EUROPEAN PARLIAMENT

Workshop on AGRO-RESIDUES AT THE CROSSROAD TOWARDS 2030

Brussels, European Parliament, 17 May 2018

uPrunning

Take-off for sustainable supply of woody biomass from agrarian pruning and plantation removal

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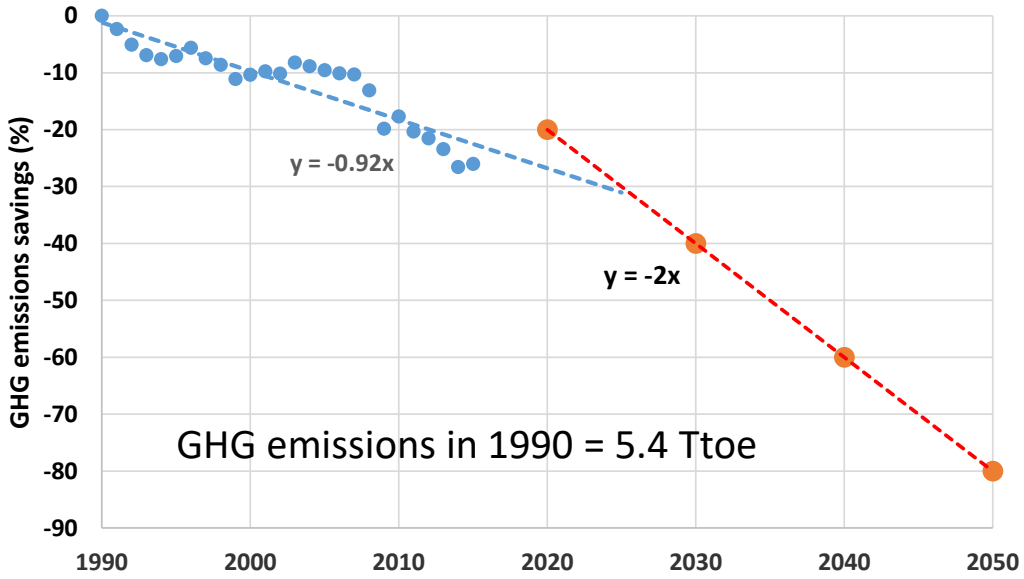
EUROPEAN COMMISSION
Innovation and Networks Executive Agency
ENERGY RESEARCH

EU Climate and Energy Roadmap



GHG reduction over time

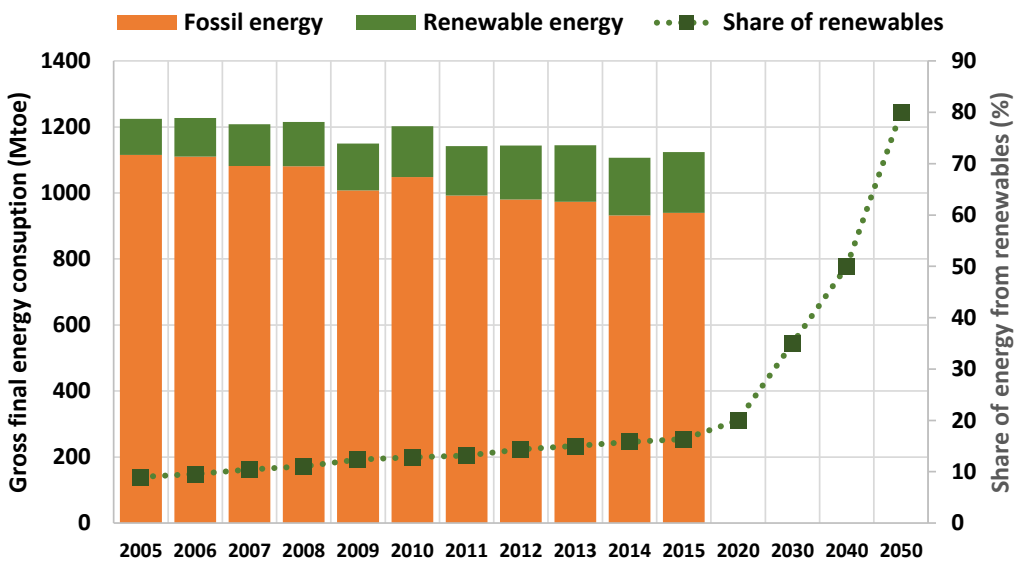
The European Union (EU) is on track to achieve its GHG emission reduction target of a 20 % decrease.

Faster rates of GHG emission decreases are necessary to achieve an 80 %, or even a 95 %, decrease by 2050.

Share of renewables over time

The European Union (EU) is currently on track to meet its renewable energy target, i.e. that 20 % of its energy should come from renewable sources by 2020.

In view of the EU's longer-term target for 2050, the RES deployment rate should increase significantly.



01 Key message

An exceptional effort needs to be deployed in order to boost transition towards renewable energies, on both supply and demand side

This requires a strong and rapid strengthening of the renewable energy installed capacity

At the same time, considerable efforts must be made to improve energy conversion efficiency as well as energy end-use efficiency

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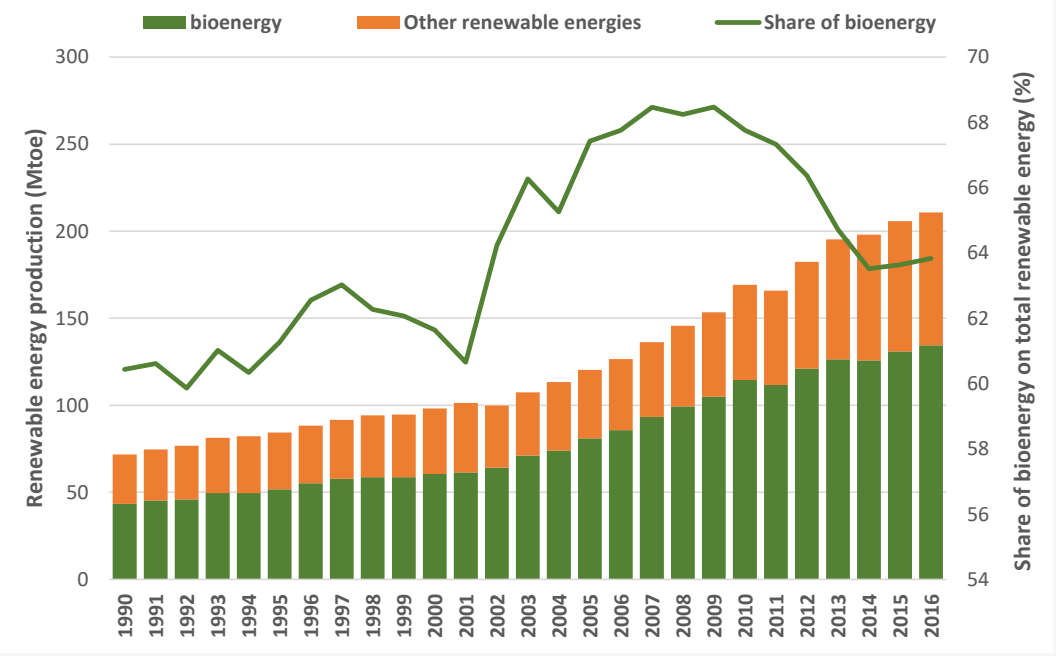
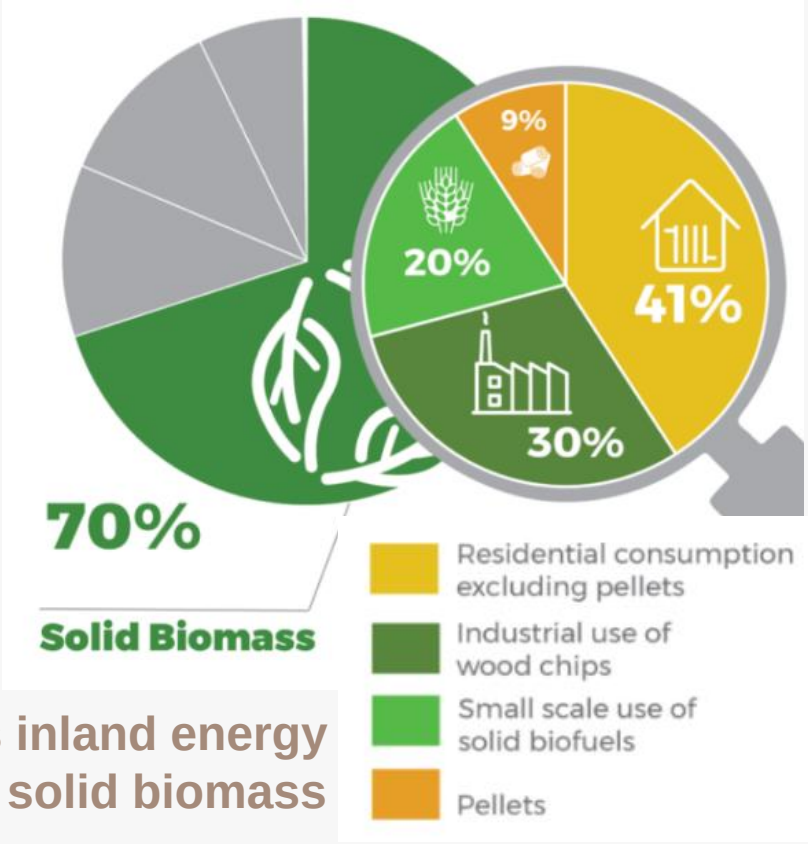
Bioenergy and Solid Biomass



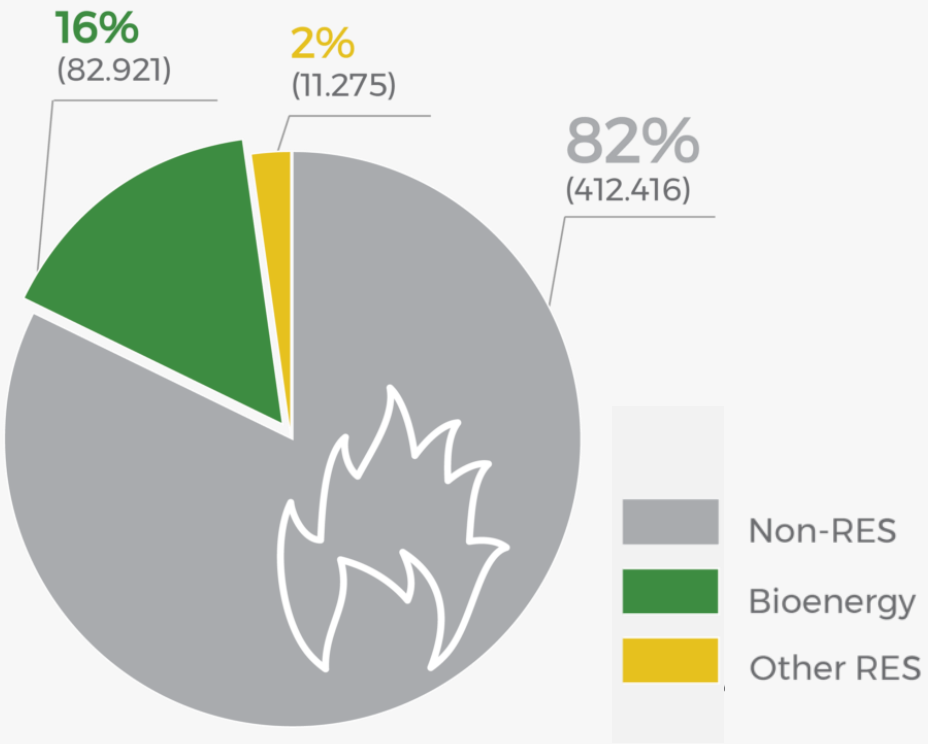
Bioenergy is by far the most significant renewable energy source in the EU. It accounts for 64 % of all renewable energy production in 2016

More than two thirds of biomass consumed in Europe consists of **solid biomass** being mostly forestry residues and to a limited extent agricultural by-products



EU-28 gross inland energy consumption of solid biomass

Bioenergy and Solid Biomass



EU-28 share of energy in the gross final energy consumption for heating & cooling

Heating and cooling represents around 50% of total EU energy consumption, of which 82% is powered by fossil fuels

Bioenergy is currently the leading renewable in heating and cooling (88%) representing 16% of European gross final consumption of energy in this sector

Renewables are becoming a key priority for EU policy, specifically in buildings, a sector which is essential to address in order to reach EU decarbonisation objectives

02 Key message

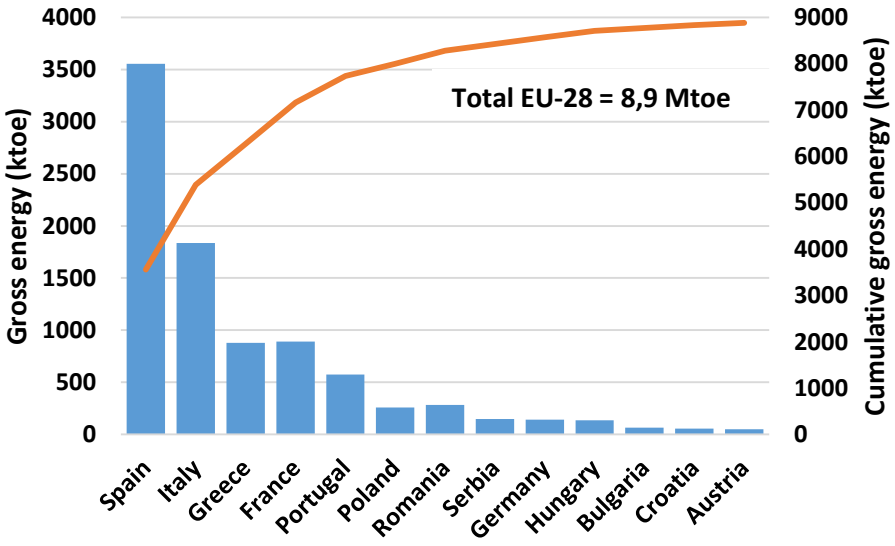
The contribution of bioenergy to a low-carbon scenario is of crucial importance

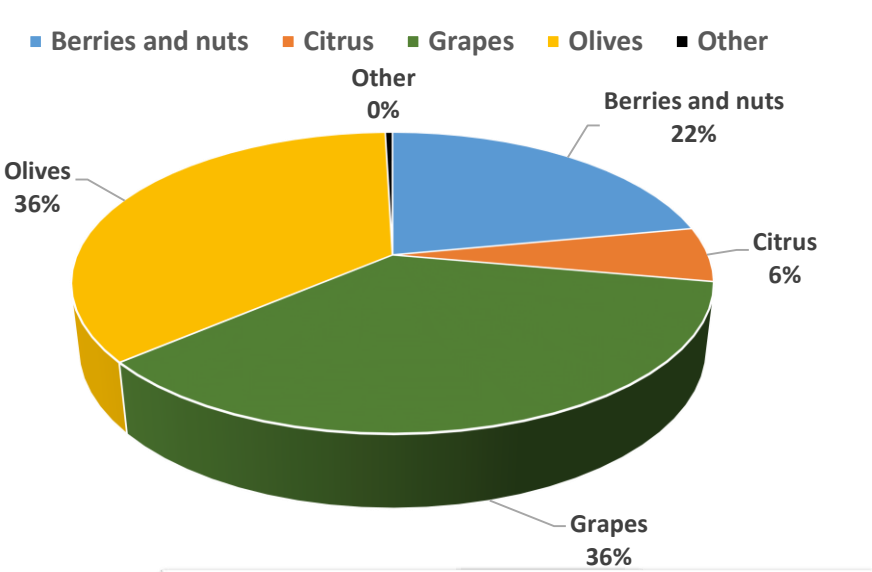
Sustainable bioenergy is an essential element in the portfolio of measures for a low-carbon energy system also in the years to come

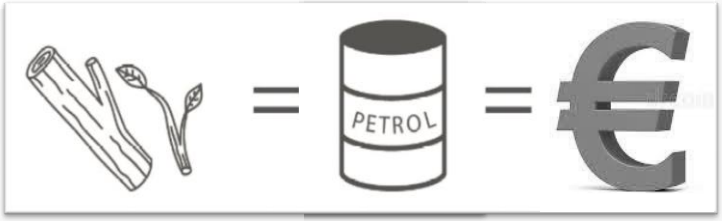
Energy from solid biomass is a strategic asset in EU

The heating and cooling sector remains underestimated, showing great room for improvement

Potential of the Pruning Energy Sector in Europe







- Fruit tree cultivation area = 11.33 kha
- Potential pruning availability = 25 Mt/y
- Potential power generation = 23.9 TWh/y

  (= 3 GW installing capacity; = 4.9 Billion €; = 15 Million of people)
- Potential heat generation = 57.9 TWh/y

  (= 7 GW installing capacity; = 3.6 Billion €)

03 Key message

Agro-residues (and particularly pruning) are a relevant renewable energy source, but still not used or largely under-used

The energy (heat & electricity) that can be obtained by mobilizing pruning residues in EU is potentially impressive and should be sustainably tapped

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How much GHG emissions are potentially saved ?

Energy value chains based on pruning reach a 90 % of GHG savings as compared with fossils (by LCA calculations)

23.9 TWh of electricity are theoretically able to substitute approximately 8.4 Mt of CO_2 equivalent (considering CCGT generation)

How much CO2 is theoretically sequestered ?

This overall amount of CO_2 emission saved approximately corresponds to 560 kha of new forested area

Agro-residues (and particularly pruning) can contribute to replace or minimize the consumption of fossil fuels and to reduce the emissions of GHGs responsible for global climate change

04 Key message

The carbon footprint of agro-pruning energy value chains is very low and GHG savings as compared to fossils are very high

Pruning does not Compete with Food Crops

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05 Key message

Since pruning is a residual kind of biomass (i.e. not obtained as main product, bu as by-product) its use as energy carrier does not threaten food production, nor it subtracts agricultural land from ordinary food crops

It represents a totally new, supplemental and complementary energy source

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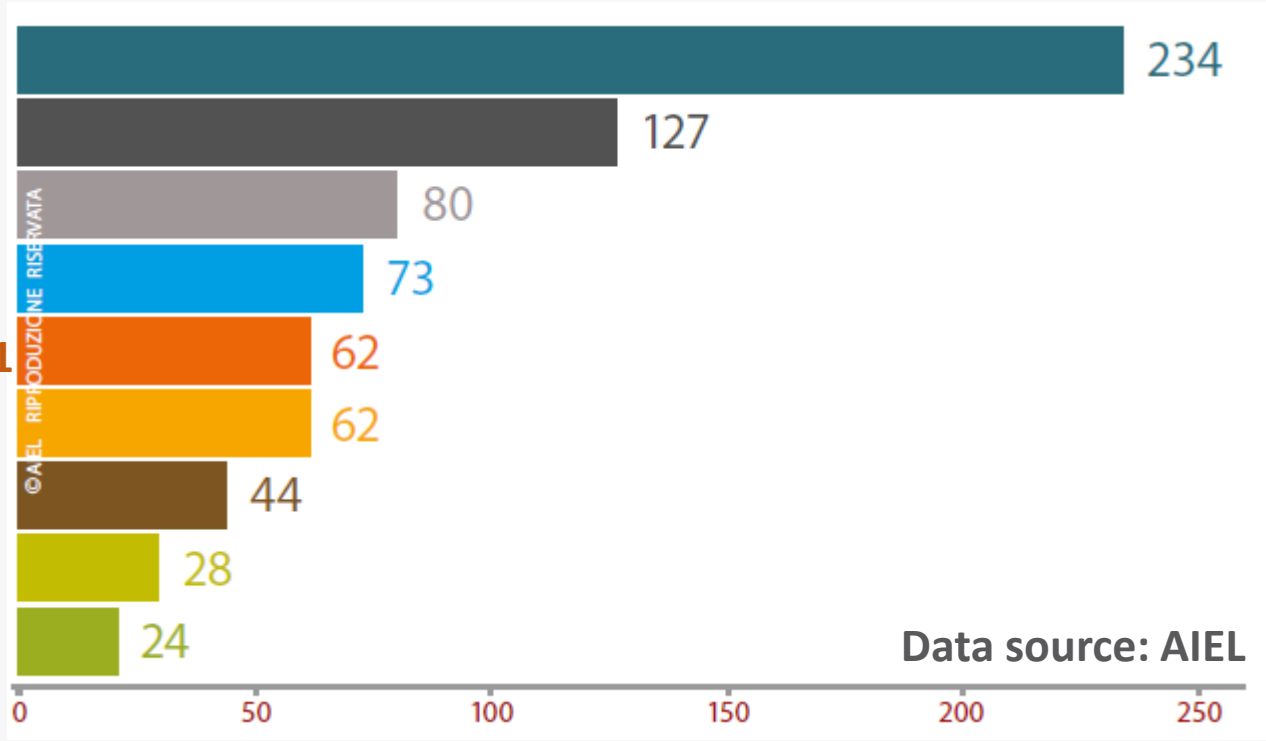
Solid Biomass is Cost Competitive

Comparison of primary energy costs (€/MWh) produced by fossil fuels and solid biomass energy carriers



06

Key message

Wood biomass is one of the most profitable energy carrier and solid biofuels to be implemented in heating appliances, household boilers, district heating systems, etc.

Agro-residues are generally lower in heating quality than solid biomass from forestry, but very cost competitive

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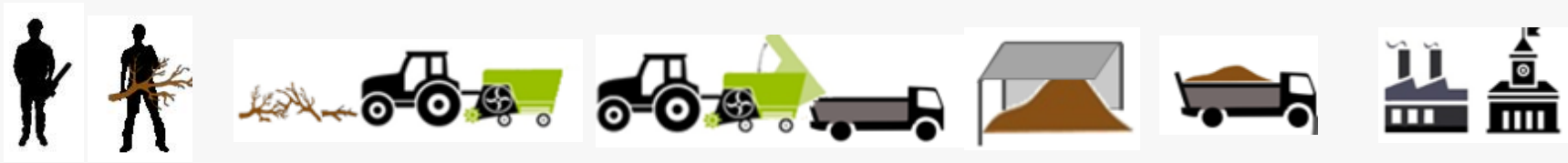
A Flywheel for Rural Development

Manual pruning and preparation of branches	Integrated collection with shredding	Download on truck at field side	Storage in a roofed facility	Transport to final users	On-site storage and energy conversion



Bioenergy value chains are connected and included within the territorial milieu, offering new opportunities and services, in a complementary relationship with pre-existing agricultural activities. A large variety of bioenergy value chains and business models are available, each according to specific territorial characteristics. Bioenergy creates jobs in the region.

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07 Key message

Promote new forms of agro-industrial integration and lessens the energy dependence of the agricultural sector

Agro-residues promote rural development; being rooted at local scale, is a community oriented, self-reliance, self-sustaining models of development

According to a multifunctional strategy, bioenergy enhance the farm productive diversification and favour income integration

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Policy Recommendations

- Setting ambitious bioenergy targets
- Fostering biomass mobilization and securing its supply
- Favoring profitable and stable investments in the bioenergy sector
- Simplifying and harmonizing administrative procedures
- Promoting an intelligent and flexible financial support
- Supporting industrial leadership and technological development
- Phasing out from fossil subsidies through Carbon pricing
- Targeting effective technologies, value chains and business models
- Solid fuel quality standards, fuel flexibility, eco-design and retrofitting technologies

www.up-running.eu

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Thank you very much for your attention!

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