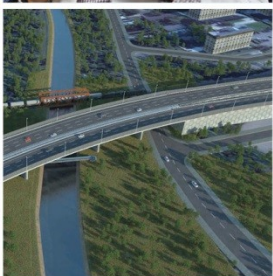
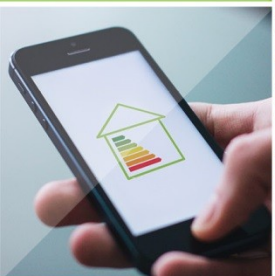
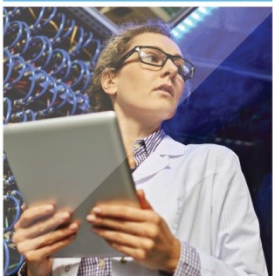




European
Commission



EU bioeconomy strategy and sustainable bioenergy governance

CONTEXT

- **Communication on Bioeconomy – 2012**

Food security, sustainable management of natural resources, climate change mitigation, reduced fossil-dependence, jobs creation and EU competitiveness

- **Review of Bioeconomy Strategy – 2017**

good delivery, objectives still relevant, increasing importance, more focussed actions for evolved context (SDGs, renewed industrial policy, circular economy, ...)

- **Communication on updated Bioeconomy – 2018**

- Major initiative under the Commission's 2018 workplan
- Co-ordination by the Secretariat General and DG Research together with departments for agriculture, environment, marine, industry, energy and others (DGs AGRI, ENV, MARE, GROW, JRC, ENER...)
- Adoption :11 October 2018



UPDATED BIOECONOMY STRATEGY: EU POLICY PRIORITIES

- **Job creation** – e.g. Bio-based industries could create up to 1 million jobs by 2030 (industry estimate), in particular in rural and coastal areas
- **Climate mitigation** – through use of bio-energy/ bio-based materials/ecosystems services; e.g. the use of 1 ton of wood instead of 1 ton of concrete in construction can lead to 2.1 ton CO₂ reduction
- **A renewed and strengthened EU industrial base** – Global leadership position in bio-chemicals and substitutes for fossil raw materials (plastics, packaging, cosmetics, consumer goods) based on research and innovation
- **Circular economy** – e.g. cutting food waste, recycling of high value organic waste
- **Healthy ecosystems and biodiversity** – e.g. through restoring degraded soils



Actions

3

UNDERSTAND THE ECOLOGICAL BOUNDARIES OF THE BIOECONOMY



Enhance **knowledge** on biodiversity and ecosystems



Monitor **progress** towards a sustainable bioeconomy



Promote **good practices** to operate the bioeconomy within **safe ecological limits**



Enhance the **benefits** of biodiversity in **primary production**



EU sustainability criteria for biofuels (up to 2020)

1. *Biofuels cannot come from land with:*

- High biodiversity (primary forest, protected areas etc.)
- High carbon stock (peatland etc.)

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



7% cap on the contribution of conventional biofuels

EU bioenergy sustainability criteria post-2020

- *Covering all energy use of biomass (transport, heat & power)*
- *Land criteria for feedstock production + end-use criteria (GHG emission savings for all bioenergy + efficiency criteria for biopower)*

Sustainability
criteria

1. AGRICULTURE BIOMASS FEEDSTOCK

Land criteria ensuring protection of:

- ✓ Carbon and biodiversity rich land (having this status before 2008)
- ✓ Soil carbon and soil quality (for agriculture waste & residues)

2. FOREST BIOMASS FEEDSTOCK

Forest management criteria ensuring:

- ✓ Sustainable wood harvesting
- ✓ Accounting framework for LULUCF emissions

End use
criteria

3. GHG EMISSION SAVINGS CRITERIA (based on lifecycle analysis)

- ✓ 65% for new biofuels/biogas for transport (new plants)
- ✓ 70% (80% in 2026) for biomass/biogas for heat & power (only for new large-scale plants)

4. EFFICIENCY CRITERIA FOR BIOPOWER PLANTS (above 50 MW)

- ✓ 50-100 MW: CHP, CCS or best available technique (BAT) standards
- ✓ Above 100 MW: CHP, CCS or 36% electrical efficiency
- ✓ Exceptions for national risks of security of electricity supply



1) Sustainability criteria for agriculture biomass

Land criteria protecting land with high carbon and biodiversity value:

- ✓ *Primary and secondary forests & highly biodiverse forest*
- ✓ *Wetlands & peatlands*

Management criteria for agriculture waste & residue

- ✓ *Economic operators or national authorities need to have monitoring or management plans in place in order to address harvesting impacts on soil quality and soil carbon*

2) Sustainability criteria for forest biomass



What is the objective?

- ✓ *To provide assurance that forest biomass is sustainably harvested and is subject to LULUCF reporting and accounting*

Harvesting requirements

- ✓ *Legality of harvesting*
- ✓ *Forest regeneration*
- ✓ *Protected areas*
- ✓ *Maintenance of soil quality and biodiversity*
- ✓ *Maintenance of long-term production capacity of the forest*

LULUCF requirements

- ✓ *Paris Agreement membership*
- ✓ *National accounting of forest carbon stocks changes*
- ✓ *Requirement to conserve/ enhance carbon stocks/sinks & reported LULUCF emissions do not exceed removals*

Verification of the forest biomass criteria



How does it work?

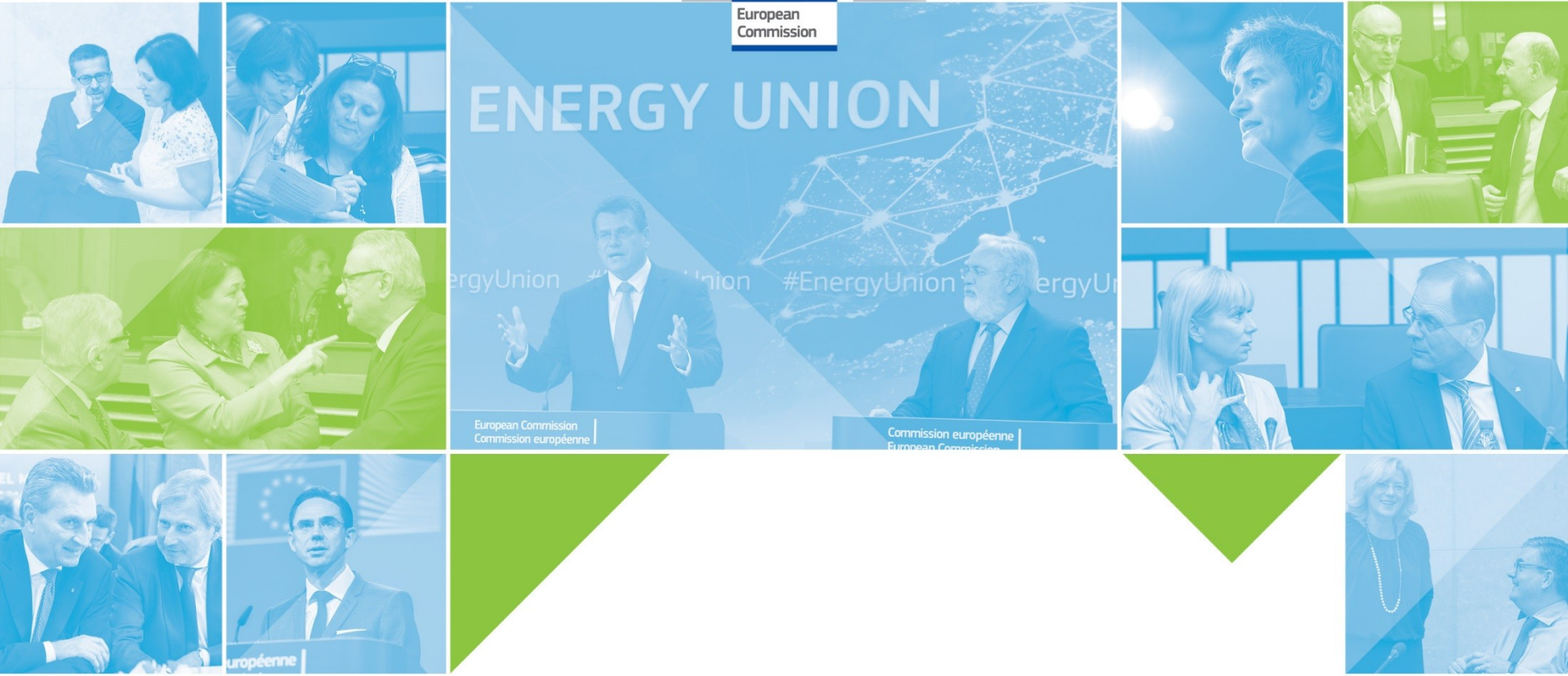
- ✓ *Economic operators can use two types of evidence for demonstrating compliance with the forest biomass criteria*
 - Evidence A. National or sub-national legislation related to the harvesting area
 - Evidence B. If evidence A not available, evidence from forest holding assessment

- ✓ *Cost-effective: the 20 MW capacity threshold covers 75% of commercial forest biomass used for energy, only 16% of the installations*

3) Greenhouse gas emission savings criteria



- ***Biofuels, bioliquids and biogas for transport***
 - 65% for new plants as of 2021
- ***Solid biomass and biogas in heat /cooling and power***
 - 70% for new plants as of 2021
 - 80% for new plants as of 2026



Further information:

<https://ec.europa.eu/energy/en/topics/renewable-energy/biomass>

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Additional info on the Bioeconomy Action Plan and Bioenergy Sustainability Criteria

Actions

1

STRENGTHEN AND SCALE-UP THE BIO-BASED SECTORS, UNLOCK INVESTMENTS AND MARKETS



Mobilise stakeholders in **development** and **deployment** of **sustainable bio-based solutions**



Launch the **EUR 100 million** Circular Bioeconomy Thematic **Investment Platform**



Analyse enablers and bottlenecks for the deployment of **bio-based innovations**



Promote and develop **standards, labels and market uptake** of **bio-based products**



Facilitate the **development of new sustainable biorefineries**



Develop substitutes to fossil based materials that are **bio-based, recyclable and marine biodegradable**



Actions

2

DEPLOY LOCAL BIOECONOMIES RAPIDLY ACROSS EUROPE



Launch a Strategic Deployment Agenda for sustainable food and farming systems, forestry and bio-based products



Launch pilot actions for the development of bioeconomies in rural, coastal and urban areas



Support regions and Member States to develop Bioeconomy Strategies



Promote education, training and skills across the bioeconomy



4) Efficiency requirements for biopower



A) Biopower plants **below 50 MW**: no criteria

B) Biopower plants **between 50 MW -100 MW**, 3 options

- Highly efficient CHP
- BAT-electrical efficiency levels for power only
- Biomass CCS

C) Biopower plants **above 100 MW**, 3 options

- Highly efficient CHP
- 36% electrical efficiency levels for power only
- Biomass CCS

- ✓ Electricity-only installations shall **not use fossil fuels as a main fuel** and shall demonstrate that **CHP is not cost-effective** (i.e. CHP assessment under Energy efficiency directive)

Derogations

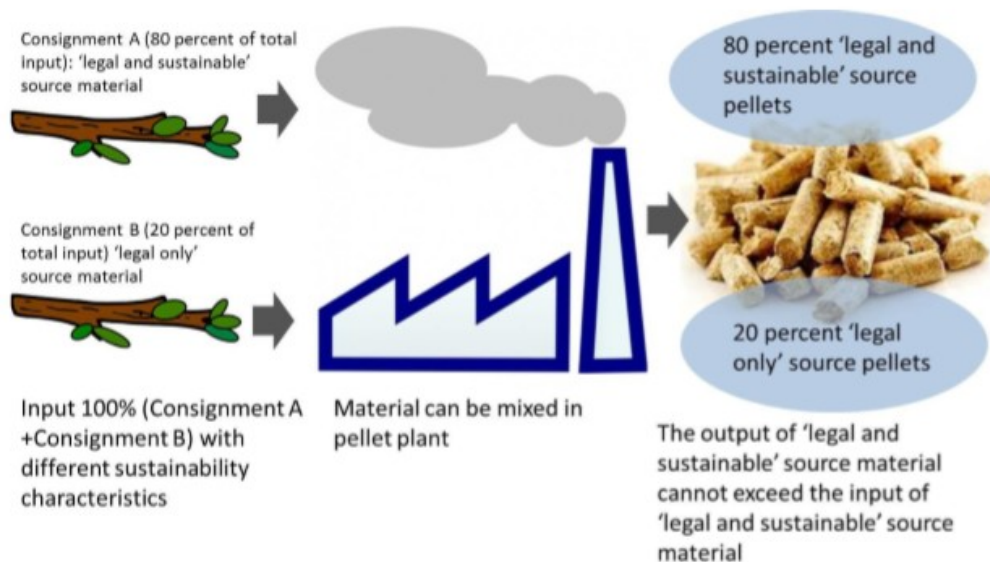
- Applies only to plants starting operation 3 years after adoption of Directive
- Does not apply to plants subject to a support scheme approved within 3 years after adoption of Directive



Verification of compliance

- Sustainability compliance will be verified through national verification schemes set up by Member States or international voluntary verification schemes (VS) recognized by the Commission
- Mass balance system extended to gas grid (e.g. biomethane), and rules to avoid double counting and double support

1.25. Figure 2: A Mass Balance Approach



Role of conventional biofuels

- National caps on **conventional biofuels** (based on food and feed crops): 2020 consumption levels (+1 pp) in each Member State, with a max of 7% share
- National caps on **biofuels with high ILUC-risk**: 2019 consumption levels until 2023, followed by a gradual reduction by 2030 (certified low ILUC-risk biofuels exempted)
- **Article 26.2: Delegated Regulation + Report** setting out criteria for:
 1. identifying **high ILUC-risk feedstock**, for which is observed a significant expansion of relevant food and feed crops worldwide
 2. certifying **low ILUC-risk biofuels**, i.e. produced from productivity increases or on unused land