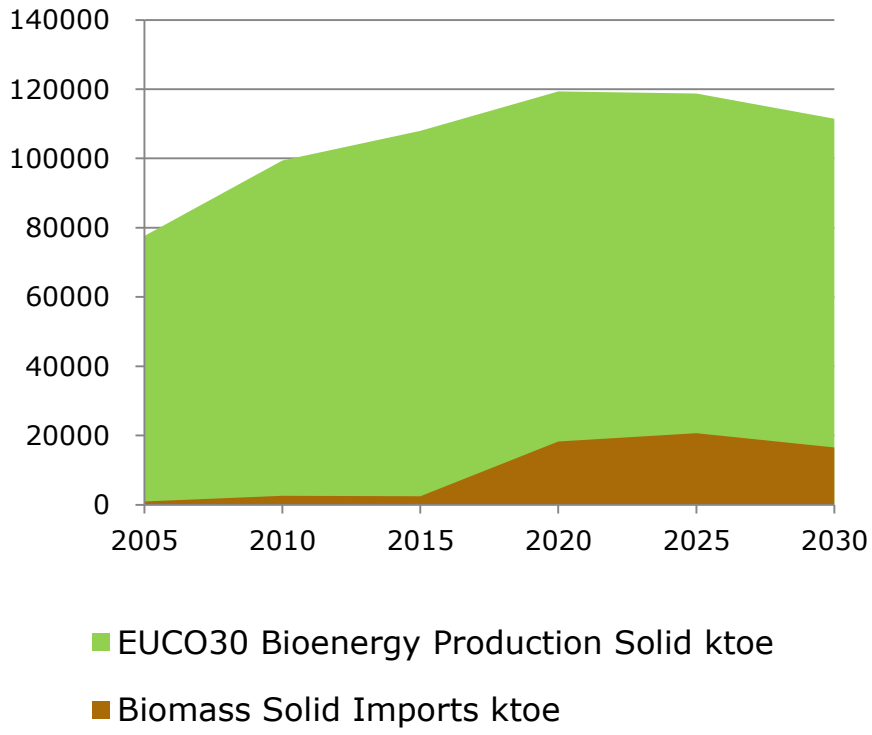


...And will continue to play a key role in the future

EU Bioenergy Consumption (ktoe, 2005-2030)



Solid biomass imports (ktoe, 2005-2030)



Source: PRIMES EUCO scenarios

Bioenergy: benefits vs risks

Benefits

Sizeable contribution to the RES targets

Energy security: mostly domestically sourced and affordable for consumers

Storable renewable energy, grid balancing

Climate benefits compared to fossil fuels

Growth and jobs, in particular in rural areas

Risks

Climate performance of certain biofuels and forest biomass pathways

ILUC impacts of biofuels from food and feed

Other environmental impacts: biodiversity, air quality, soil

Possible competition with other biomass using sectors

Low efficiency of biomass electricity conversion

EU sustainability criteria for biofuels (2009)

1. Biofuels cannot come from land:

- With high carbon stock (peatland etc.)
- High biodiversity (primary forest etc.)

2. Biofuels need to save at least 35% compared to fossil fuels, increasing to 50% in 2018

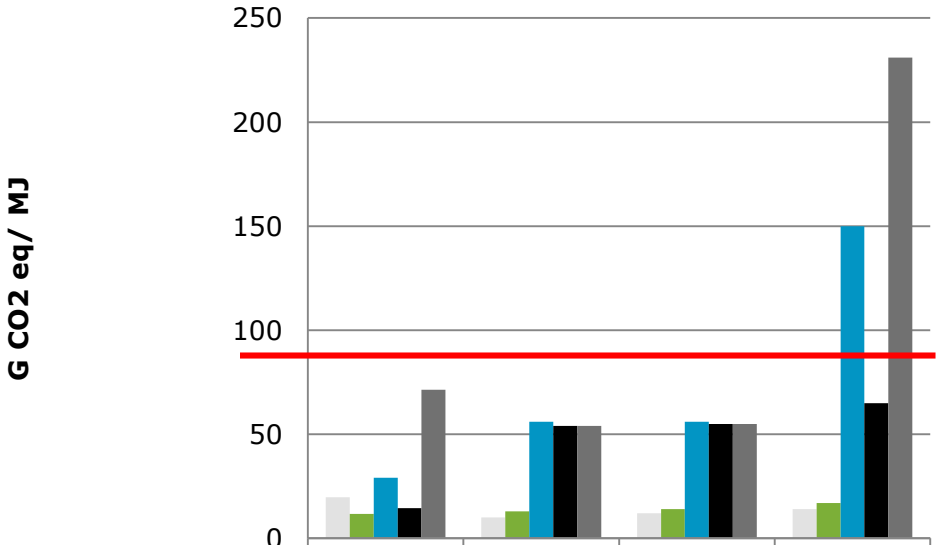
***But**, indirect impacts not taken into account*

Addressing ILUC emissions of biofuels (2015)

2015 amendments to RES Directive (ILUC)

- *7% cap on the role of biofuels from food and feed towards 10% RES-T target*
- *Higher GHG saving requirement: 70%*
- *Promotion of advanced biofuels (0.5% indicative target in Member States)*

ILUC emissions of 1G biofuels (gCOeq/ MJ)

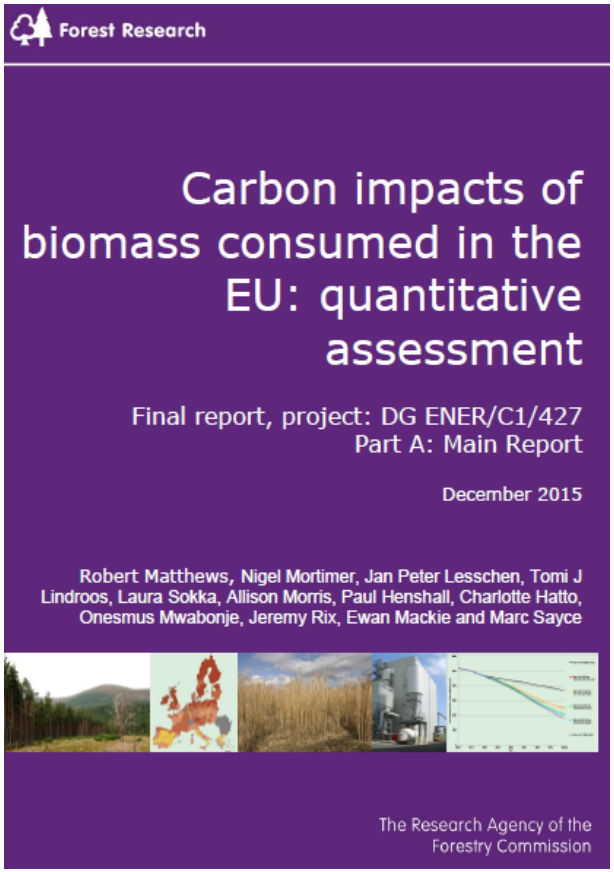


	GTAP 2014	MIRAGE 2011	MIRAGE 2013	GLOBIO M 2015
Corn Ethanol	20	10	12	14
Sugarcane Ethanol	12	13	14	17
Soy Biodiesel	29	56	56	150
Rapeseed Biodiesel	15	54	55	65
Palm Biodiesel	71	54	55	231

Addressing biogenic carbon emissions

Key findings:

- *Majority of the forest bioenergy currently in EU can be considered to deliver GHG benefits even when taking into account biogenic emissions.*
- *Forest bioenergy impact in future strategies for GHG emissions reduction depends on the scale of demand and consumption.*
- *Forest management strategies (past, present and future) largely define forest bioenergy GHG performance.*



Revised EU bioenergy sustainability framework post-2020

- ✓ Cover all **biomass energy uses (biofuel, heat and power)**
- ✓Avoid **deforestation**, forest **degradation**, and negative impacts on **biodiversity and carbon stocks**
- ✓Address **ILUC concerns**
- ✓Deliver **optimal greenhouse gas (GHG) savings** compared to fossil fuels
- ✓Promote **efficient conversion into electricity**, in order to promote resource efficiency and avoid market distortions
- ✓Ensure proportionality and cost-effectiveness by applying a **risk-based approach** for forest biomass and ***de minimis* thresholds** for bioheat and power plants

Overview of EU bioenergy sustainability criteria (2016 legislative proposal)

Land criteria: feedstock based

1a. AGRI BIOMASS
No go areas:
- ✓ with high carbon stocks and
- ✓ high biodiversity values

1b. FOREST BIOMASS (risk based)
Minimum requirement for:
- ✓ Forest regeneration
- ✓ Biodiversity and soil protection
- ✓ Long term productivity
- ✓ LULUCF accounting

Performance criteria End-use based

2. GHG SAVINGS CRITERIA
- ➢ 70% for new biofuels/biogas for transport (all plants)
- ➢ 80% (85% in 2026) for biomass and biogas in heat and power (only for large plants with fuel capacity equal/above 20 MW)

3. CHP REQUIREMENT for bioelectricity
- ➢ Applies to new bioelectricity plants (equal/above 20 MW); 3-year transition period after adoption of Directive + exceptions for national risks of security of electricity supply

4. AIR QUALITY standards:
- ➢ Households biomass boiler (EU Ecodesign Regulation)
- ➢ Mid-size and large scale plants (EU Air quality Directives)

VERIFICATION OF COMPLIANCE - SUMMARY

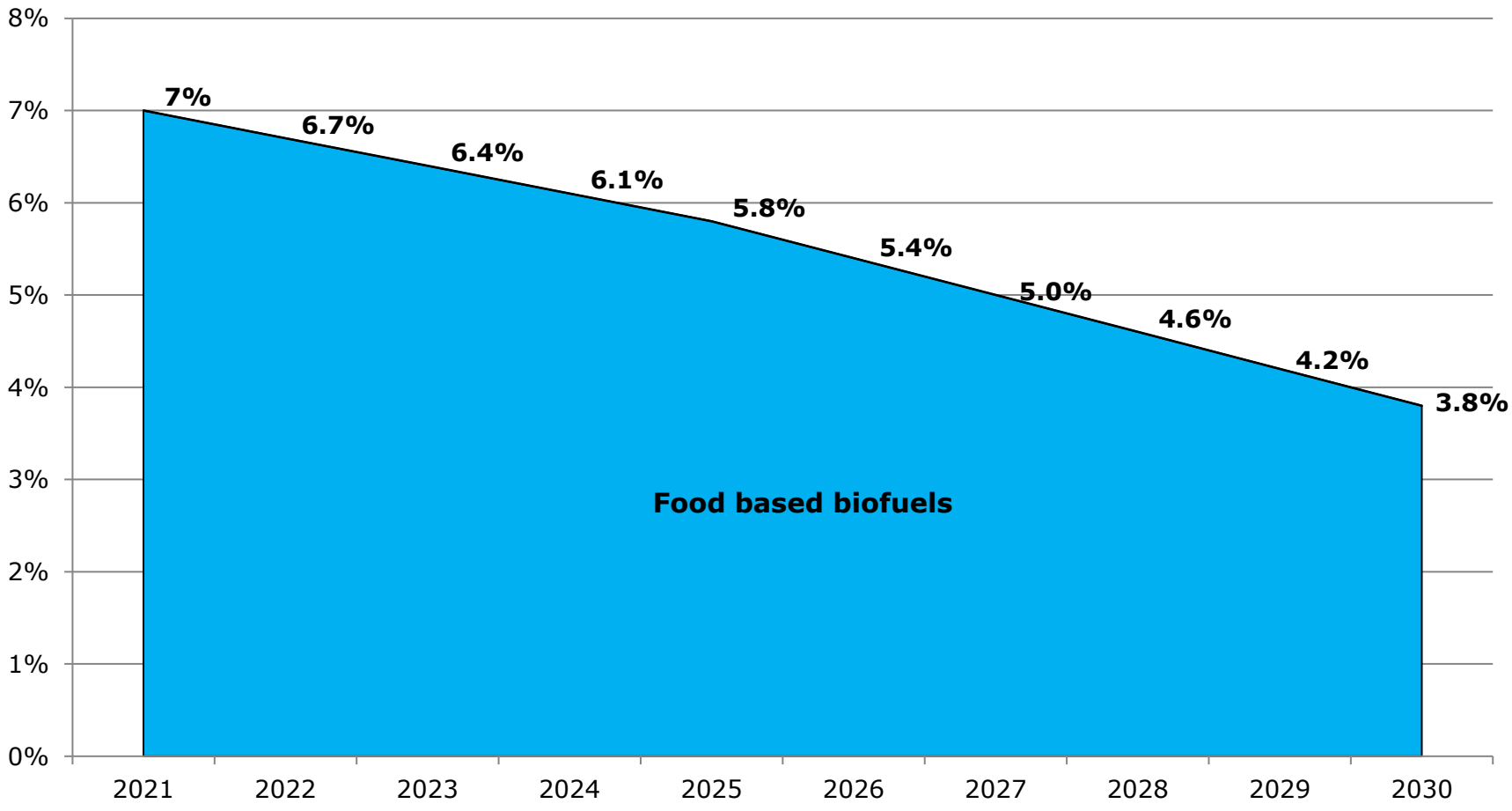
*Member States must require **Economic Operators** to:*

- *Use a **mass balance system** when reporting on sustainable bioenergy*
- *Arrange for an **independent audit** of the information they report*

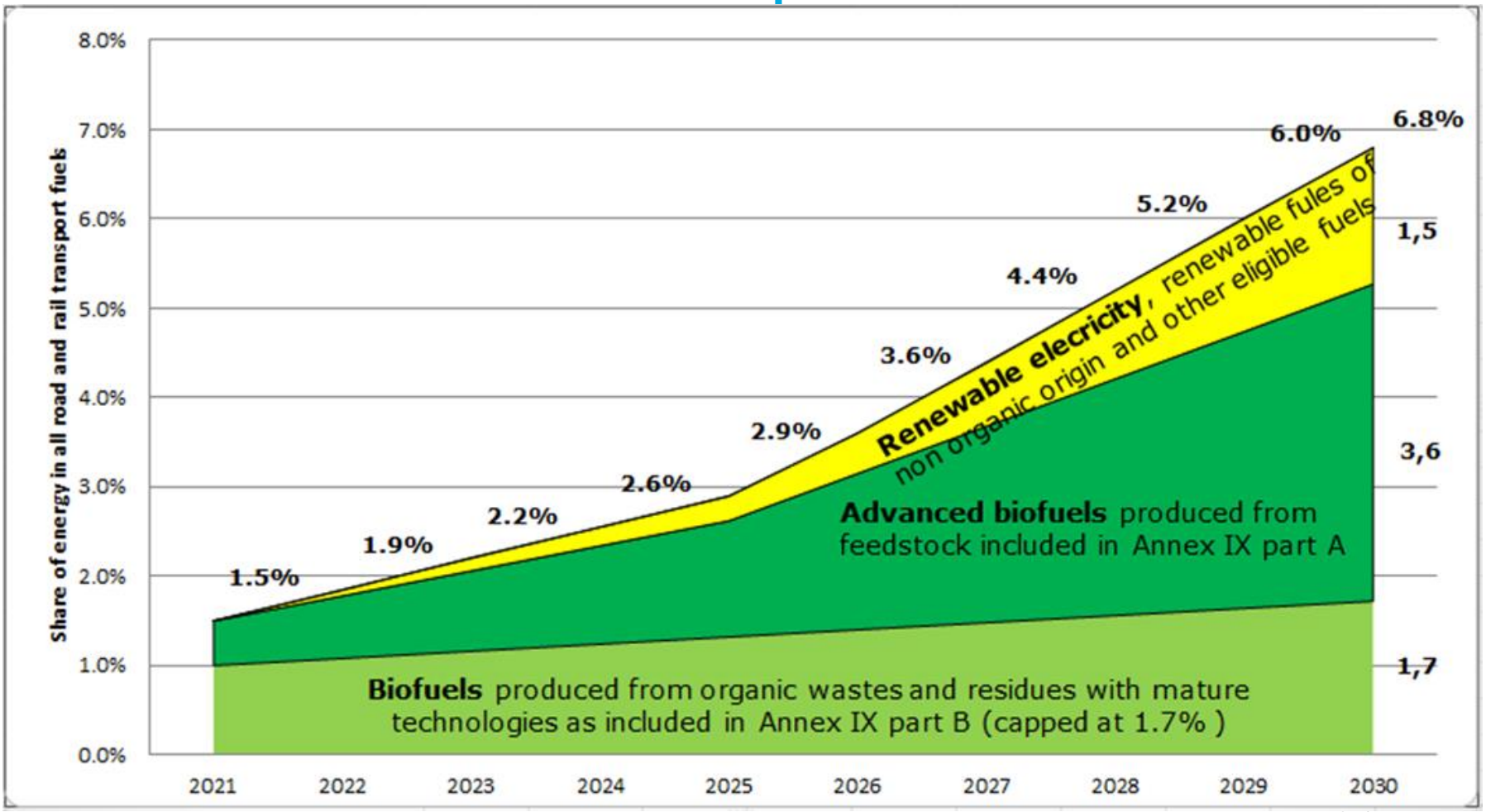
Economic operators can demonstrate compliance with the EU sustainability criteria through:

- ***National schemes**, established by Member States, covering domestic production and use of biomass*
- ***International verification schemes**, recognized by the European Commission, covering biomass from all EU countries and third countries*

Phasing down conventional crop based biofuels…



…Promoting advanced renewable/low-carbon fuels in transport



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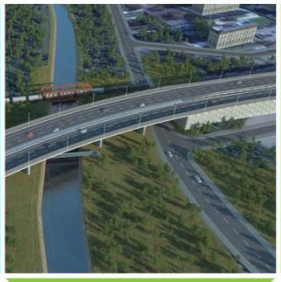


THANK YOU!

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@Energy4Europe
#CleanEnergyEU

Sustainability criteria (1)

AGRICULTURE BIOMASS

(art 26.2-26.4)

*- Based on **land criteria** from the current Renewable Energy Directive (art. 17) but*

*- **Peatland:** stricter protection (easier to verify)*

*- Highly biodiverse **grassland:** to be identified by competent authorities, minimum size (1 hectare)*

*- **Cross compliance**: removed requirement (already dealt with under the CAP)*

Sustainability criteria (2)

FOREST BIOMASS - BIODIVERSITY

(art 26.5)

***Step A)**: Operators demonstrate that biomass originates from a **country** that has legislation place which ensures :*

i. ***Legality** of wood harvesting*
ii. *Forest **regeneration***
iii. *Protection of **biodiversity** rich areas*
iv. *Minimization of harvesting impacts on **soil and biodiversity***
v. *Harvesting not exceeding **long-term production capacity***

Step B)**: if type A) evidence not available, operators demonstrate sustainability compliance at **forest holding level

Review in 2023

Sustainability criteria (3)

FOREST BIOMASS – CARBON STOCKS

(art 26.5)

***Step A)**. Operators demonstrate that biomass originates from a **country** that:*

i. *is a Party to, and has ratified the Paris agreement*

ii. *has submitted a Nationally Determined Contribution (NDC) to the UNFCCC, covering emissions and removals from agriculture, forestry and land use*

iii. *has a national system in place for reporting GHG emissions and removals from land use*

Step B)**. If type A) evidence not available, operators demonstrate that carbon stock and sink levels in forest are maintained at **the forest holding level

Review in 2023

End-use performance criteria (1)

GHG EMISSION SAVINGS

(art 26.7 – 28, annex V and VI)

Biofuels/bioliquids

- *at least 50% (operation before October 2015)*
- *60% (operation after October 2015)*
- *70% (operation after January 2021)*

***Biomethane** for transport: 70%*

***Biomass** in heat and power*

- *at least 80% (operation after 1 January 2021)*
- *85% for those starting operation after 1 January 2026*

*Updated GHG calculation **methodology** and **default values***

End-use performance criteria (2)

CHP REQUIREMENT FOR BIOMASS ELECTRICITY

(art 26.8)

- *Electricity from biomass must be produced in **highly efficient CHP***
  - *to be accounted towards the EU RES target and be eligible for financial support*
  - *applicable to large scale installations (equal or above 20 MW) starting operations after 3 years from the date of adoption of the directive*

- ***Possible exception** for security of electricity supply risks*

VERIFICATION OF COMPLIANCE

(Art 27)

Mass balance system:

- *Clarified rules for biomethane injected into the gas grid*
- *Rules for mixing of fuels with differing energy content(co-digestion)*

Voluntary schemes :

- *Commission can set out implementing rules for voluntary schemes*
- *Allow Member States to control work of certification bodies*
- *Dropped provision regarding international agreements*

SCOPE OF EU SUSTAINABILITY AND GHG SAVING CRITERIA

(art 26.1, recital 77)

Biofuels and bioliquids: all producers

Electricity and heating from biomass: installations with a fuel capacity equal or above to 20 MW

Members States may apply lower thresholds

HARMONIZATION

Biofuels and bioliquids: full EU harmonization

Biomass fuels (solid and gaseous biomass): partial harmonization, MS can place additional requirements