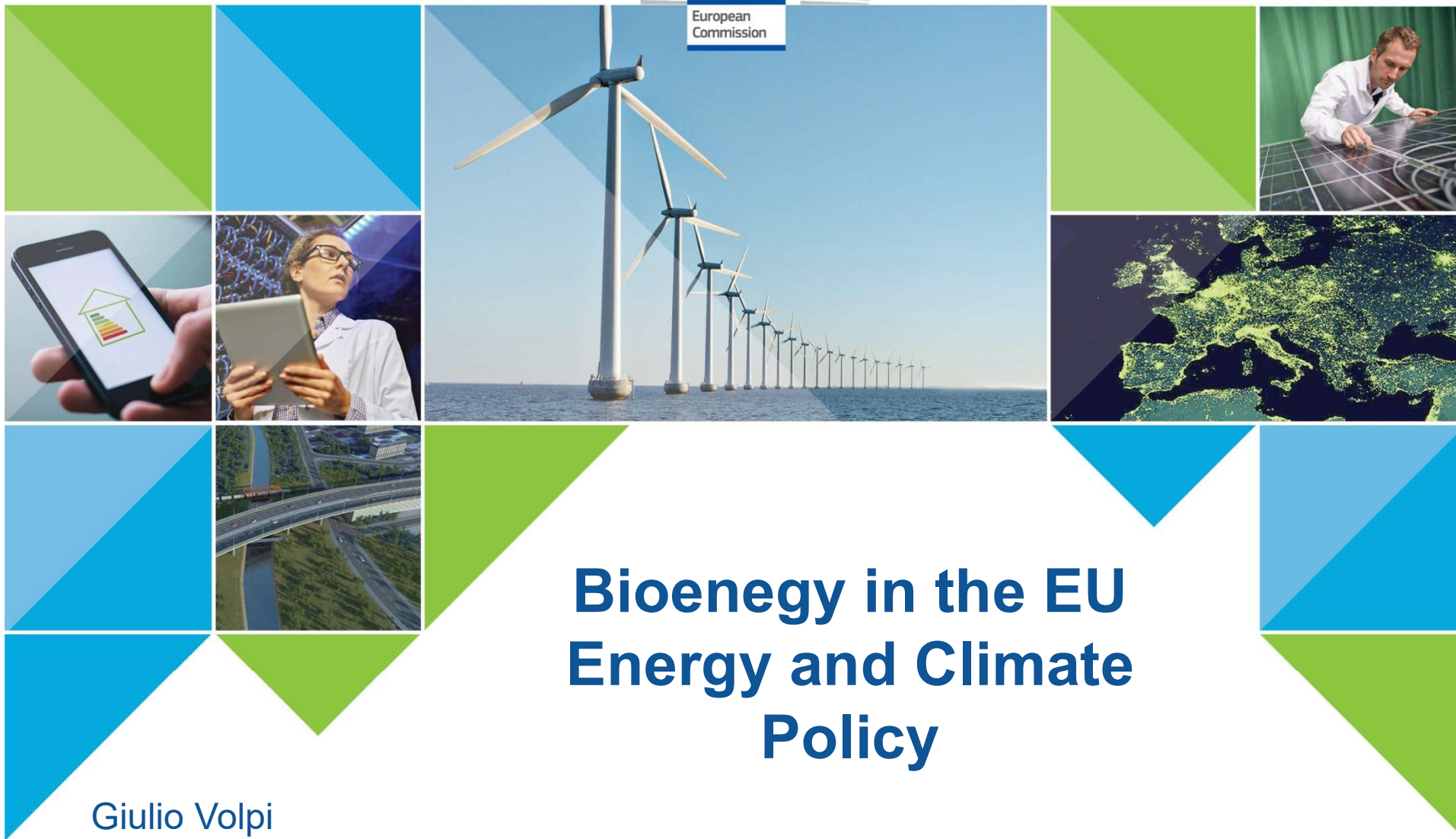




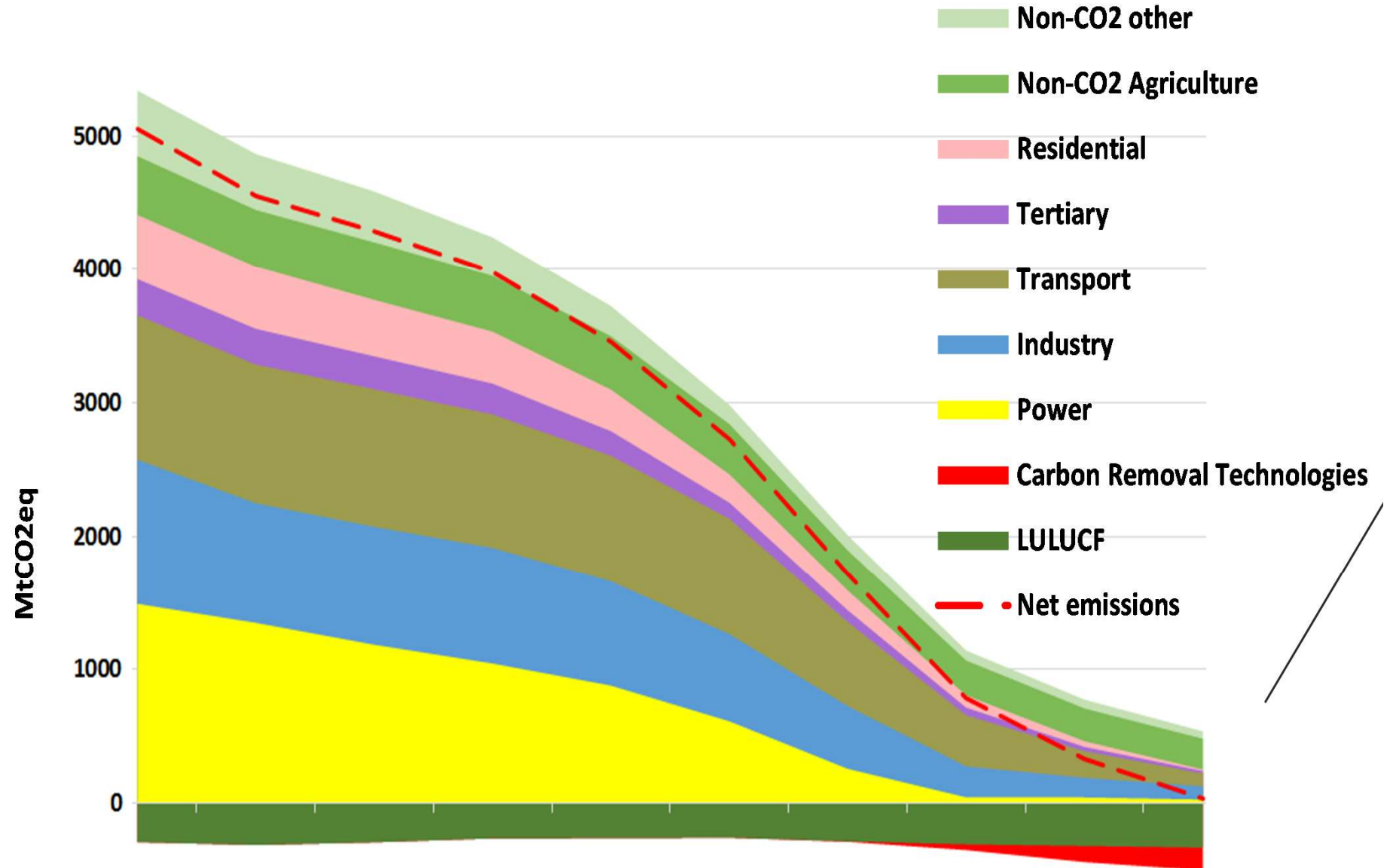
Bioenergy in the EU Energy and Climate Policy

Giulio Volpi
Directorate General Energy
European Commission

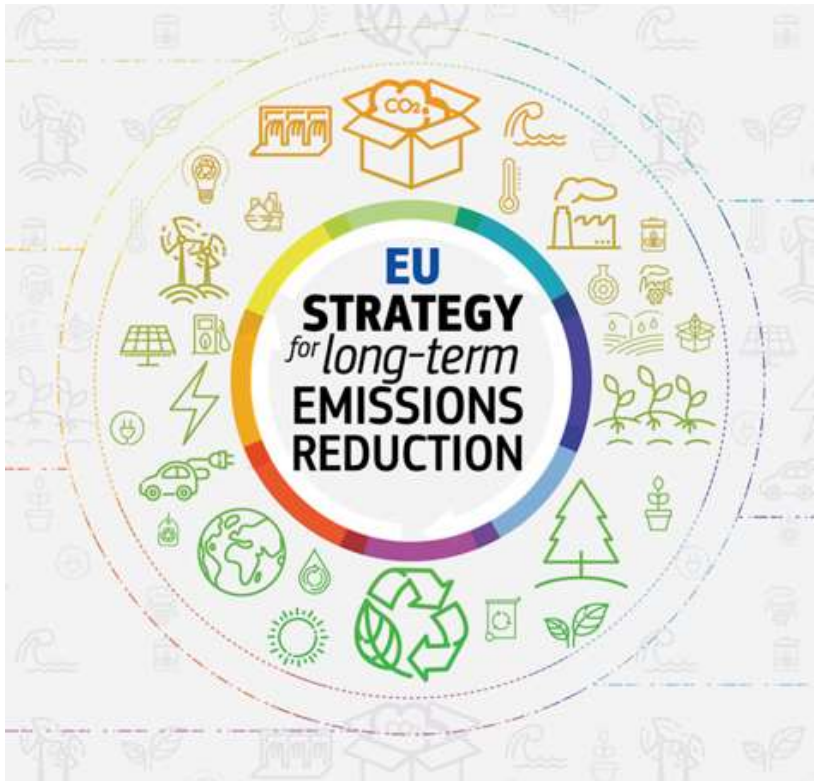


EU LONG TERM DECARBONISATION STRATEGY

Towards a modern net zero-emission economy within 30 years



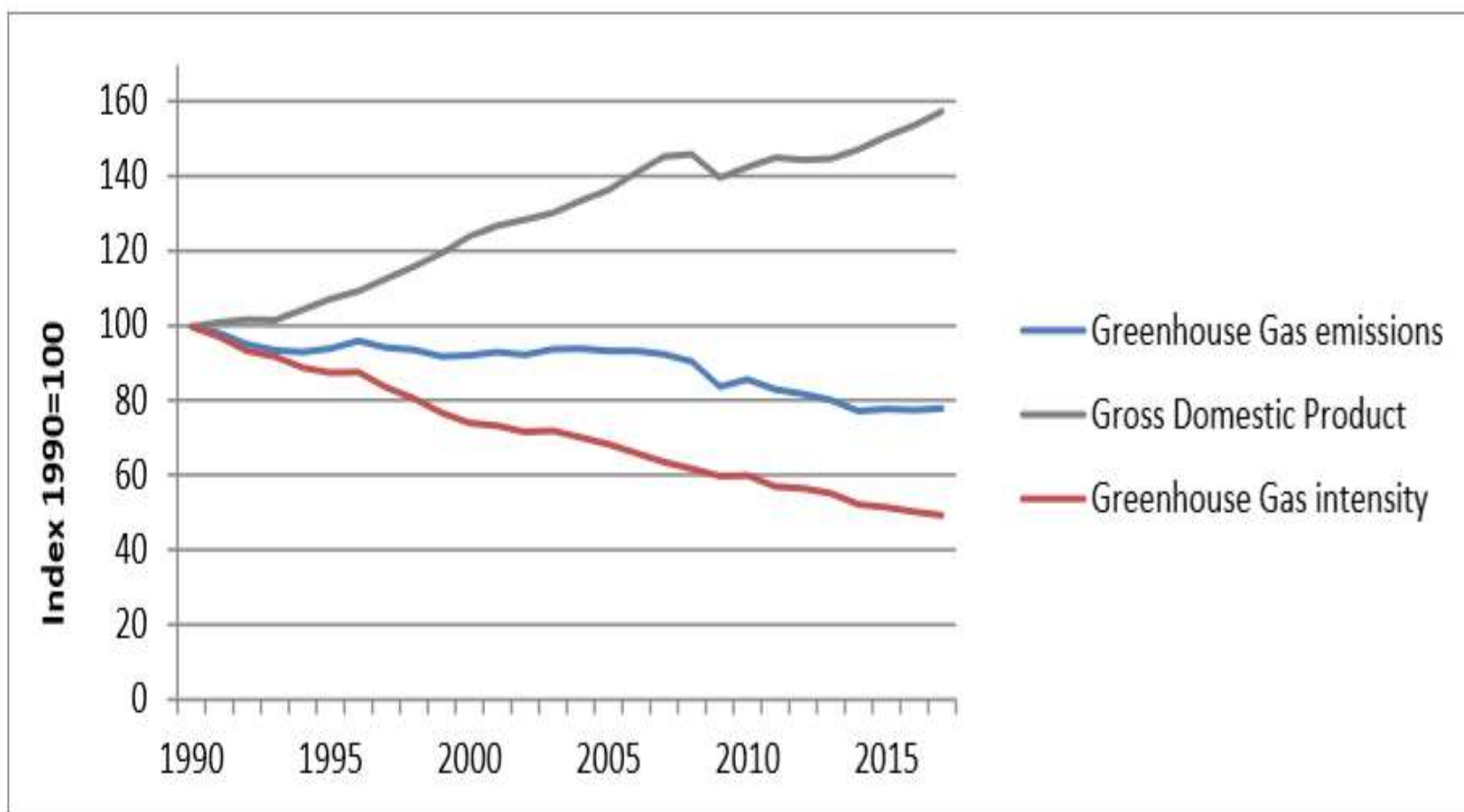
KEY INTERVENTION AREAS



- Energy efficiency
- Renewable energies
- Sustainable mobility
- Infrastructures and inter-connections
- Industry and circular economy
- Bio-economy, forests and soil
- Carbon capture and storage
- Public acceptance

PROGRESS TOWARDS A EU DECARBONISED ECONOMY

1990-2017: EU GDP +58%, greenhouse gas emissions - 28%



EU ENERGY & CLIMATE TARGETS 2020-2030



Greenhouse Gas Emissions

2020	2030
-20%	≥-40%



Renewable Energy

2020	2030
20%	≥32%



Energy Efficiency

2020	2030
20%	≥32.5%



Climate in EU-funded programmes 2014-2020

2020	2030
20%	25%



Interconnection

2020	2030
10%	15%



CO2 from :

Cars	Vans	Lorries
2030		
-37.5%	-31%	-30%



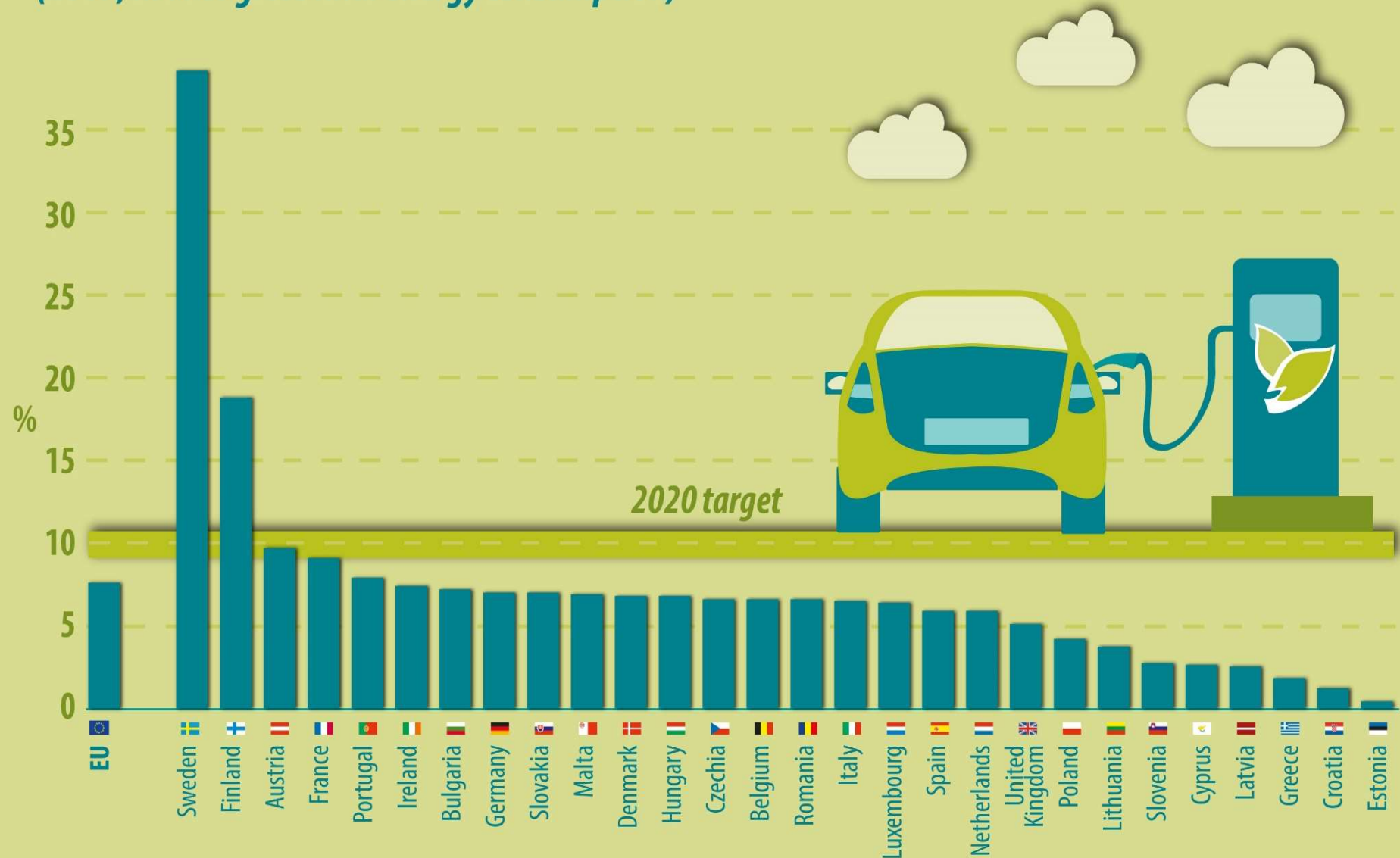
(2017, in % of gross final energy consumption)

NATIONAL RENEWABLE ENERGY SHARE (%, 2017-2020)

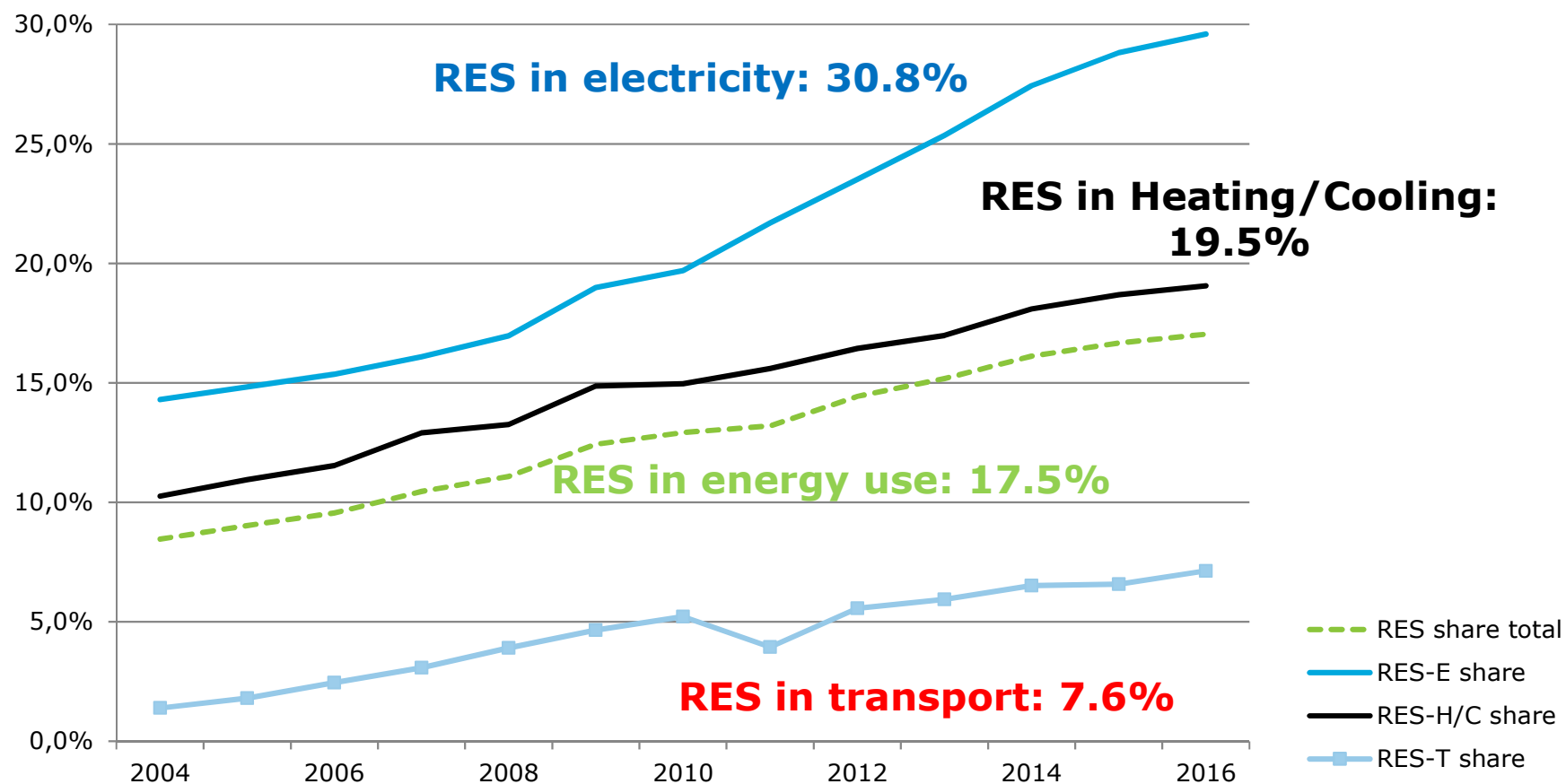


Share of energy from renewable sources in transport

(2017, in % of gross final energy consumption)

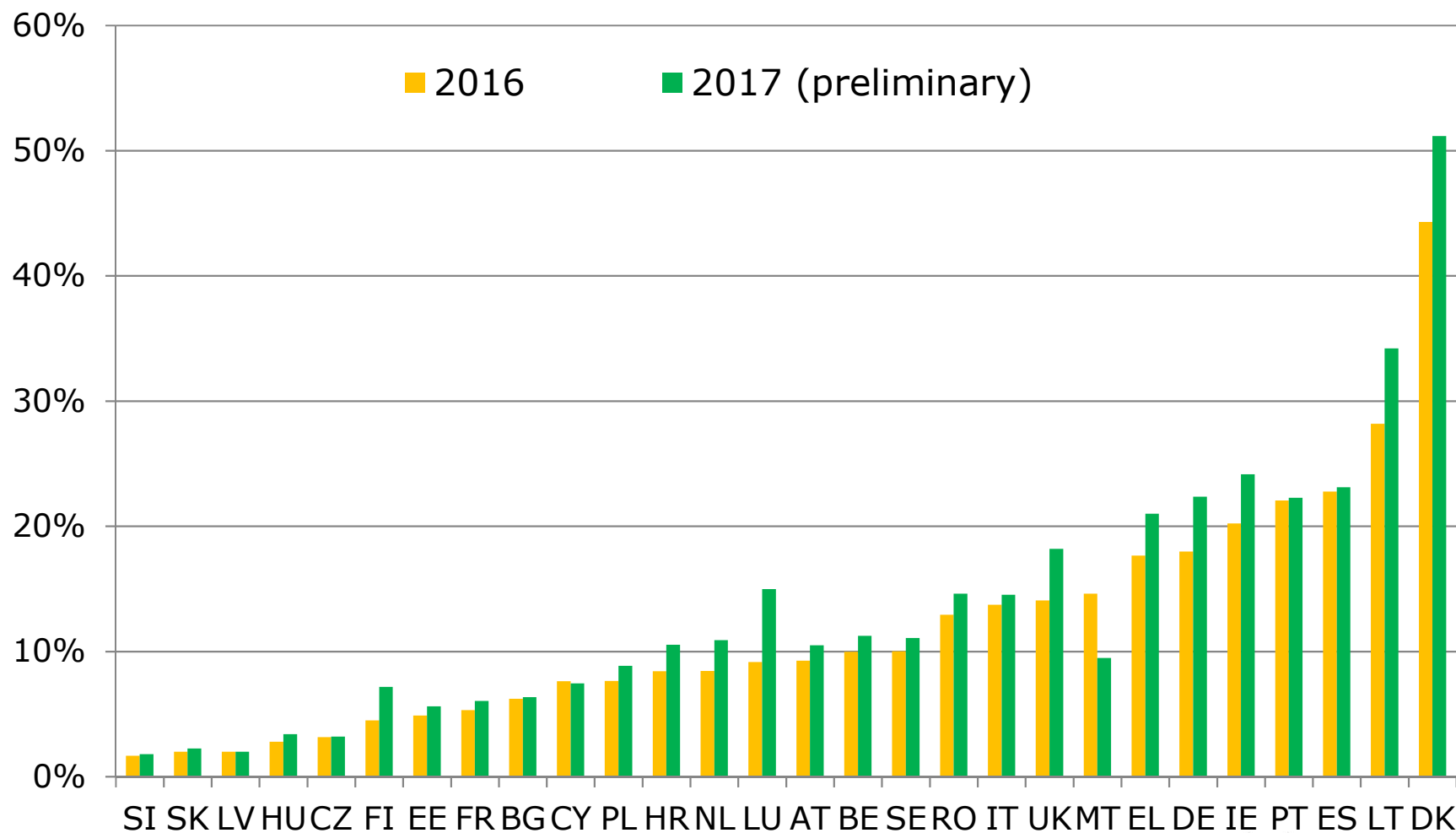


SECTORIAL RENEWABLE ENERGY SHARES (2004-2017)



ELECTRICITY FROM VARIABLE RENEWABLES (% , 2016-17)

RENEWABLE ELECTRICITY OVER 50% BY 2030



EU CLEAN ENERGY LEGISLATIVE PACKAGE (2016-2019)



Energy Union Governance



Energy Efficiency

(Energy Efficiency Directive, European Performance of Buildings Directive)



Renewables

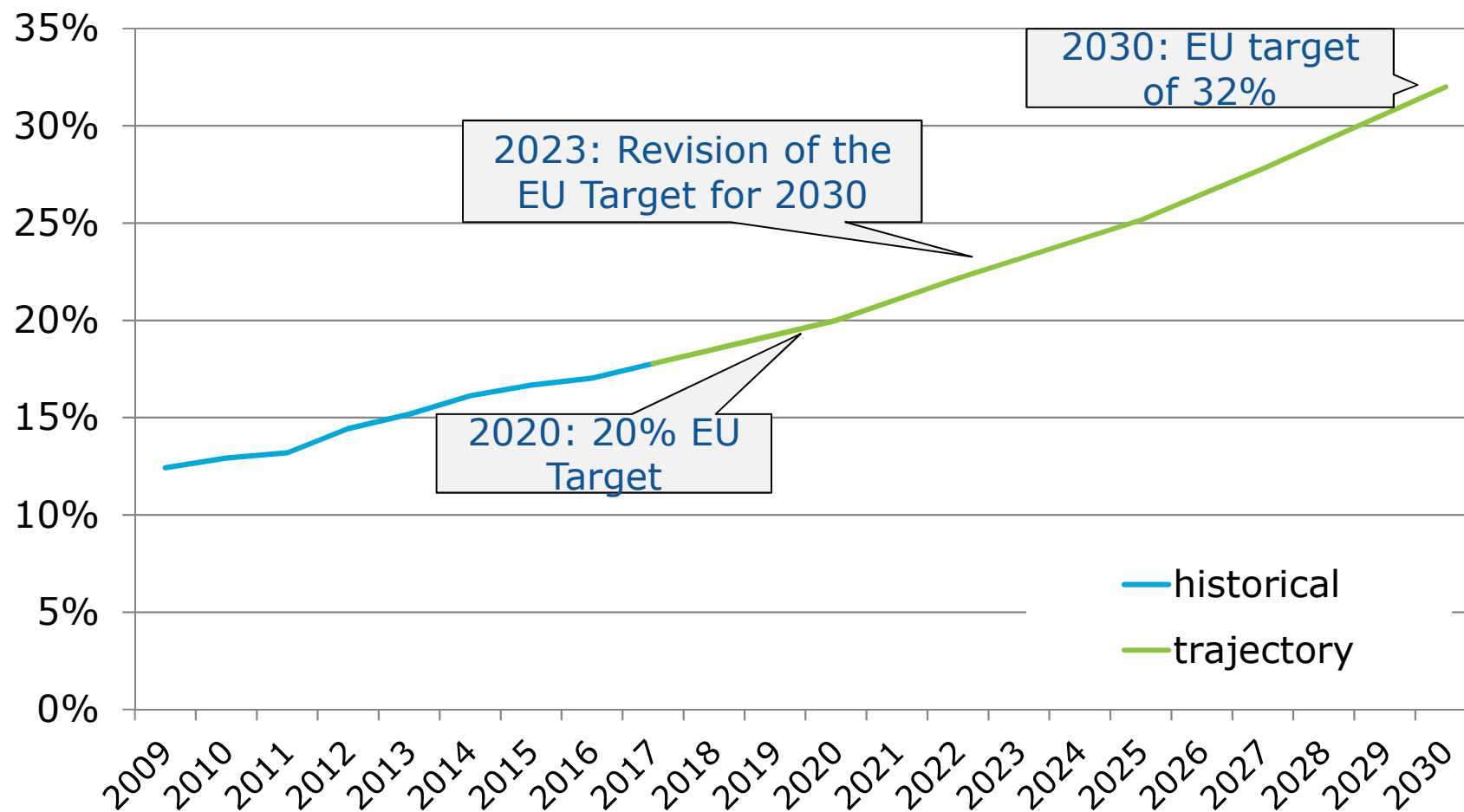
(Revised Renewable Energy Directive)



New Electricity Market Design (including Risk Preparedness)



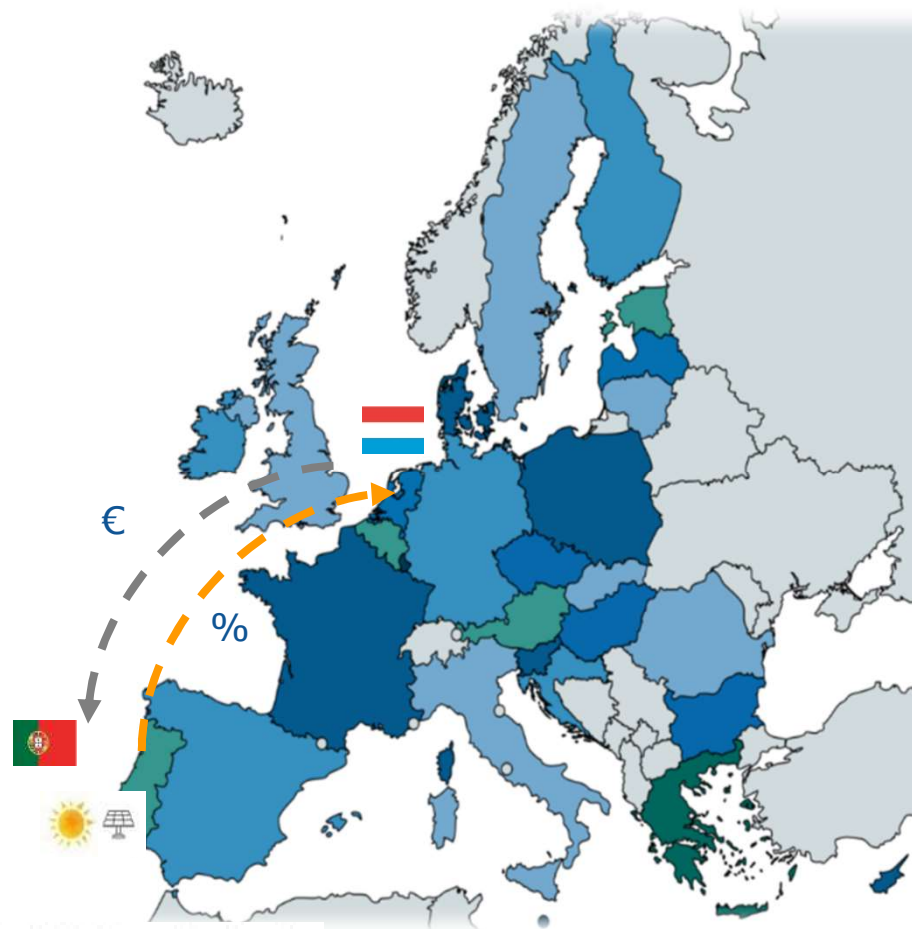
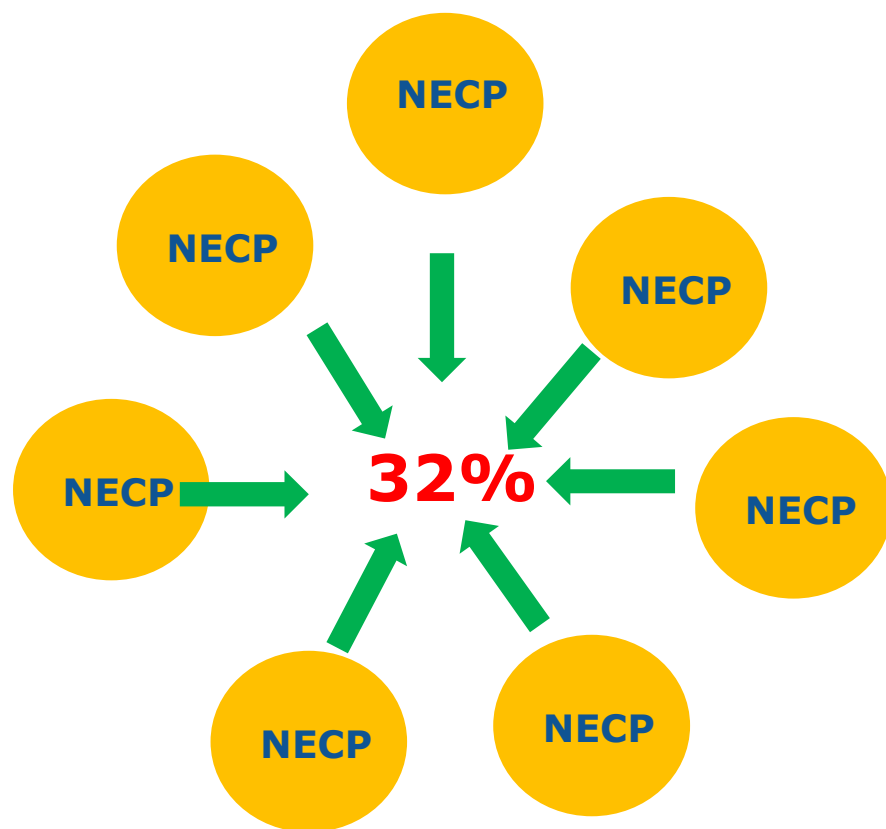
EU RENEWABLE ENERGY OUTLOOK



NATIONAL 2030 ENERGY AND CLIMATE PLANS (NECP) to be adopted by end 2019

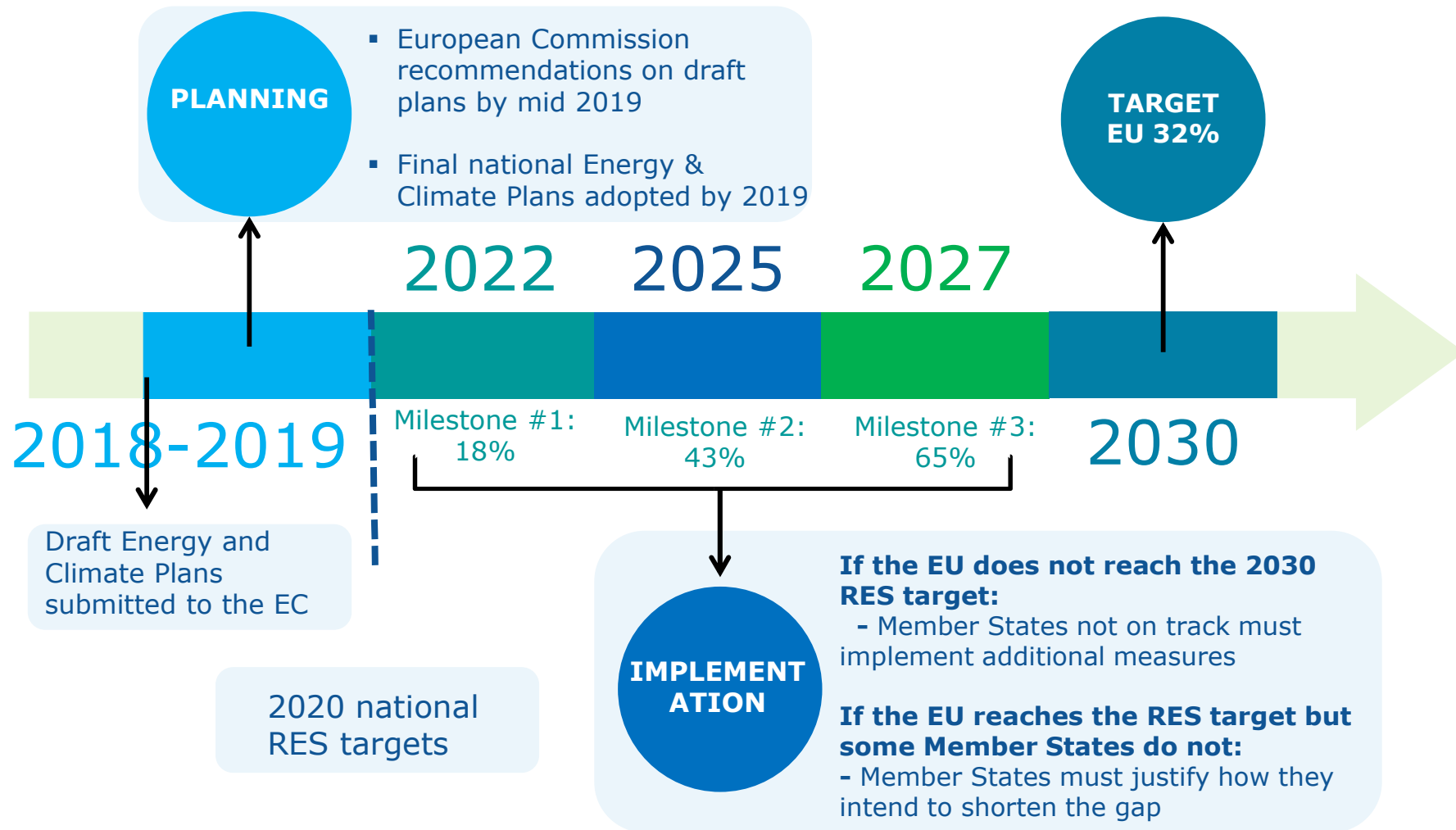


REGIONAL COOPERATION TO ACHIEVE 2030 TARGETS



Created with mapchart.net

GOVERNANCE OF 2030 ENERGY & CLIMATE GOALS



NEW EU DIRECTIVE ON RENEWABLE ENERGY POST-2020



Chapters of the Directive



Support
Schemes

Permitting

Self-
consumption

Renewables
in Transport

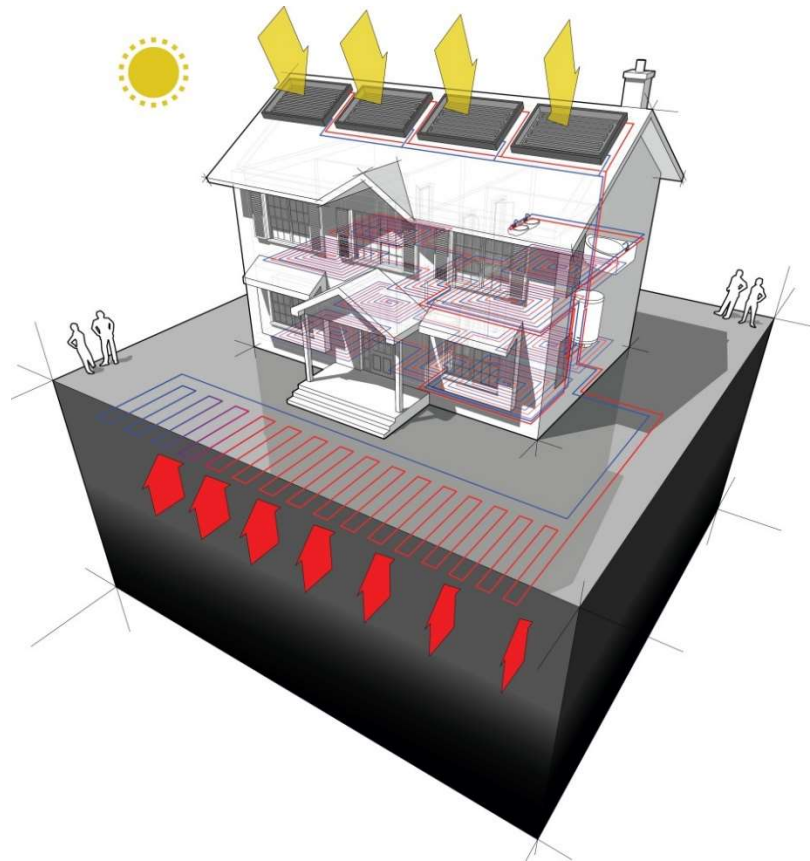
Renewables
in heating &
cooling

Sustainable
Bioenergy

KEY GOALS

- ✓ Achieve a minimum renewables amount of **32% by 2030**
- ✓ Help make the EU the **global leader** in renewables

RENEWABLE ENERGY IN HEATING & COOLING



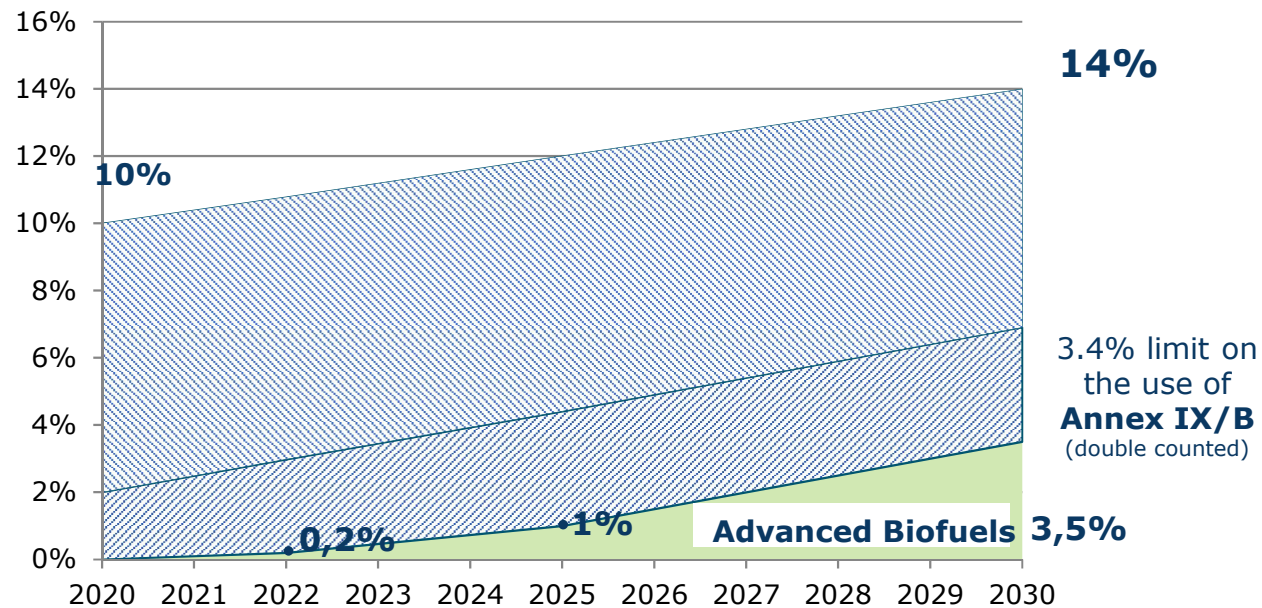
Renewables in heating & cooling

- Target to **increase** renewables in heating and cooling by **1.3 percent point per year** (2020-2030)

District heating and cooling

- **1 ppt increase** in renewables and waste heat/cold
- **Third Party Access** for suppliers of renewables and waste heat/cold
- **Right to disconnect** from inefficient networks for consumers
- **Right to be informed** for consumers on renewables share and energy performance

RENEWABLE ENERGY IN TRANSPORT

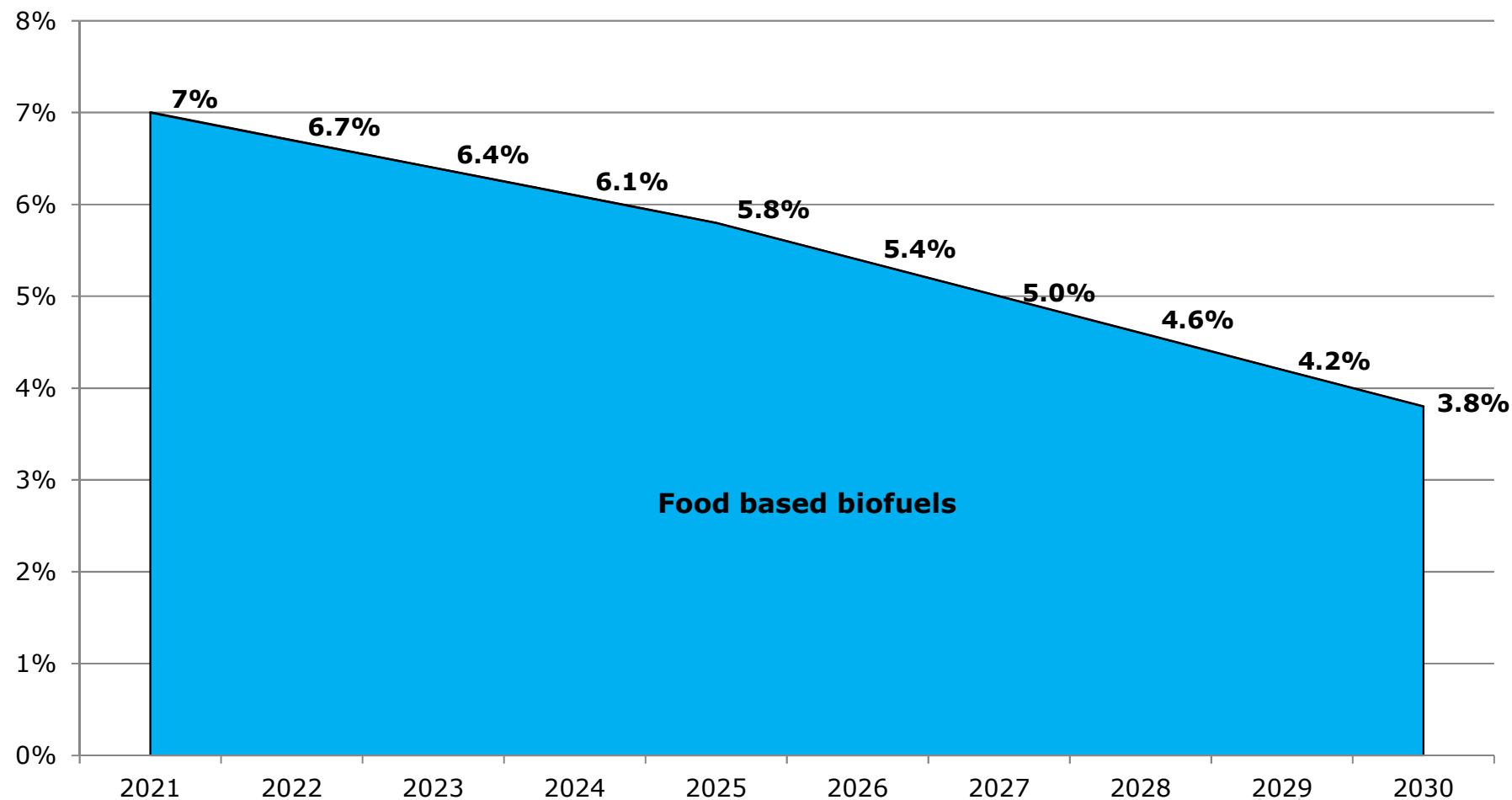


- 14% energy target for RES and low emission greenhouse gases in transport
- Sub-quota of 3.5% for advanced biofuels
- Optional and limited contribution of conventional biofuels

Multipliers



GRADUAL REDUCTION OF CONVENTIONAL BIOFUEL USE + phase out of high ILUC risk biofuels (e.g. palm oil)



BIOENERGY: BENEFITS VS RISKS

Benefits

Significant contribution to the EU 2020-2030 goals

Energy security: largely domestically produced and affordable for consumers

Versatile and storable renewable energy, grid balancing role

Climate benefits compared to fossil fuels

Growth and jobs, in particular in rural areas

Risks

ILUC impacts of biofuels from food and feed

Climate impacts of certain forest biomass pathways

Other environmental impacts: biodiversity/soil, air quality

Resource efficiency and use competition with non-energy sectors

EU POLICY ON SUSTAINABLE BIOENERGY

- ✓ **Mobilize sustainable and competitive biomass supply** through the Common Agriculture Policy, LULUCF Regulation and R&D Policy
- ✓ **Minimize land use & environmental risks** (e.g. deforestation, degradation, impacts on biodiversity and carbon stocks, ILUC)
- ✓ **Deliver optimal greenhouse gas savings** compared to fossil fuel alternatives
- ✓ **Promote resource efficiency** and avoid market distortion

EU BIOFUELS SUSTAINABILITY CRITERIA IN REDI (2010-2020)

1. **Land criteria.** *Biofuels cannot come from land with:*

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

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



3. **Indirect land use change:** *7% cap on conventional biofuels (2015)*

EU BIOENERGY SUSTAINABILITY CRITERIA IN REDII (2021-2030)

Production criteria

1 AGRICULTURE BIOMASS

Land criteria protecting:

- ✓ Carbon and biodiversity rich land
- ✓ Soil carbon and soil quality (for agriculture waste & residues)

2. FOREST BIOMASS

Forest management criteria ensuring:

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

End use criteria

3. GHG EMISSION SAVINGS

- ✓ -65% for new biofuels/biogas production (compared to fossil fuels)
- ✓ -70% (80% in 2026) for biomass-based heat & power (new large-scale plants above 20 MW)



4. BIOELECTRICITY EFFICIENCY (above 50 MW)

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



SUSTAINABILITY CRITERIA FOR FOREST BIOMASS

ARTICLE 29 - REDII



- **Forest harvesting criteria**

- 1) Legality of harvesting
- 2) Forest regeneration
- 3) Protected areas
- 4) Maintenance of soil quality and biodiversity
- 5) Maintenance of long-term production capacity of the forest

- **Forest carbon criteria**

- 1) Paris Agreement membership
- 2) NDC accounting for forest carbon stocks changes
- 3) Legislation to conserve/enhance carbon stocks/sinks & reported LULUCF emissions do not exceed removals

- ✓ **Two options for economic operators to demonstrate sustainability compliance:**

- a) National or sub-national legislation & enforcement mechanisms applying to area of harvest
- b) If evidence a) not available, third-party certified evidence at the sourcing area level

PROCESS TO DEVELOP THE EU GUIDANCE ON FOREST BIOMASS CRITERIA

Task 1-2: Guidance on the sustainability criteria for forest/agri biomass

- **Concepts/definitions & step-wise method** (including check-lists), including best practices on harvesting criteria and on LULUCF criteria

Task 3: Country fact-sheets and case studies

- **Fact-sheets** providing a legal analysis of applicable national forest legislation in all EU Member States and 5 key third countries supplying forest bioenergy feedstock
- **Case studies** to test/illustrate the methods/proofs of evidence proposed in task 1 – half in the EU and half on 3rd countries

Task 4: Two expert workshops + wide consultation

- **1st workshop** in fall 2019
- **2nd workshop** in spring 2020
- Web-based **stakeholder consultation**

GREENHOUSE GAS EMISSION SAVINGS



- ***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
- ✓ Verification of compliance
 - **EU standardized methodology** for accounting GHG emissions of biomass heat and power and GHG saving default values (annexes V- VI of REDII)
 - As for biofuels, actual GHG values can be used, standardised GHG calculation tool (Biograss II)

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**

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 SUSTAINABILITY COMPLIANCE



- **Bioenergy/biofuels generators** are responsible for demonstrating compliance with EU sustainability criteria
- Sustainability compliance will be verified through **national certification schemes** or **voluntary schemes** (VS) recognized by the Commission
- COM to set out updated **certification rules** post-2020
- Reinforced **market surveillance** (both for Voluntary Schemes and Certification Bodies) and promotion of **mutual recognition**
- Mass balance system extended to **gas grid (e.g. biomethane)**, and rules to **avoid double counting**

CIRCULAR ECONOMY PRINCIPLES

ARTICLE 3 -REDII



- Member States shall ensure that their **national policies**, and their **support schemes**, are designed with due regard to
 - ✓ the **waste hierarchy** as set out in Article 4 of Directive 2008/98/EC (Waste Framework Directive)
 - ✓ to aim to avoid **undue distortive effects** on the raw material markets
- Member States shall grant **no support for** renewable energy produced from **the incineration of waste** if the Waste Framework Directive **separate collection obligations** have not been complied with.

CONCLUSIONS

- The European Union is committed to become the world first net zero carbon economy, with an energy system based on renewable energies
- Sustainable bioenergy is and will play an important contribution to the EU 2020 and 2030 energy and climate goals, sustainability and robust carbon benefits are key
- The EU has developed a comprehensive bioenergy sustainability framework for all bioenergy uses (transport, heat and power)
- Upcoming implementation of the new sustainability criteria for forest biomass needs to be robust and cost-effective, building on existing sustainable forest management frameworks and wide consultation



European
Commission

ENERGY UNION

EnergyUnion #EnergyUnion

European Commission
Commission européenne

Commission européenne
European Commission

Thank you for your attention!

Email: Giulio.Volpi@ec.europa.eu

