



**HAWKINS WRIGHT**

## **Biomass: Europe's largest renewable energy resource**

**Bioenergy Future Ireland**

Croke Park, Dublin

26 February 2020





# Consultants to the global woody biomass industry



## The global market for palm kernel shells (PKS)

An overview of the trade

August 2019

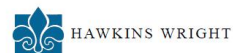


## The black pellet market outlook

An overview of the status of black/advanced pellet markets globally

A multi-client study

Available February 2020



## The Outlook for Wood Pellets – Demand, Supply, Costs and Prices

Number 22 – Fourth Quarter 2019



## Wood chips for energy

An overview of the seaborne trade of wood chips used for energy generation

May 2019



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Issue 105 – December 2019

# Forest Energy monitor

BIOMASS & PELLETS — MARKETS — INVESTMENTS — LEGISLATION

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## Spot price continues upward climb

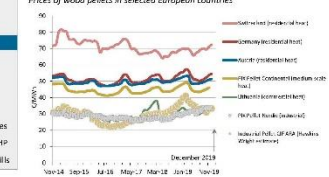
A calm end to 2019 in the industrial wood pellet market saw a small uptick in European spot prices. We estimate European industrial spot prices rose to \$170.1/MT C&F ARA in December, up +5.33% on the month.

Little buying urgency dissuaded potential buyers from being tempted by the volumes on offer. Handysize offers for Q1 2020 delivery were reported in the mid-to-high \$170/t C&F ARA, while most bids stood some way below this level. However, we heard of one large handysize deal concluded at \$179/t C&F ARA towards the end of December. Limited counters were on offer from the Baltics but several were available from Belarus for Q1 delivery.

European utilities were reportedly running well in December but were well stocked ahead of the Christmas period. Buying activity in early 2020 will heavily depend on how low temperatures drop in the coming weeks. As we have reported over the past couple of months, buying interest continues to be dominated by pellet producers picking up spot volumes to fulfil contract obligations with European end-users. We understand there is still some tentative interest for replacement volumes in Q1 but nothing too urgent. It is likely that demand from producers and traders will lead to more spot deals in early 2020.

In South Korea, industrial spot prices hovered near all time lows. The spot price, based on imported wood pellets, came under significant pressure in 2019 due to the low RCF prices and increasing domestic production. We

Prices of wood pellets in selected European countries



Sources: See the footnotes beneath the price indicators table, page 3.

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## Agenda

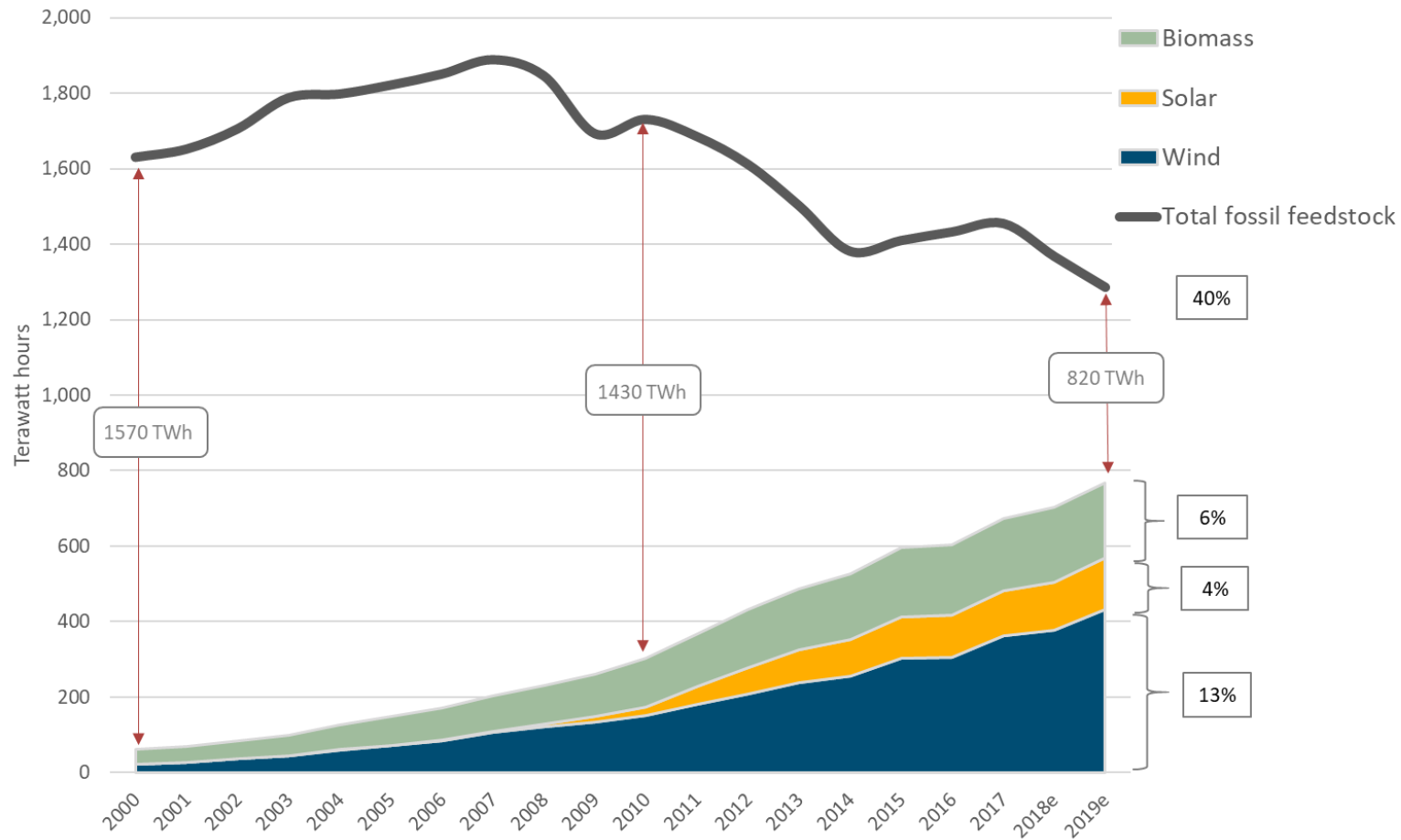
- Biomass electricity and CHP in Europe
- Sources and forms of biomass
- The role of imports: flows of trade
- Examples of large-scale biomass electricity/CHP generation
- Greenhouse gas emission footprint of biomass supply chains
- EU ambition to 2030: the role of biomass in delivering RED II and Net Zero





## European Union electricity generation by main fuel type

The gap between fossil and renewables sources has halved, but has a long way to go

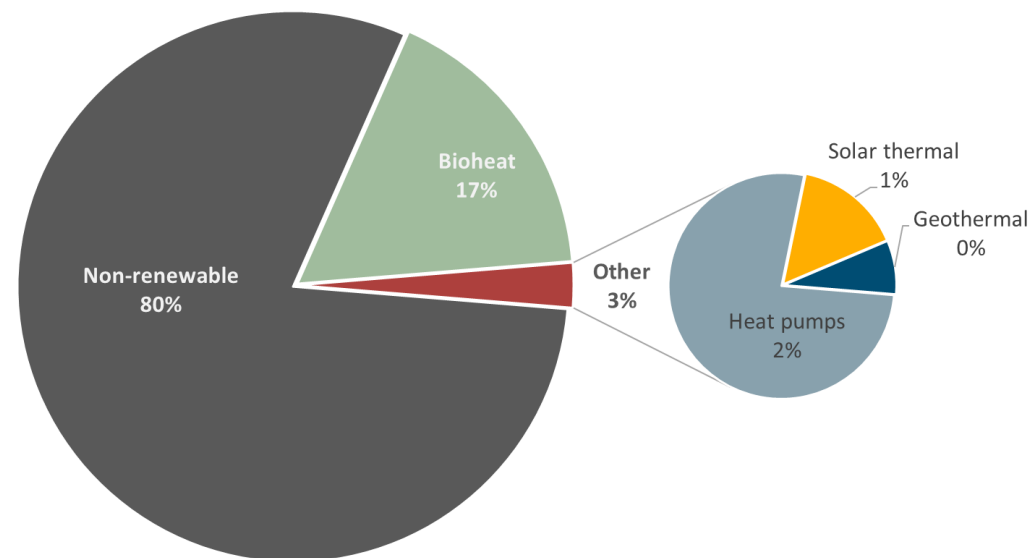
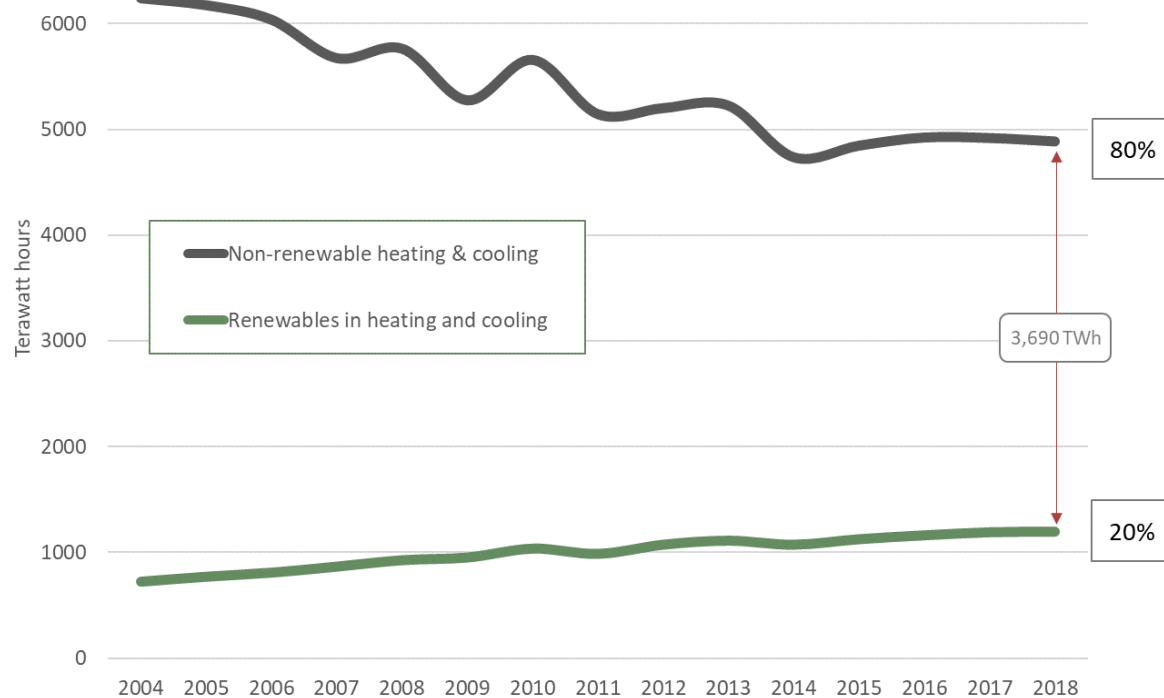


Source: Eurostat, Sandbag (January 2020)



## European Union: energy used for heating and cooling, 2018

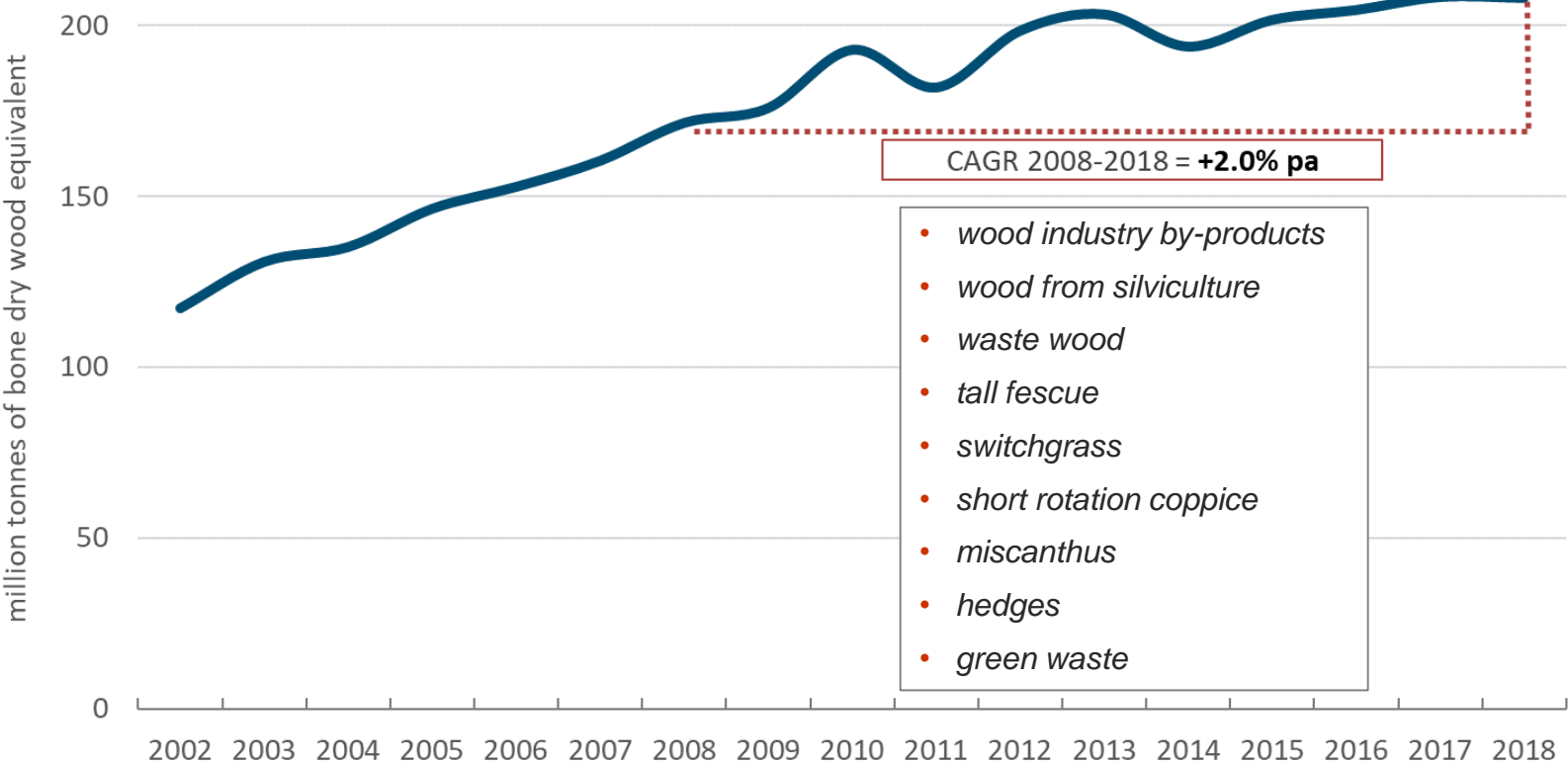
A bigger challenge for the EU. Biomass needs to be a large part of the solution



Source: Eurostat and Bioenergy Europe



# EU consumption of solid biomass



Source: Eurostat (adapted by Hawkins Wright)

Original data in tonnes of oil equivalent have been converted to tonnes of dry wood equivalent assuming 1 tonne of bone dry wood = 20GJ energy

## Primary solid biomass

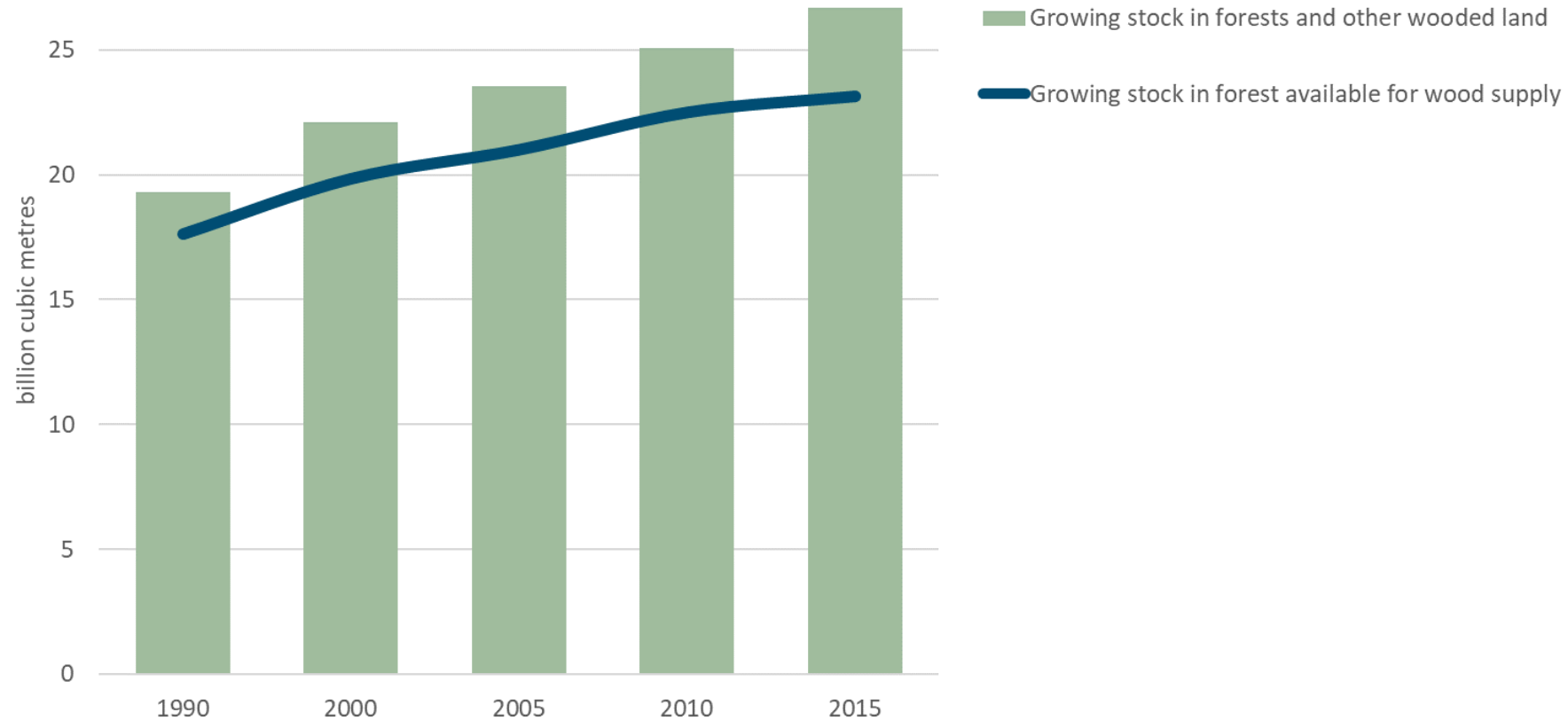
*million tonnes bone dry wood equiv.*

Germany	25.3
France	21.6
Sweden	19.5
Finland	18.6
Italy	17.8
United Kingdom	15.3
Poland	13.3
Spain	11.4
Austria	9.6
:	:
Ireland	0.6
:	:
<b>TOTAL EU28</b>	<b>208.2</b>



## The stock of wood in EU forests is steadily increasing

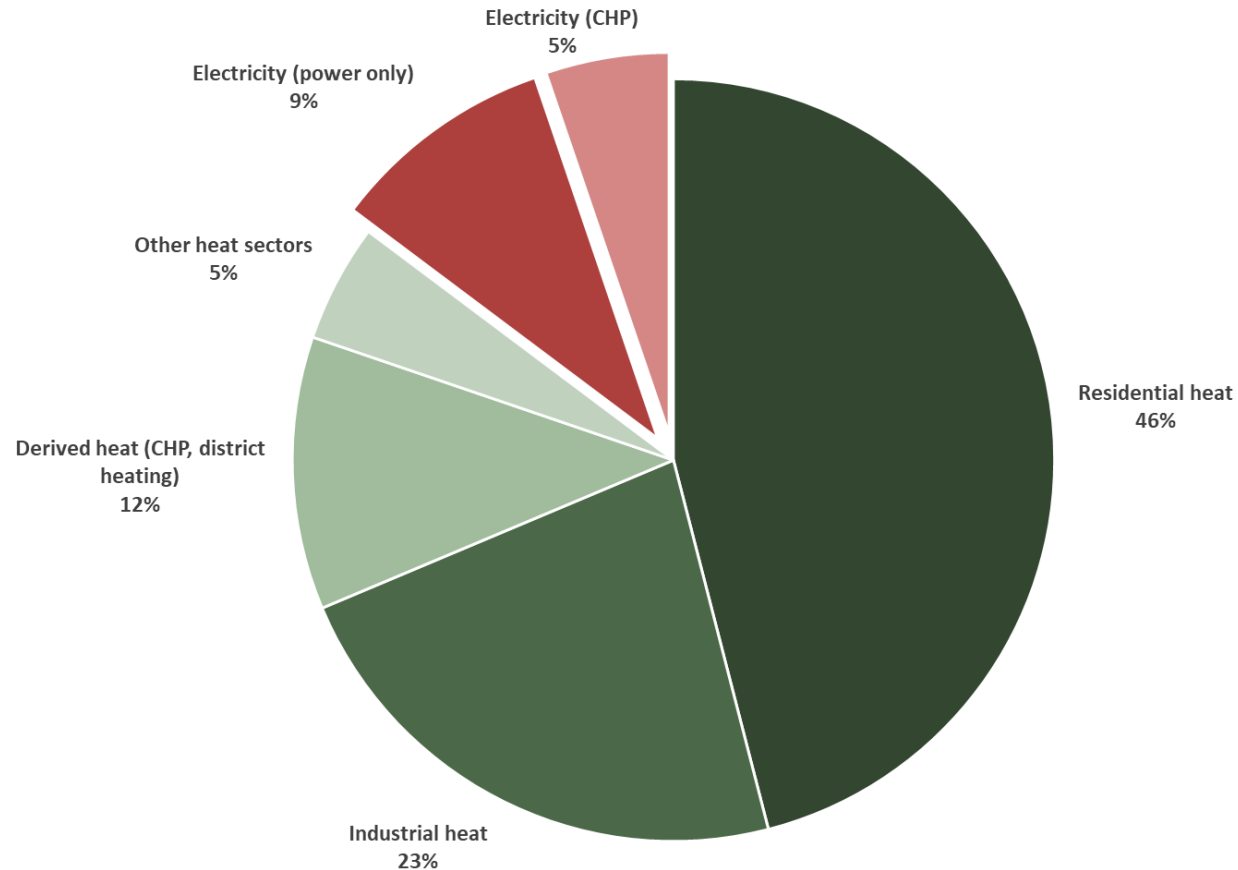
A combination of increasing area and increasing volume per hectare



Source: Eurostat



## EU consumption of solid biomass by end-use, 2017



### EU consumption = ~200M BDT wood equivalent

- ~85% is used to generate heat
- ~15% is used for electricity generation, of which a third is power from CHP

Original data in tonnes of oil equivalent have been converted to tonnes of wood equivalent assuming 1 tonne of bone dry wood = 20GJ energy

Source: Eurostat, Bioenergy Europe and Hawkins Wright estimates

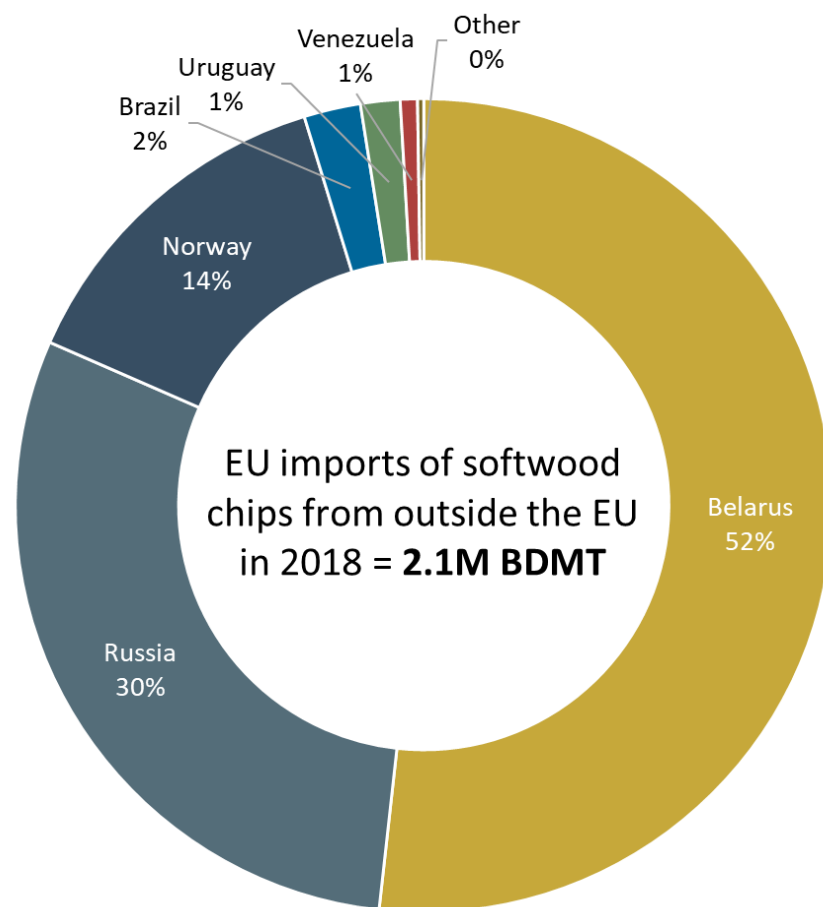


## EU imports of energy grade chips are small in relation to total use of solid biomass

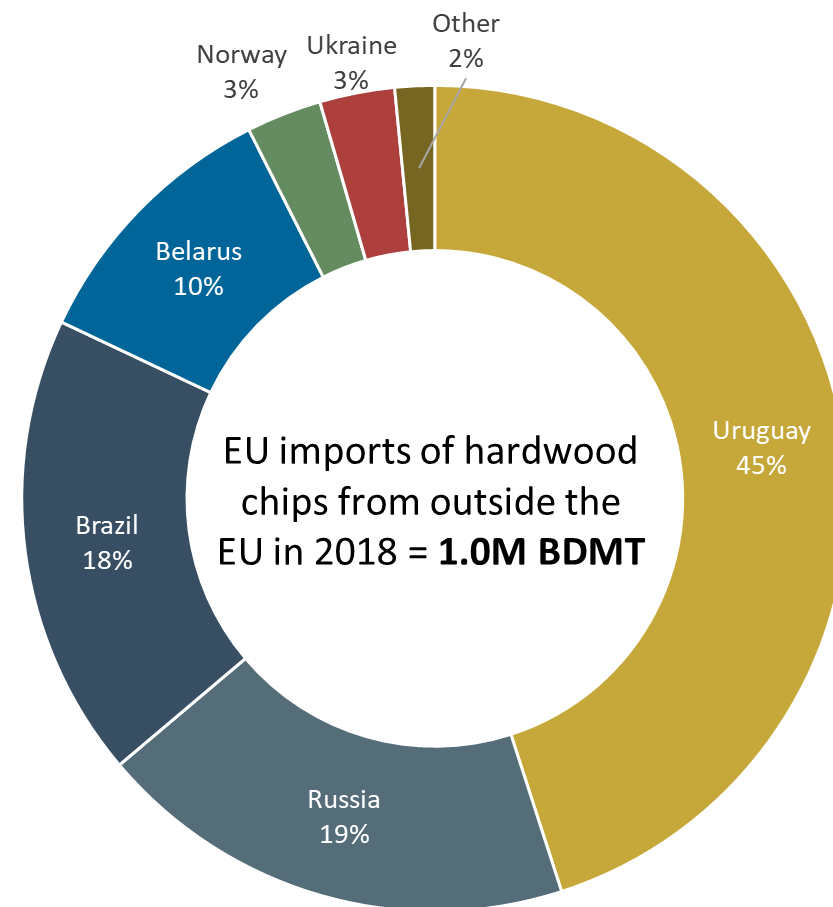
Total chip imports ~3.0Mt, including imports for pulp and paper, e.g. from Uruguay, Brazil, Norway, Russia



### Softwood chips



### Hardwood chips



Source: Eurostat

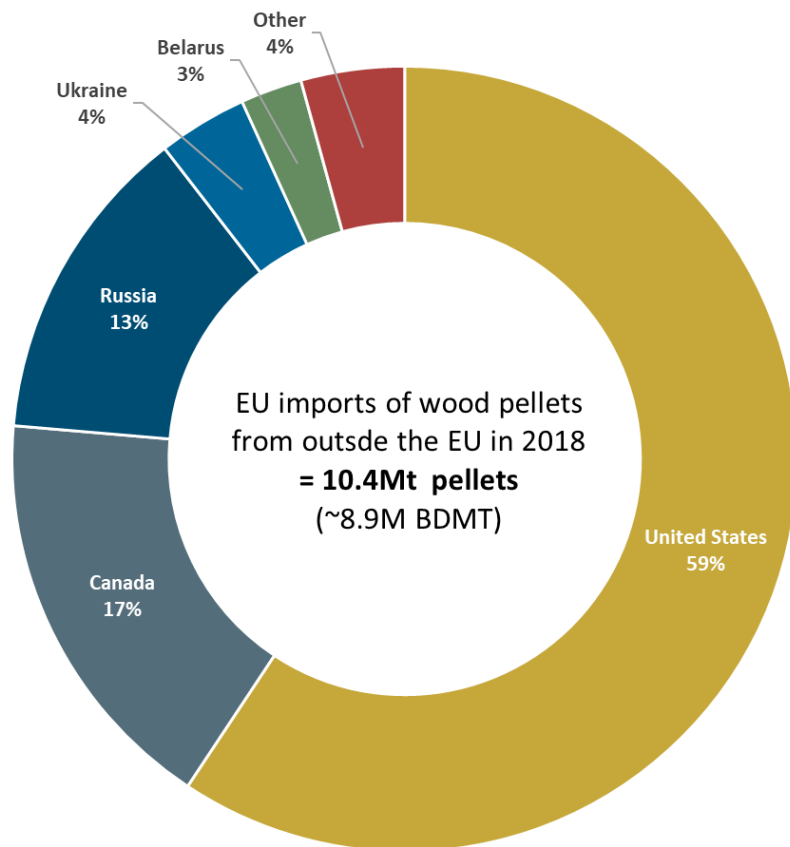
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## EU imports of wood pellets, 2018

Imported pellets are used mainly in a small number of utility-scale power and CHP plants close to the North Sea coast

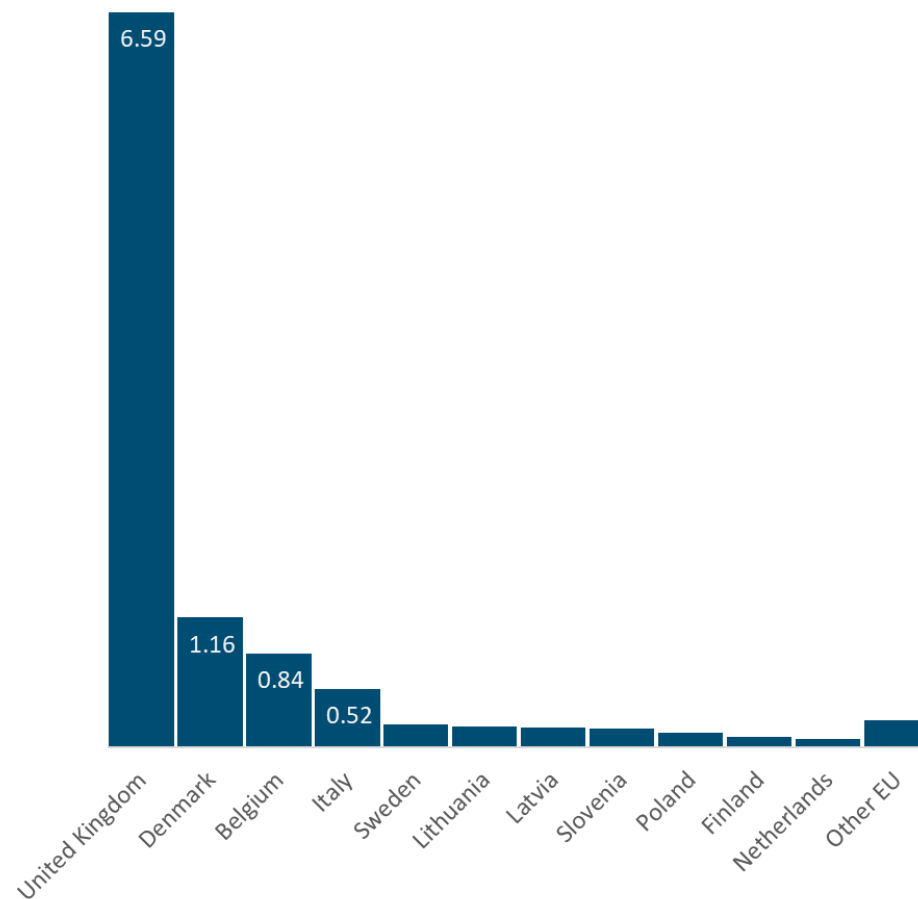


### Country of origin



Source: Eurostat

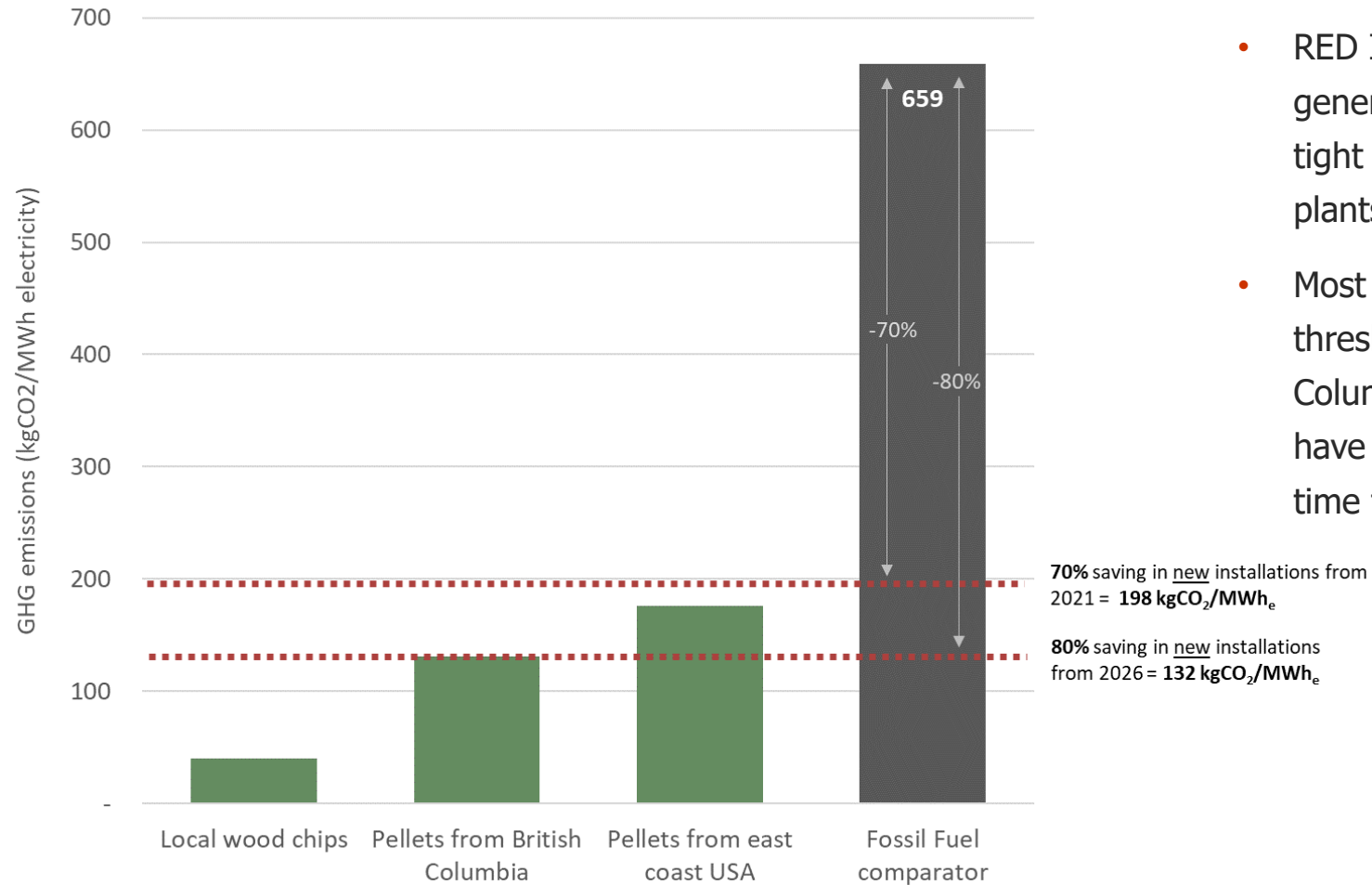
### Destination *million tonnes pellets*



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## Greenhouse gas emissions of biomass supply chains



- RED II requires that biomass used for the generation of electricity, heating and cooling meets tight GHG emission thresholds: at least -70% for plants starting from 2021, then -80% from 2026.
- Most local wood chip supply is already below these thresholds, as is wood pellets from British Columbia. Pellet suppliers on east coast USA may have a greater challenge from 2026, but there is time for supply chains to adjust to new limits.
- Thresholds in the UK will be much tighter than in the EU's RED II. For new CfD-funded projects starting in 2021, the threshold will be just 29kgCO<sub>2</sub>/MWh.

Source: EU RED II Directive and Hawkins Wright (using the OFGEM model to calculate supply chain GHG emissions)



# EU ambition to 2050: the role of biomass in delivering RED II and other ambitions

## RED II

- RED II sets an EU-wide target of a 32% renewable share of final energy consumption by 2030
  - > Up from a target of 20% in 2020 and from the 18% achieved in 2018.
  - > This implies a ~75% increase renewable energy generation within twelve years
  - > Bioenergy has a 59% share of renewable output today, so targets are unachievable without bioenergy's continued growth

## EU Green Deal and Net Zero by 2050

Includes tools to address **carbon price; energy taxation; renewables targets; state aid policy; sustainability requirements, green financing** and **industrial policy**...

- Climate Law to enshrine the 2050 net zero commitment into a legal obligation
- Plan to increase the EU's GHG emission reduction target for 2030 to at least 50% (possibly 55%), from 20% in 2020
- Sustainable Europe Investment Plan to mobilise €1trillion of investment towards the 2050 net zero goal
  - > Includes €100bn in 2021-2027 to alleviate the socio-economic impacts of the transition
- Green Deal package broadly welcomed by the biomass industry, but the heating & cooling sector is oddly neglected



## Questions...

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