



**European Biofuels**  
TECHNOLOGY PLATFORM

**RHC** Renewable  
Heating & Cooling  
European Technology Platform

**BIOMASS FUTURE**S

## How much biomass demand can be met by 2020?

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**EU BIONET3**

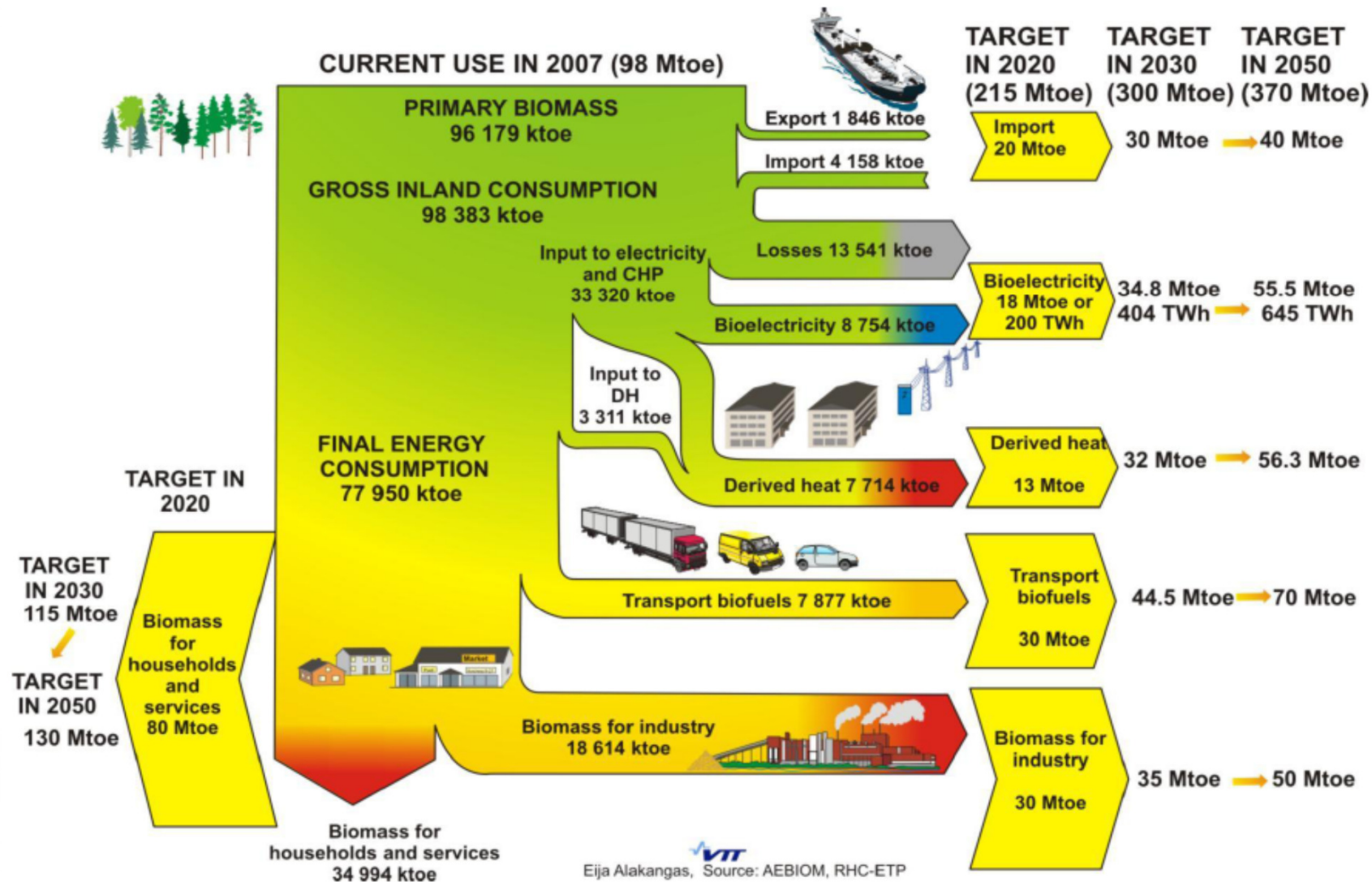
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EUBIONET3

# Biomass use in EU27 and targets for 2020, 2030 & 2050

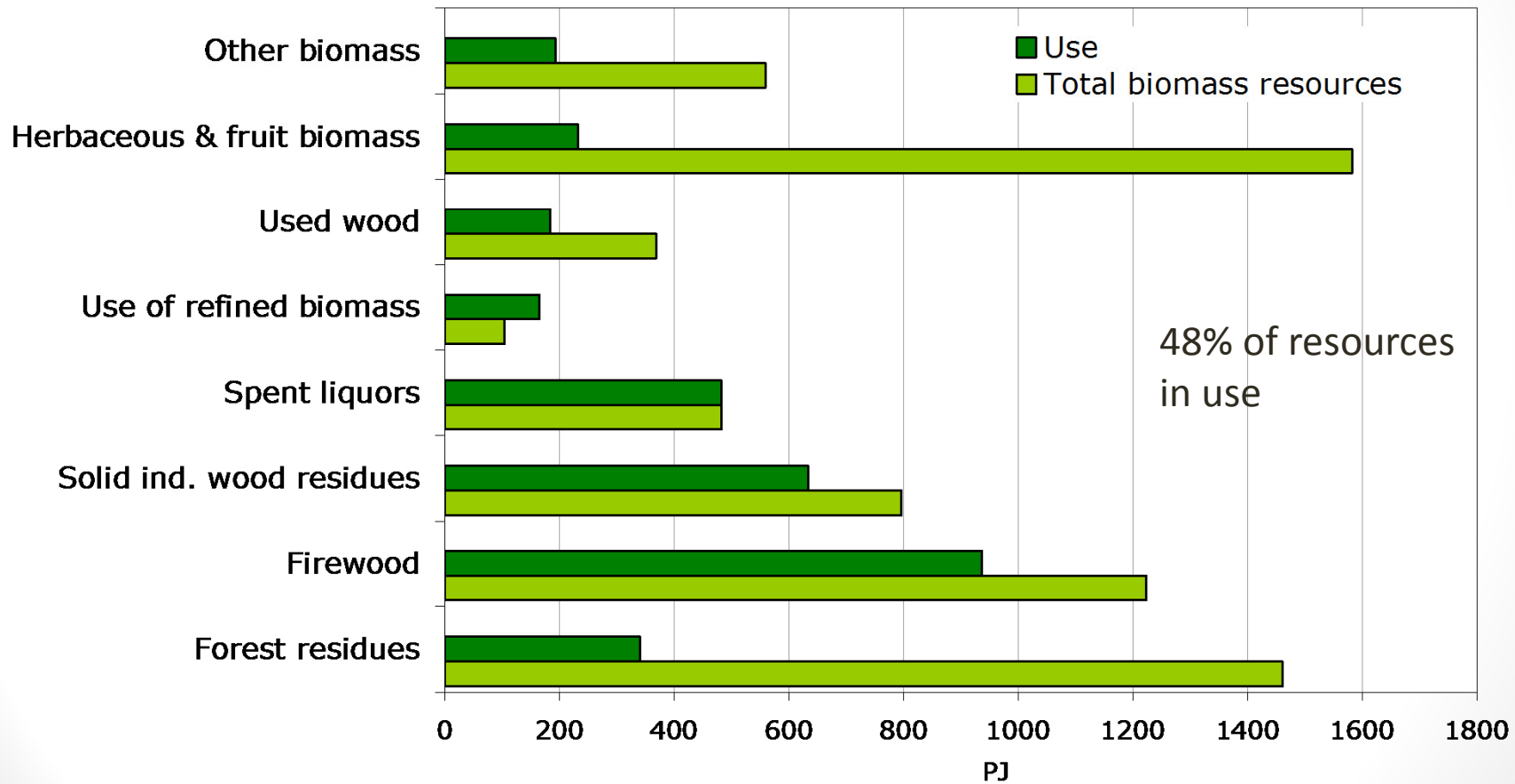
(Source: EUBIONET, AEBIOM)



# Biomass resources and use

EU BIONET 3

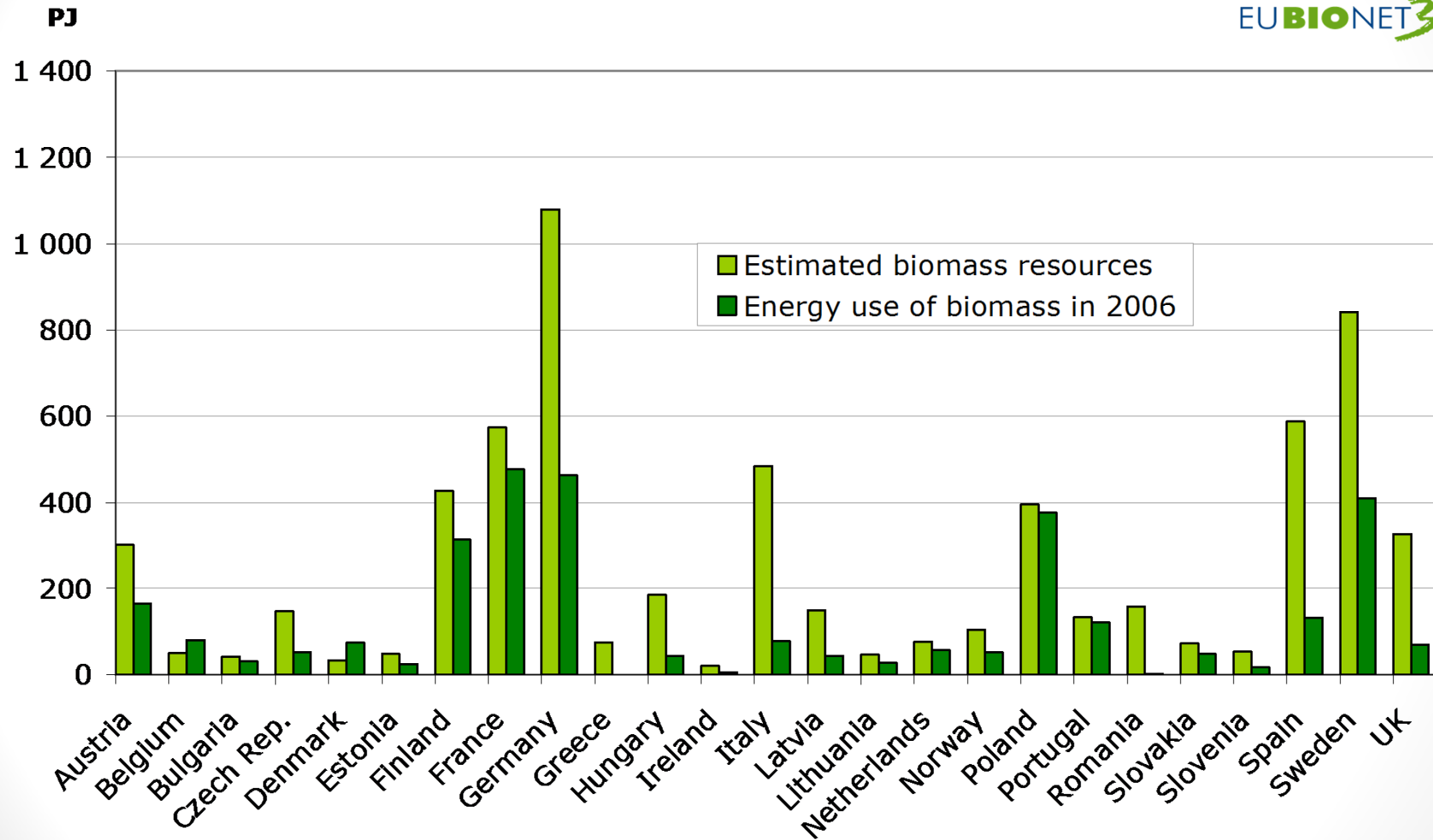
EU BIONET 3



48% of resources  
in use

# Biomass resources and use

EUBIONET<sup>3</sup>



# Key questions:

- What is the sustainable biomass potential for EU27 & Member States?
- How are available feedstocks best allocated in the main energy markets for heat, electricity & biofuels?
- Which feedstock types are likely to be most affected by competition?
- How can we “prioritise” the most efficient biomass value chains for 2020 & afterwards?

# Biomass Futures: Supply for 2020 under two scenarios

	GHG mitigation	Other constraints
<b>Reference scenario</b>	Mitigation target for biofuels of 50% as compared to fossil alternative, excluding compensation of iLUC related emissions. Mitigation target for other biofuels must be positive.	No use of biomass for biofuels cropped on biodiverse land or land with high carbon stock.
<b>Sustainability scenario</b>	Mitigation target for bioenergy (fuels, heat and electricity) of 70% as compared to fossil alternative, including compensation for iLUC related emissions.	No use of biomass cropped on biodiverse land or land with high carbon stock. For forests, strict biomass harvesting guidelines apply (application of fertilizer after logging residue and stump extraction not permitted, part of forests are set aside to protect biodiversity, limited intensification in forest exploitation).

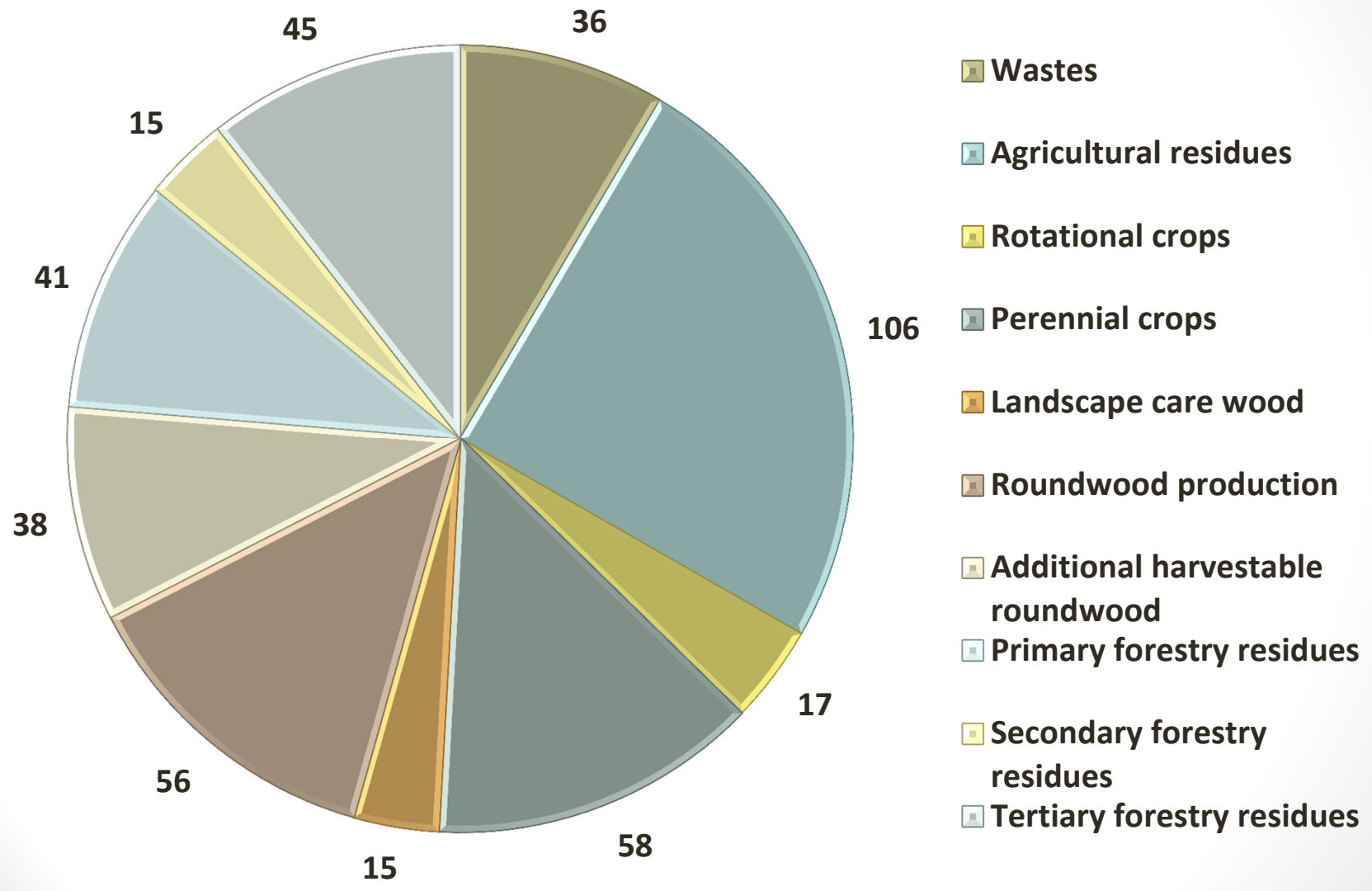


# Reference scenario 2020 (MTOE), sustainability criteria only for liquid biofuel feedstocks

Total: 429 Mtoe

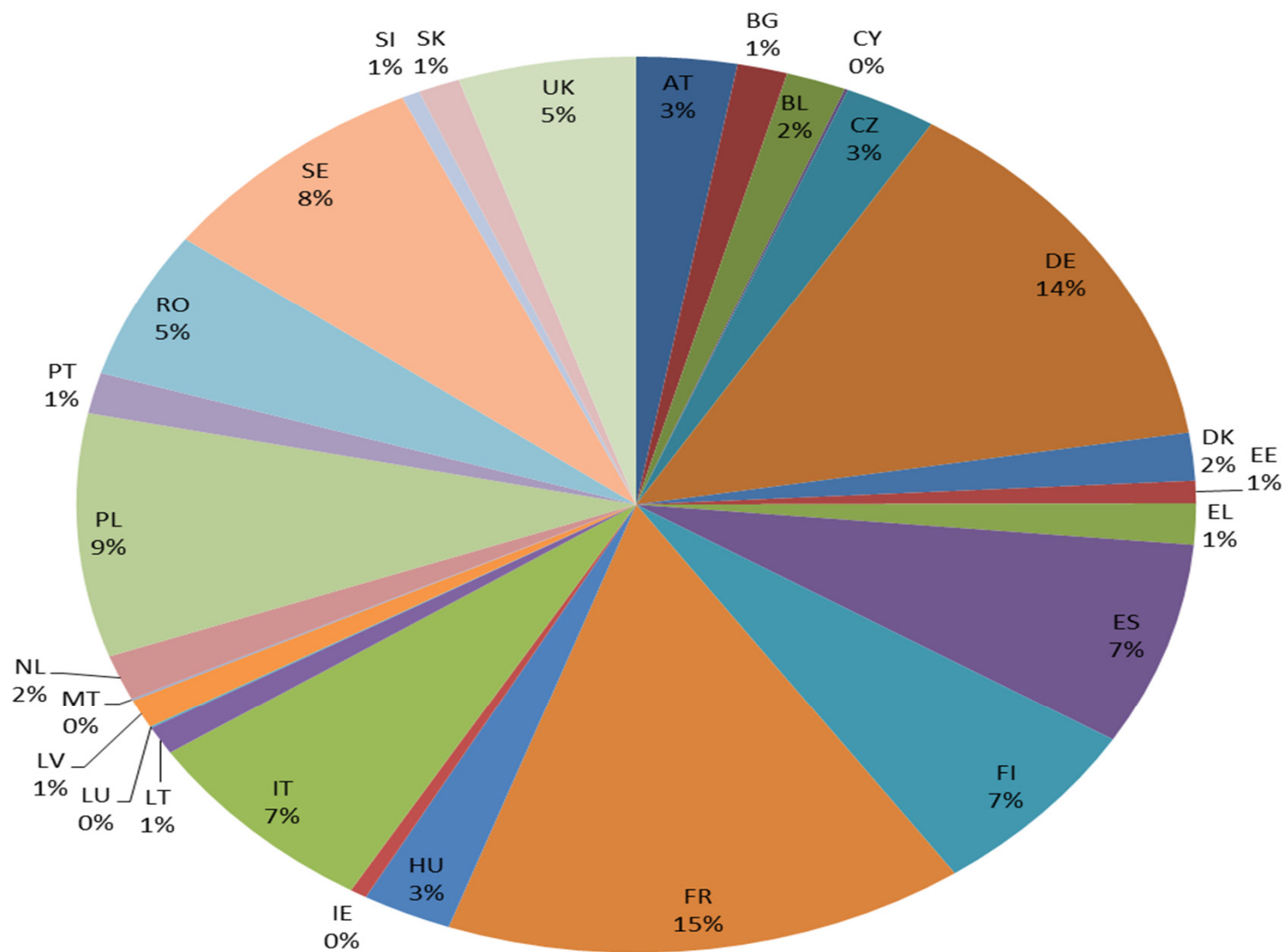


**BIOMASS FUTURE**S





Reference scenario 2020

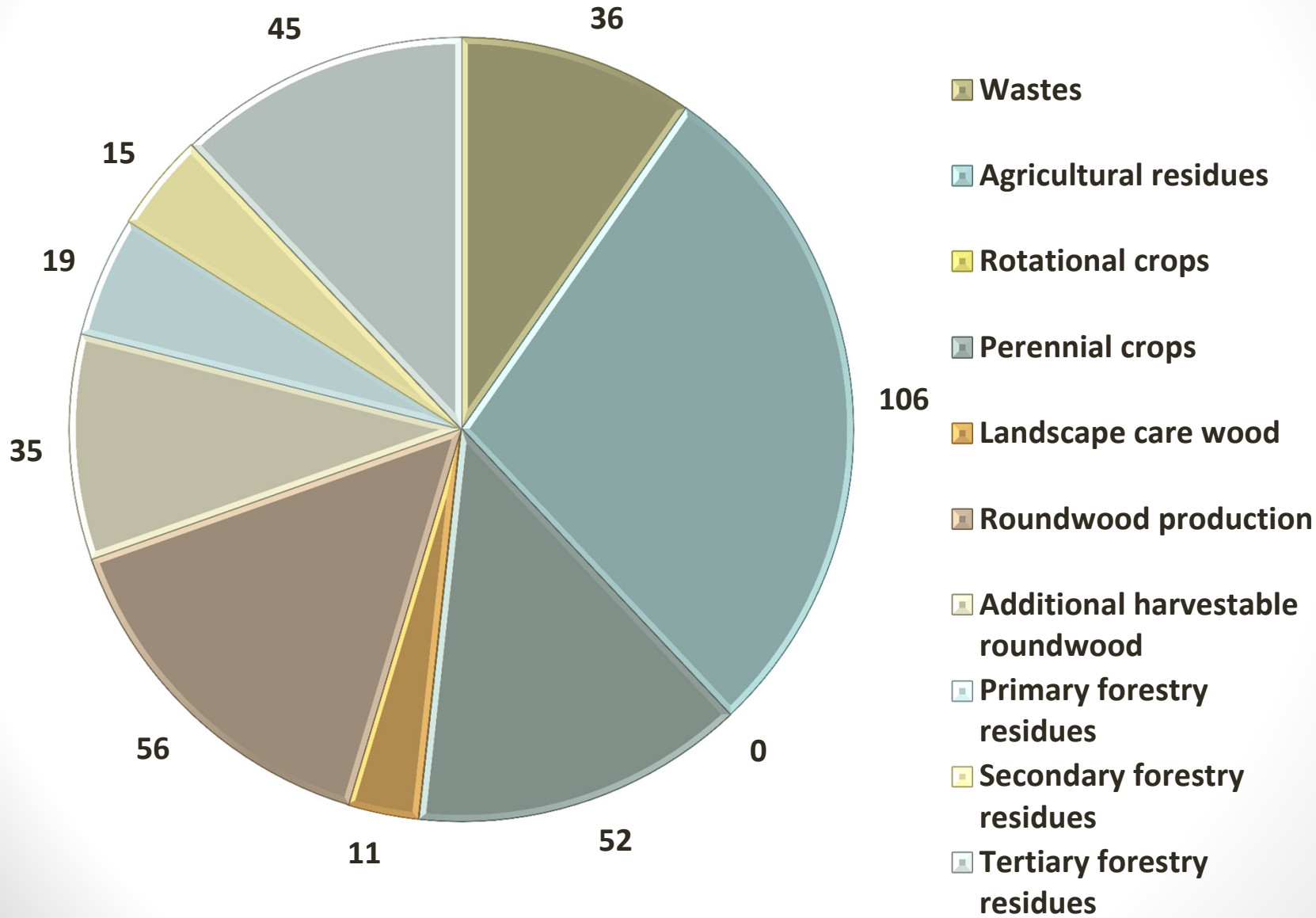


# Reference scenario 2020 (MTOE), sustainability criteria for all bioenergy carriers

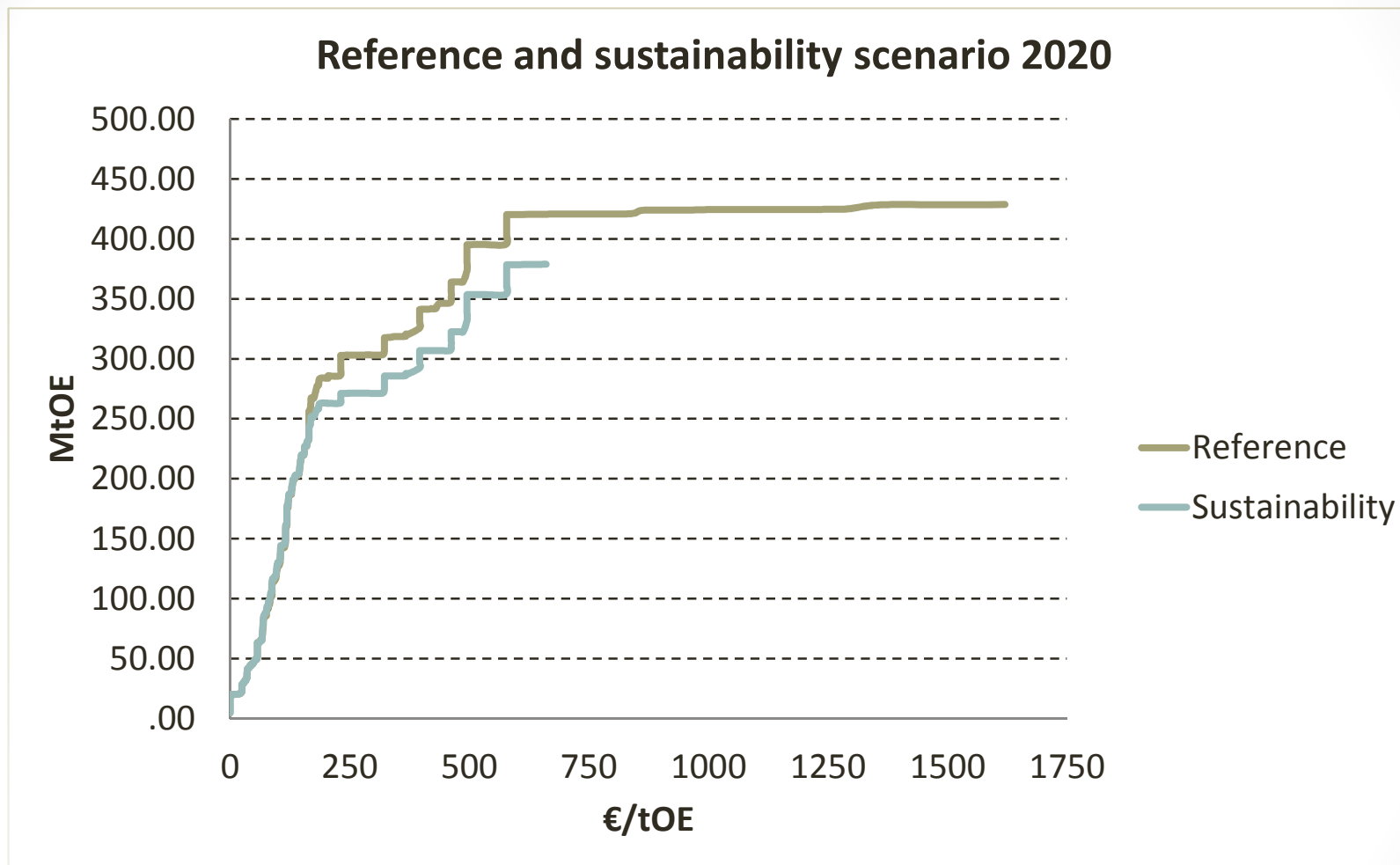
Total: 375 Mtoe, appr. 15.600 PJ



**BIOMASS FUTURE**

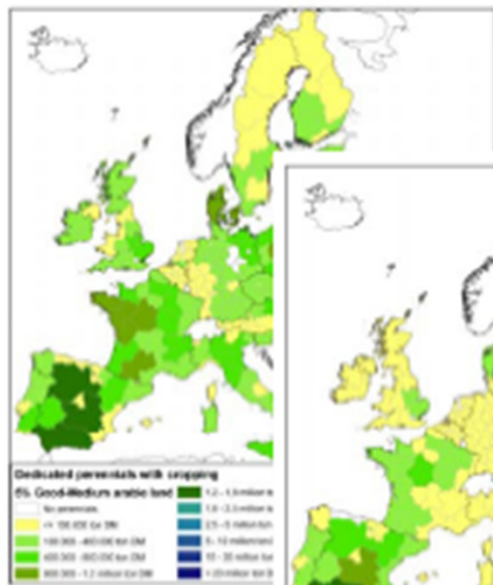


# Cost supply relation



# Atlas of supply per feedstock

Example: land availability for dedicated energy crops



Using 5% of good land  
High yields, very likely indirect land use effects



Using 10% of fallow and other land  
Medium yields, medium indirect land use effects



Using abandoned land  
Low yields, minimum indirect land use effects



## Key findings for sustainability restrictions to supply by 2020

- Sustainability criteria applied to all bioenergy carriers lead to a **13%** reduction in domestic supply (from 429 Mtoe to 375 Mtoe), due to:
  - **smaller potentials for energy crops** (reduced perennials and no rotational biofuel crops)
  - **no biofuel cropping** being possible under the sustainability criteria of 70% mitigation requirement with iLUC compensation
  - significantly **smaller supply from the additional harvestable round wood and primary forestry residues** categories because of stricter exploitation criteria.
  - a modest shift in the cost-supply relation -**300 MtOE biomass available at a price of maximum 6 €/GJ in reference** while in the sustainability scenario this does not even reach 270 MtOE.
- overall there will be a decline in the contribution of big countries like DE & I to the EU potential, while increase can be expected in FR, ES, PL & RO. Particular increase in the contribution of Poland.



## How much biomass demand can be met by 2020?

- The sustainability scenario on biomass supply indicates that domestic production of rotational crops will totally disappear in 2020 as iLUC compensation is not feasible. This is expected to lead to increased use of biofuels from waste from domestic and imported sources for 2<sup>nd</sup> generation based biofuels and of 1<sup>st</sup> generation biofuels from crops grown on degraded lands and on arable lands in very efficient systems (most probably sugarcane from Brasil).
- The biofuel targets can however only be realized in the sustainability scenario if this is accompanied **by strong technology developments making ligno-cellulosic material from domestic sources** more likely to be exploited for biofuel production.
- As to the heat and electricity sector there is sufficient biomass supply to meet the biomass demand (based on NREAPs). In the sustainability scenario there will however **slightly higher import needs for pellets as the primary forestry residues and perennial crops are smaller than in the reference scenario.** Wood pellets are an important input for co-firing which is a conversion pathway that is expected to increase significantly towards 2020.

# Conclusions

- Both in the reference and sustainability scenario there is plenty of domestic biomass available for meeting the heat and electricity targets.
- Stricter sustainability criteria have a large effect on biogas and bio-liquids production and related sustainability effects
- There is a very good level of domestic biomass potential. However, its mobilisation will require stronger incentives than the ones that are presented in NREAPs. Present policy incentives do not always lead to the most sustainable use of biomass resources.
- High competition areas will be on perennial crops, wood pellets & wood residues.
- Sustainability criteria will require 1) important increase in 2<sup>nd</sup> gen. biofuels, 2) imports, to meet the biofuels demand.
- Use of expensive feedstock depends critically on i) other RES options, ii) import assumptions ( and regulations).
- Domestic feedstocks can be utilized to the extent they can compete with the imported biomass **unless some policy intervention prioritizes the domestic use of resources under the most efficient value chain pathways.**



Thank you

[www.biomassfutures.eu](http://www.biomassfutures.eu)

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