

Energieholzhandel weltweit- kann das nachhaltig sein?

Alumnikolloquium

Between Protection and Production:

Advanced concepts and solutions of a sustainable utilization of forest resources

24 July 2014

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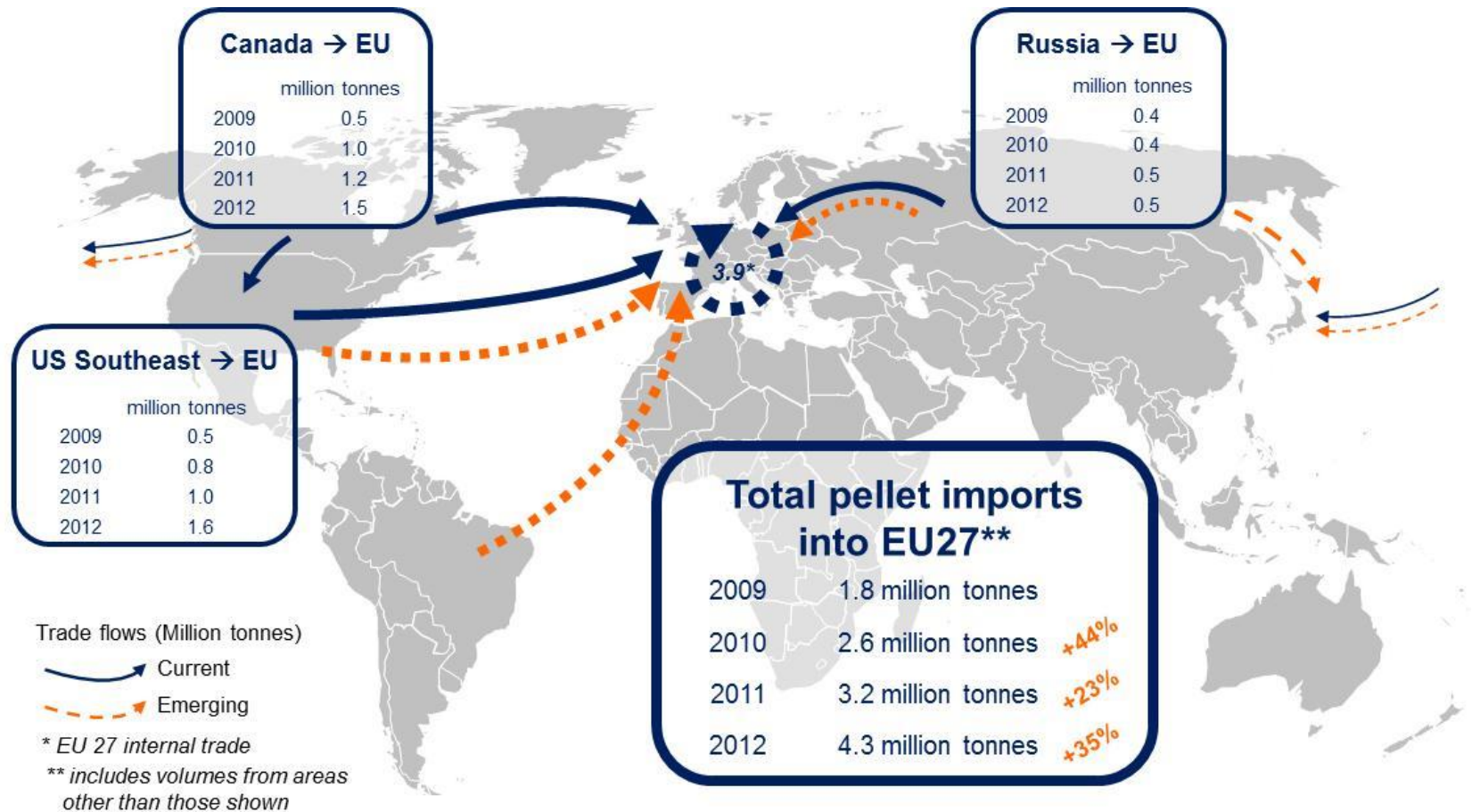
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AGENDA

- The current status of the international biomass trade
- Market development scenarios
- Sustainability requirements
- GHG emission savings
- Economic sustainability
- The risk of IWUC

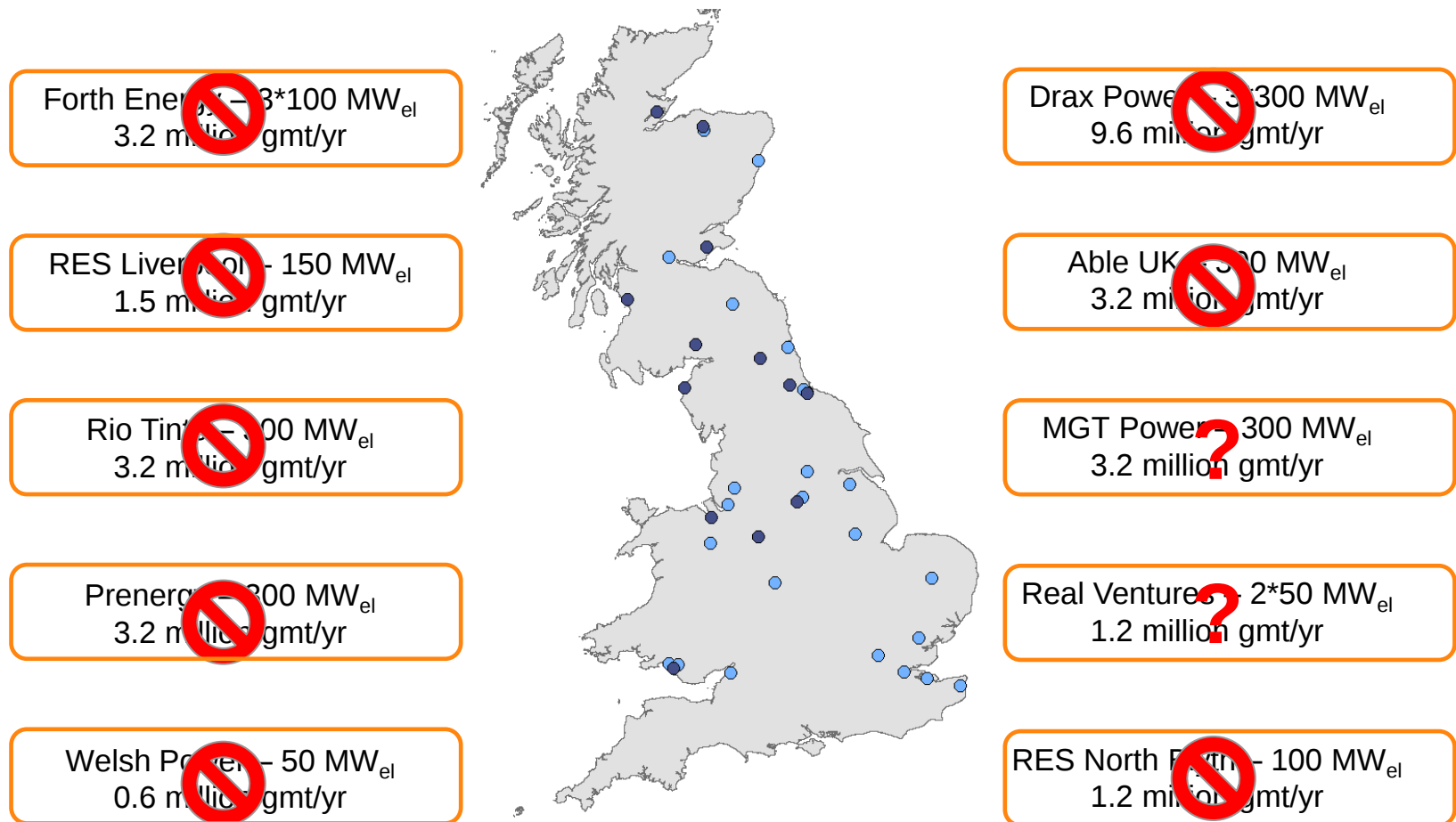
INTERNATIONAL BIOMASS FUEL TRADE – A GROWTH STORY

Volumes of internationally traded biomass fuel have been increasing steadily over the last few years and pellets are the key commodity.



IS LARGE SCALE BIOMASS POWER GENERATION DEAD?

Where do we stand with the UK's ambitions to become a bioenergy powerhouse in Europe? 32 million gmt of wood chips....



...NO, IT ONLY HAS CHANGED ITS FACE

Coal to biomass conversion projects and large scale biomass co-firing projects offer an attractive combination of low capital investment, short development cycles, and the possibility to expand the lifetime of power stations



- Drax Power 1,800 to 2,400 MW_{el}
- Eggborough Power 800 to 1,200 MW_{el}
- Lynemouth Power 340 MW_{el}
- **Total pellet demand: 12-15 million tpa**



- Electrabel Les Awirs 80 MW_{el}
- Electrabel Rodenhuize 180 MW_{el}
- Electrabel Ruien 200 MW_{el}
- E.ON Langerlo 450 MW_{el}
- **Total pellet demand: 2 million tpa**



- DONG 1,650 MW_{el} in six stations
- Vattenfall 360 MW_{el} in two stations
- **Total pellet demand: 7-8 million tpa**

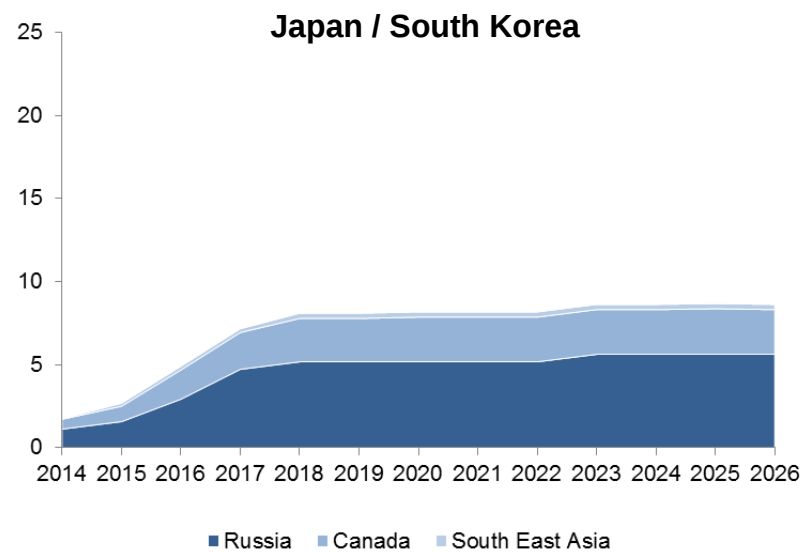
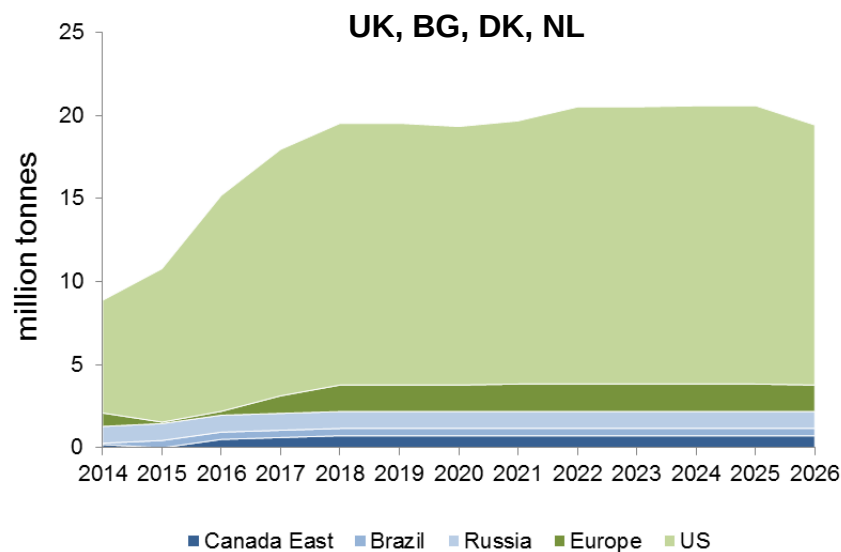


- Support of max. 25 PJ biomass co-firing activities under Dutch Energy Accord
- **Total pellet demand: 3.7 million tpa**

WILL THE GROWTH CONTINUE?

Demand for industrial pellets from UK, BG, NL and DK is likely to reach a level of around 20 million tonnes per year by 2018; depending on specific investment decisions and the economic climate, growth might be even higher

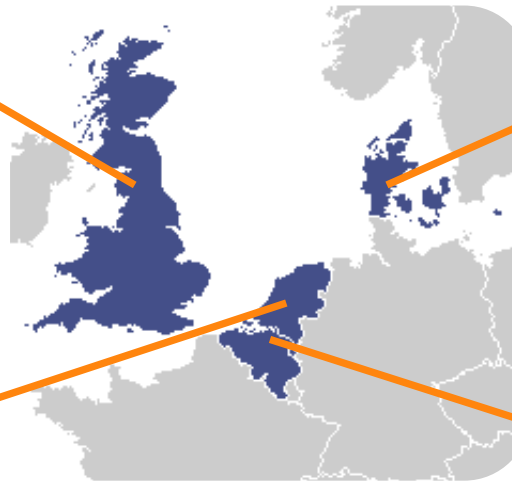
Industrial Pellet Market Development – Central Scenario



HOW SUSTAINABLE DOES BIOMASS HAVE TO BE?

Most governments have failed so far to develop and implement clear sustainability guidelines, prompting the industry to develop their own standards (e.g. Sustainable Biomass Partnership)

- Land criteria – FSC/PEFC or alternative evidence
- GHG footprint requirements



- The Danish Government is currently analysing different supply sources of biomass and will base its further policy on the outcome of this assessment.
- The study is planned to be ready by the end of 2014.

- upcoming sustainability requirements most likely based on NTA8080 and FSC or equivalent certificates

- Incentives depend on energy balance of supply chain
- Wood from FSC/PEFC certified forests

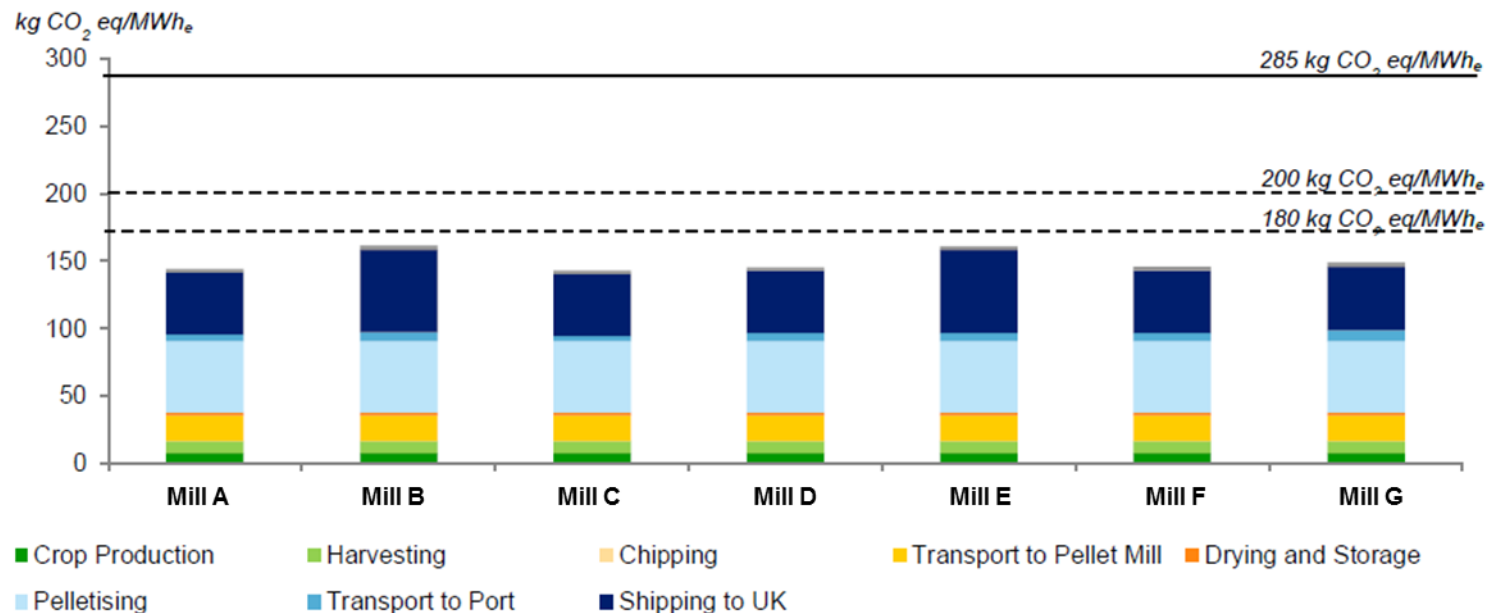


Neither Japan nor South Korea have implemented sustainability criteria for solid biomass in their renewable energy policies and no development of sustainability requirements for imported biomass is planned in the near future.

GHG EMISSIONS ALONG THE SUPPLY CHAIN

Power generation from biomass is not carbon-neutral but delivers significant GHG savings compared to the status quo

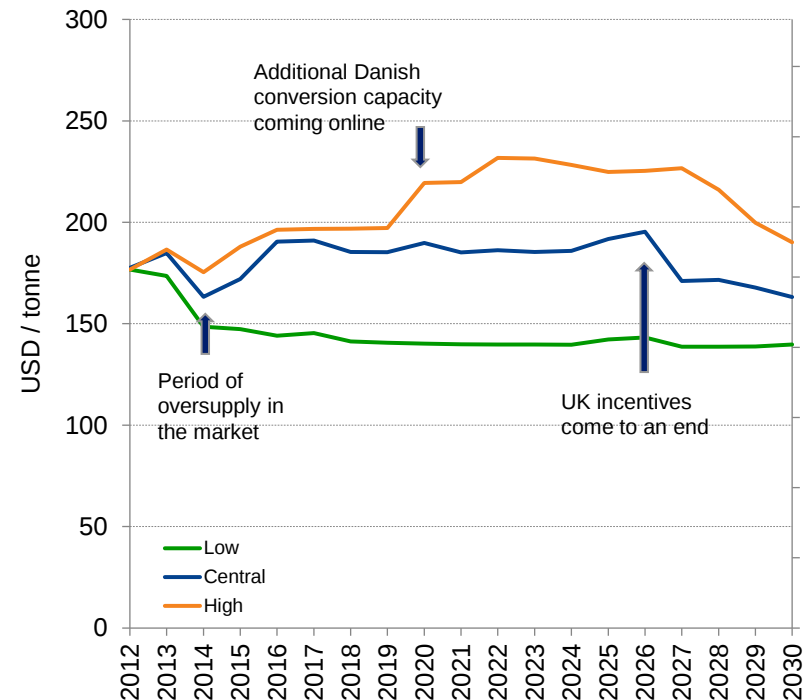
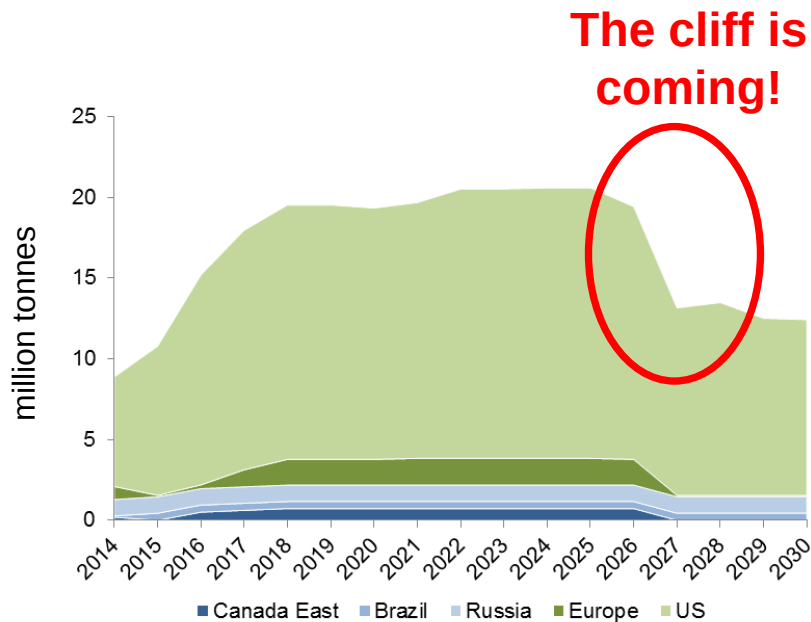
GHG emissions case study for US Southeast pellet producer



- EU GHG emissions comparator factor: 713 CO₂eq/MWh
- GHG emissions factor for coal power generation: 978 CO₂eq/MWh

HOW SUSTAINABLE IS THE INDUSTRIAL PELLET MARKET?

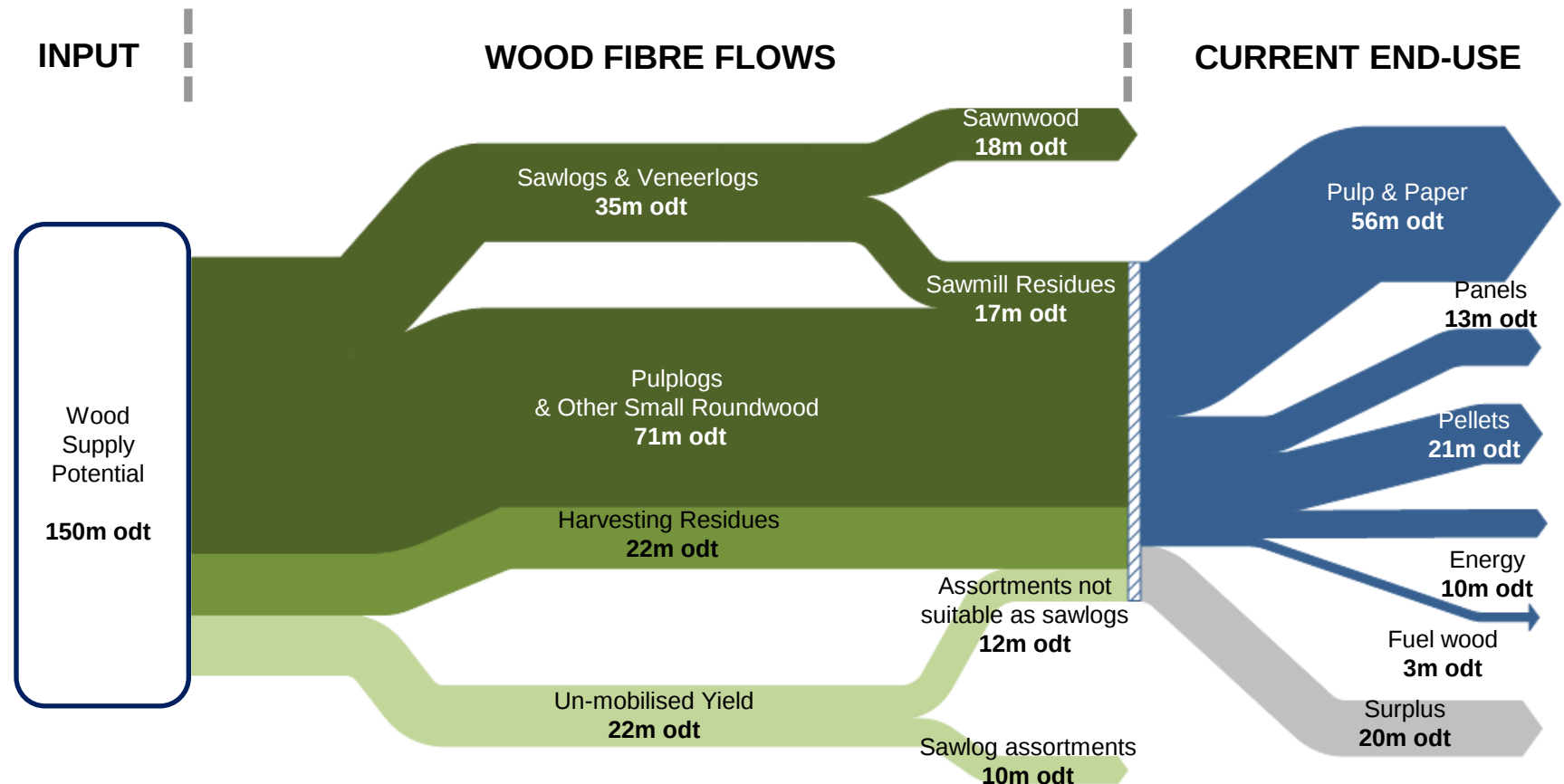
Under current incentive schemes the industrial pellet market is set to contract markedly from 2027 onwards, limiting the lifetime of the market opportunity



Source: Pöyry modelling

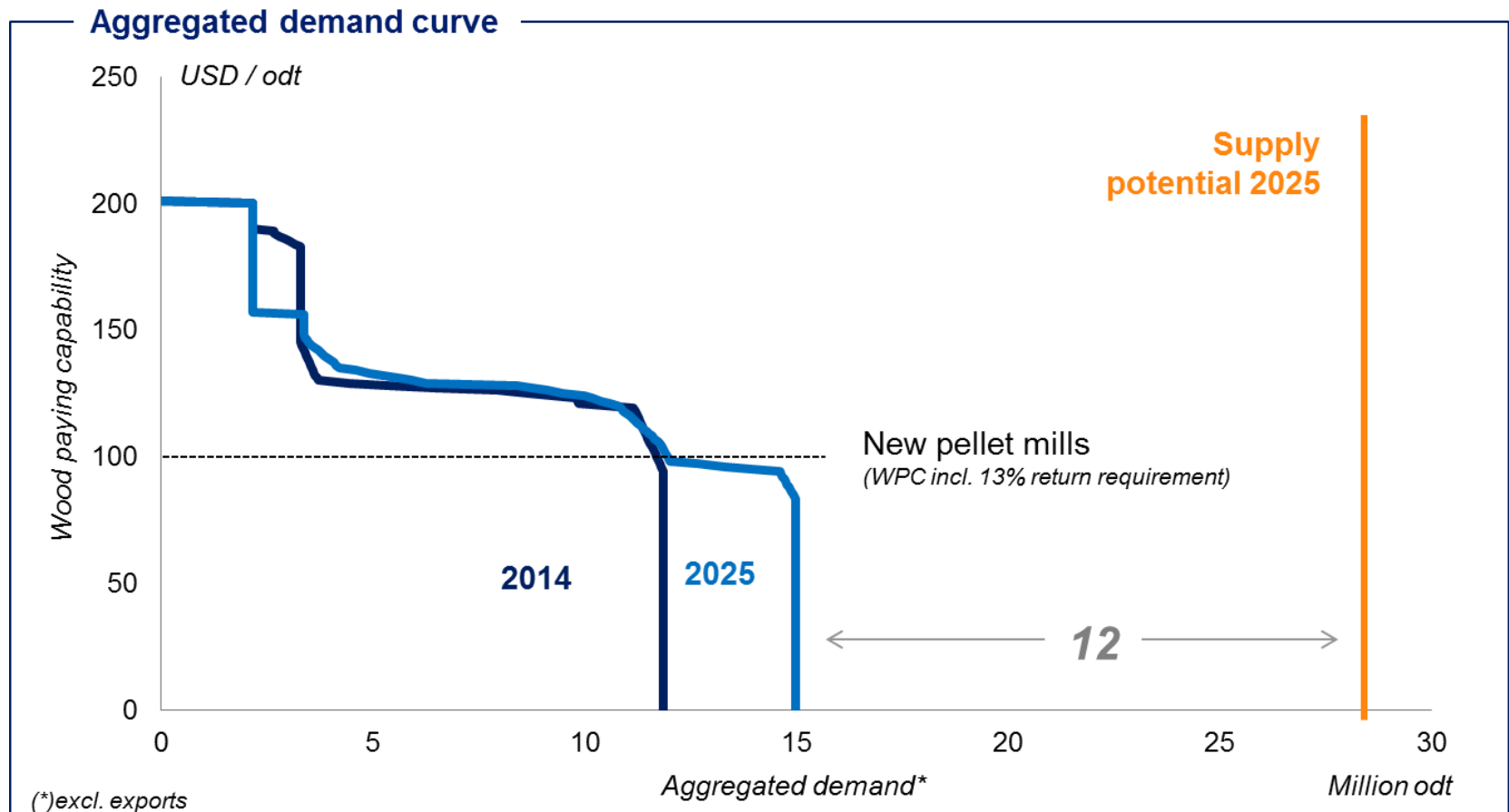
BIOMASS SURPLUS DEVELOPMENT OUT TO 2025 – US SE

The US Southeast as the key supply region for Europe's bio-power growth offers an attractive long-term biomass potential



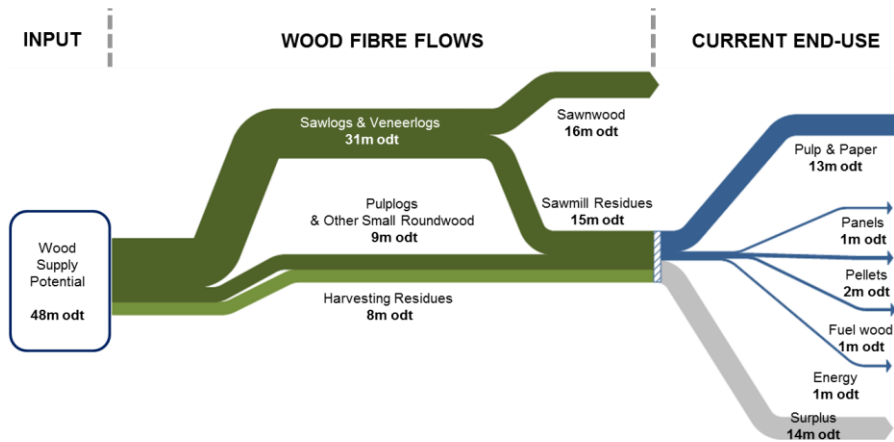
BIOMASS SURPLUS DEVELOPMENT OUT TO 2025 – NW-RUSSIA

Northwest Russia is also expected to present a long-term positive biomass surplus situation if infrastructure challenges can be overcome

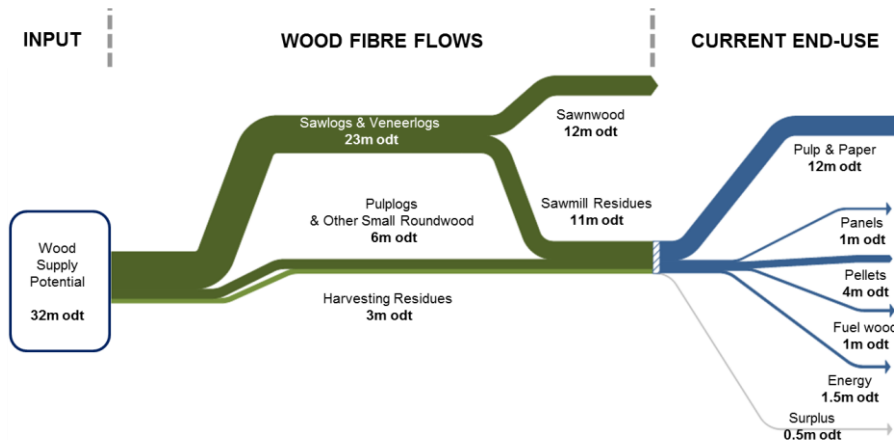


BIOMASS SURPLUS DEVELOPMENT OUT TO 2025 - BC

The biomass surplus situation in Western Canada on the other hand will become increasingly tight and competition will intensify



Biomass Surplus 2014
14 million odt/year

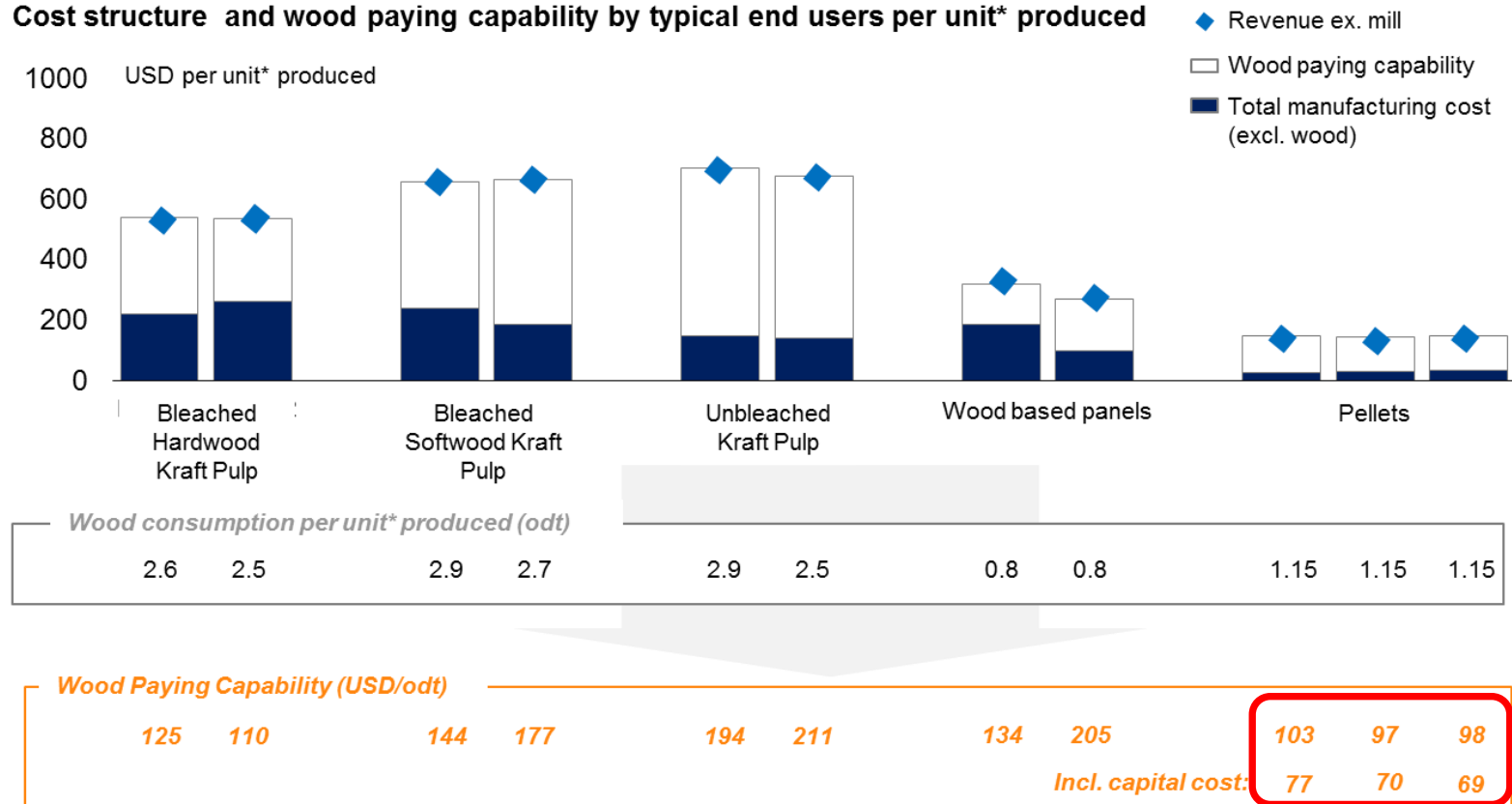


Biomass Surplus 2025
0.5 million odt/year

INDIRECT WOOD USE CHANGE – IWUC IN US SOUTHEAST

Can the European drive towards large scale import based bio-power generation potentially result in undesired adverse effects on existing wood processing industries?

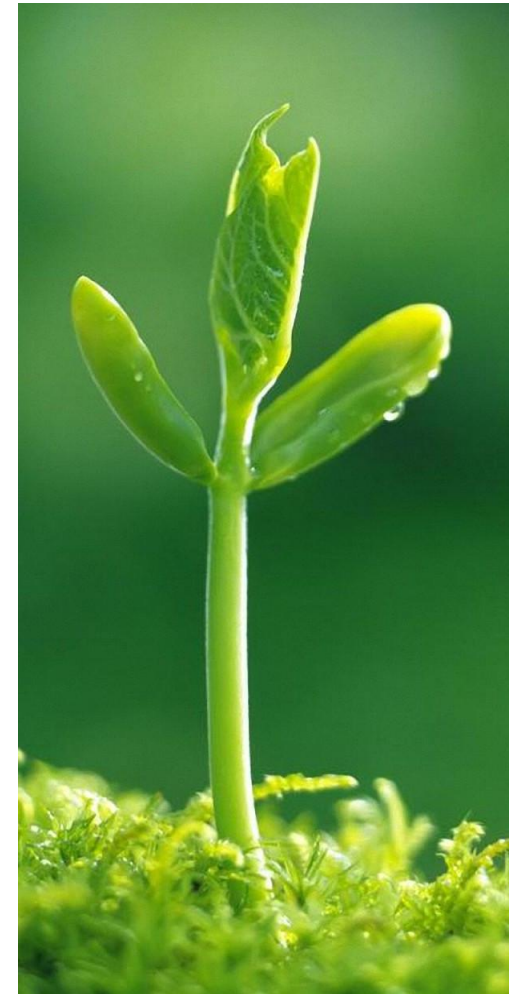
Cost structure and wood paying capability by typical end users per unit* produced



*Tonnes for all products but wood based panels that is shown in m³

SUMMARY

- Sustainability standards for solid biomass for energy generation within the EU and on a global level are not homogenised which hinders efficient trading
- The international biomass trade can help to deliver important and relevant GHG savings
- A limited longevity of the industrial pellet market can be daunting for certain types of investors
- Resource availability in the Atlantic Basin will not be a limiting factor even though local supply & demand imbalances are likely to occur
- The risk that an expanding bio-power sector in Europe will have negative effects on existing wood processing industries overseas is very limited



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