

# Mapping unused residues and wastes



BioMob Series #2  
10th of June 2021

Platform Duurzame Biobrandstoffen

# Programme

## Full program:

- 14h-14h05: Welcome and introduction
- 14h05-14h10: Recap 2nd Biomob session

## Mapping residues/wastes

- 14h10-14h30: Presentation by Wolter Elbersen (WUR) about how to identify, map and value waste streams
- 14h30-14h45: Questions and discussion

## Waste/residues for clean shipping

- 14h50-15h00: BioHub concept by Susan van der Veen
- 15h00-15h30: HTL value chain and data science for identification by TU Delft by Luis Cutz
- 15h30-15h45: Questions and discussion

## Discussion

- 15h45-15h55: Discussion developing the sustainable bio feedstock manifest.
- 15h55-16h00: End of Masterclass



# Recap BioMob Session 2: Wetter ways of farming

## Seaweeds

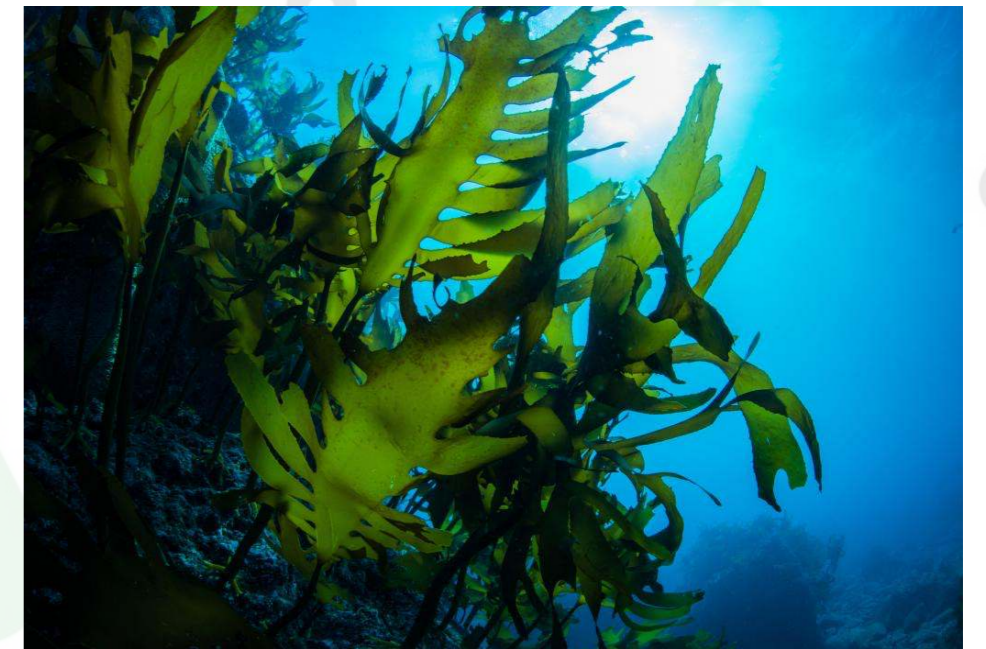
- Seaweed farming has large potential, not fully developed yet
- Energy potential (5,000 km<sup>2</sup>): up to 350 PJ. Net : 50 PJ green chemicals + 160 PJ fuels. Total estimated CO<sub>2</sub> emission reduction approx. 11 Mton/yr
- North Sea is interesting, potentially with wind turbines

## Peatlands

- Drainage results in high GHG emissions
  - EU: 5% of annual EU emissions
- Growing crops on rewetted peatlands (paludiculture) is promising
- Bioenergy potential: 130 - 1,680 PJ/a, corresponding to 1 -15% of EU road transport energy consumption (if all drained peatlands are dedicted to paludiculture)
- Wetlands International: multi-disciplinary approach (e.g. local community, biodiversity) is needed to restore ecosystem services of peatlands



What are other bio feedstock streams which are not fully developed yet / unused / waste?





# Reference to Panoutsou's presentation on 8<sup>th</sup> June on biomass availability for transport

## Sustainable bio-feedstock Availability in the EU: A Look into Different Scenarios towards 2050

Dr Calliope Panoutsou  
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Imperial College  
London  
Consultants



## Conclusions

### What is the sustainable biomass availability (2030/2050) with no impact on biodiversity?

- Many different publications providing different ranges with not always transparent assumptions
- Concawe has commissioned a study with Imperial College. Main results:
  - ✓ Total EU potential sustainable biomass availability (agriculture, forestry and biowastes) for all sectors of 392-533 Mtoe/y (low-high scenario) by 2030/2050.
  - ✓ Allocation to bioenergy sector of 208-366 Mtoe/y (low-high scenario) by 2030/2050.
  - ✓ These results show the total bioenergy sector, as competition in bioenergy sectors (power, industry, residential, transport) have not been explored in detail.
  - ✓ The European Commission (A Clean Planet for all, Impact Assessment) is allocating ~120-170 Mtoe/y (2030/2050) of the bioenergy to power + industry + residential sectors. This means that, even with EU COM power allocation, there is a potential of 88- 196 Mtoe/y of biomass for transport sector in 2050.
- To realise this potential, additional R&D would be required as well as the implementation of improvement management strategies. Even if the potential is there, supply chains would need to be developed to mobilise all these resources.
- Concawe will use this estimate to support our assessment on the potential deployment of low carbon fuels in the transport sector towards 2050.

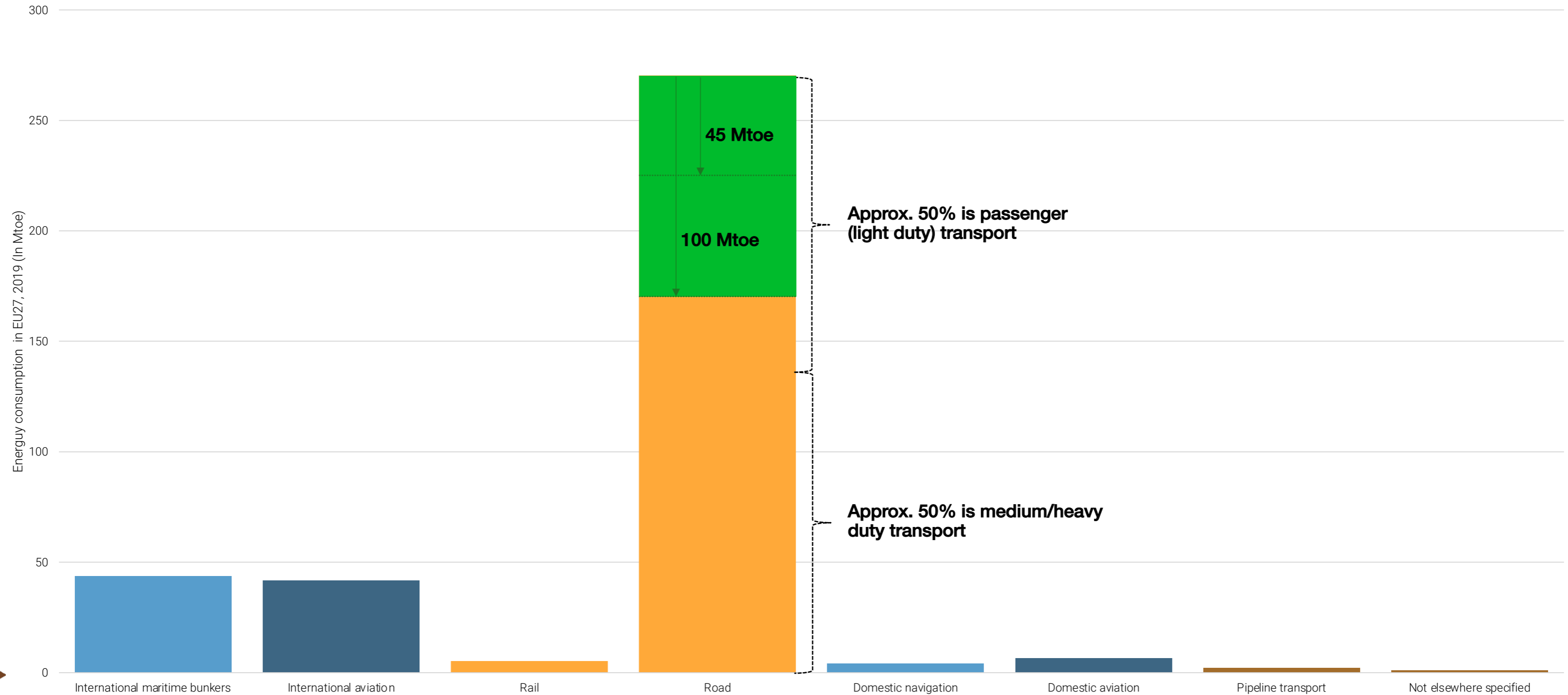
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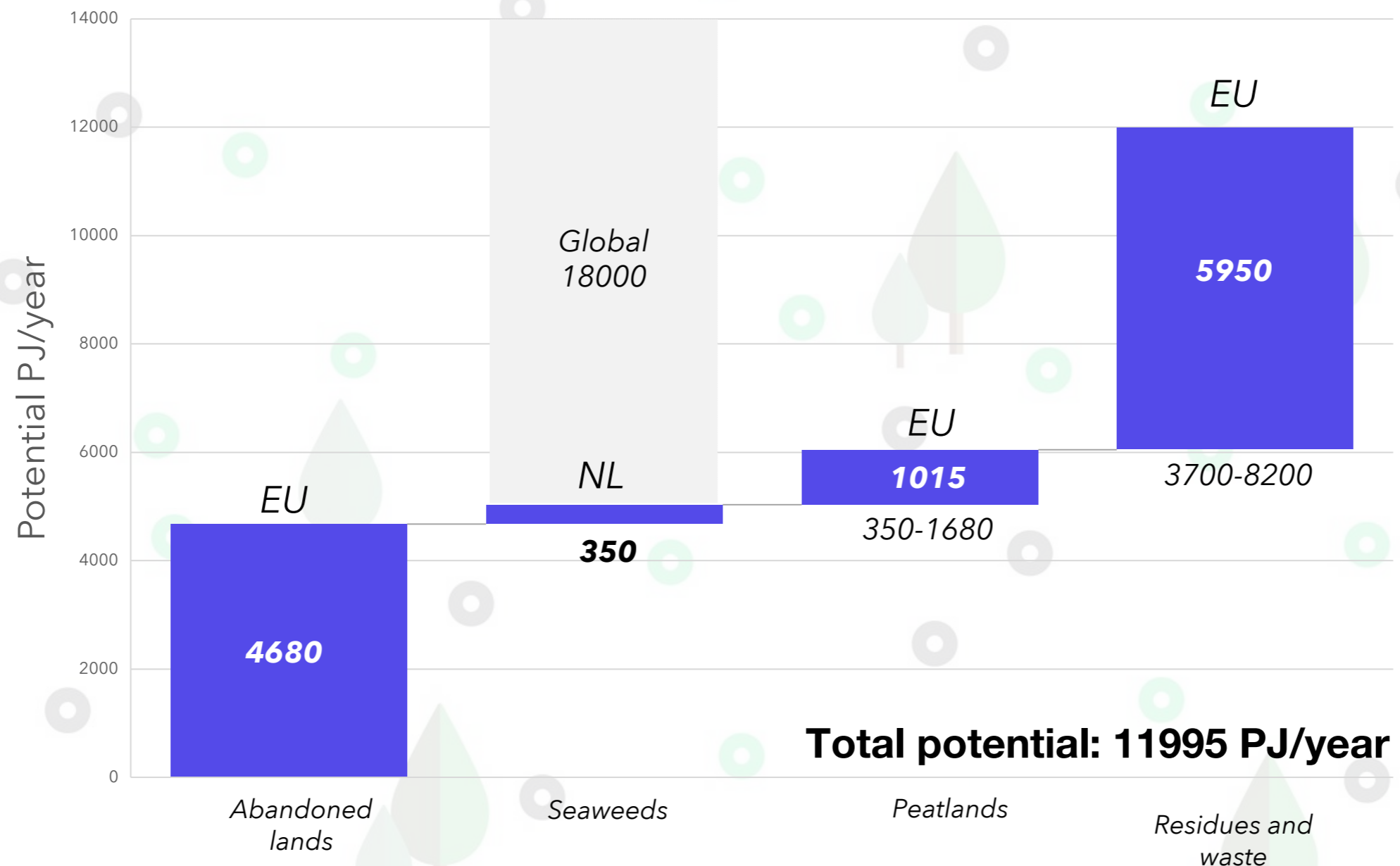
Assuming a 50% conversion factor to final biofuel, this waste and residue base represents approx. **45 – 100 Mtoe** equivalent amount of biofuels

# In the total energy consumption of all transport segments the road segment has by far the largest share in Europe



Source: Eurostat, (Complete Energy Balance, 2021)

# Summary of advanced biofeedstock potential in EU





# AdvanceFuel Project

“Energy crops, and in particular perennial crops such as grasses and short rotation coppice, could potentially contribute between 33% and 56% to the total EU biomass potential”.

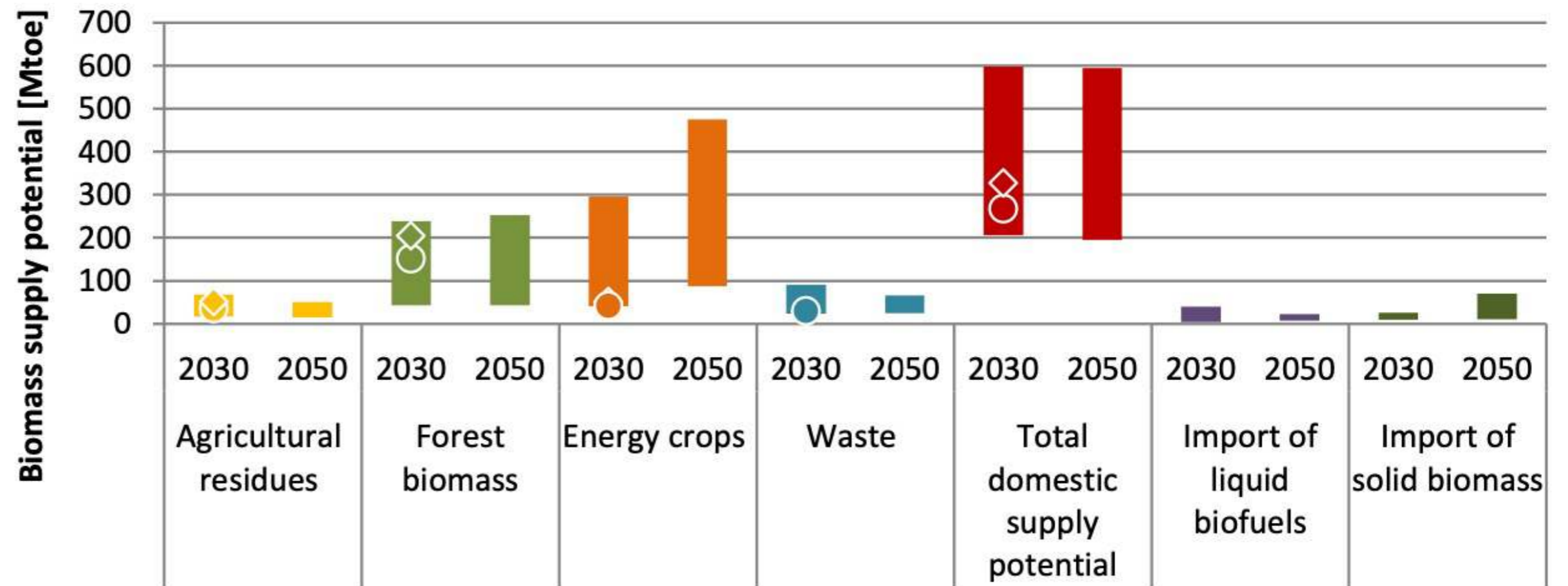


Figure 1 EU domestic biomass potential and extra-EU imports available for bioenergy in the EU by main feedstock category from available EU biomass resource assessments (2006 - 2017) and currently applied biomass supply scenarios in the RESolve-Biomass modelling framework (markers).

Source: TNO RESolve biomass model in TNO (2019) [Advance fuel project report](#)

# Mapping unused residues and wastes: NL

- *Routekaart Nationale Biobrandstoffen:*
  - Short term: 4 Mton
  - Long term: 10 Mton (increase with 1/3 in biofeedstock availability!)
- But where are the hidden potentials?

	Currently available (Mton)	Extra 2025 (Mton)	Extra 2040 (Mton)	Biogas (Nm <sup>3</sup> x million)
Forestry	1,1	0,5	1,0	
Regional residues	4,8	0,7	0,7	140
Agriculture	Cultivation: 13,9 Resiudes: 9,5	1,7 0,5	4,9 1,1	140 900
Industry	Residues: 0,8 Import (including transit): 24	0,1 0,4	2,0	60
<b>Total (without import)</b>	30,1	3,8	9,7	1.300

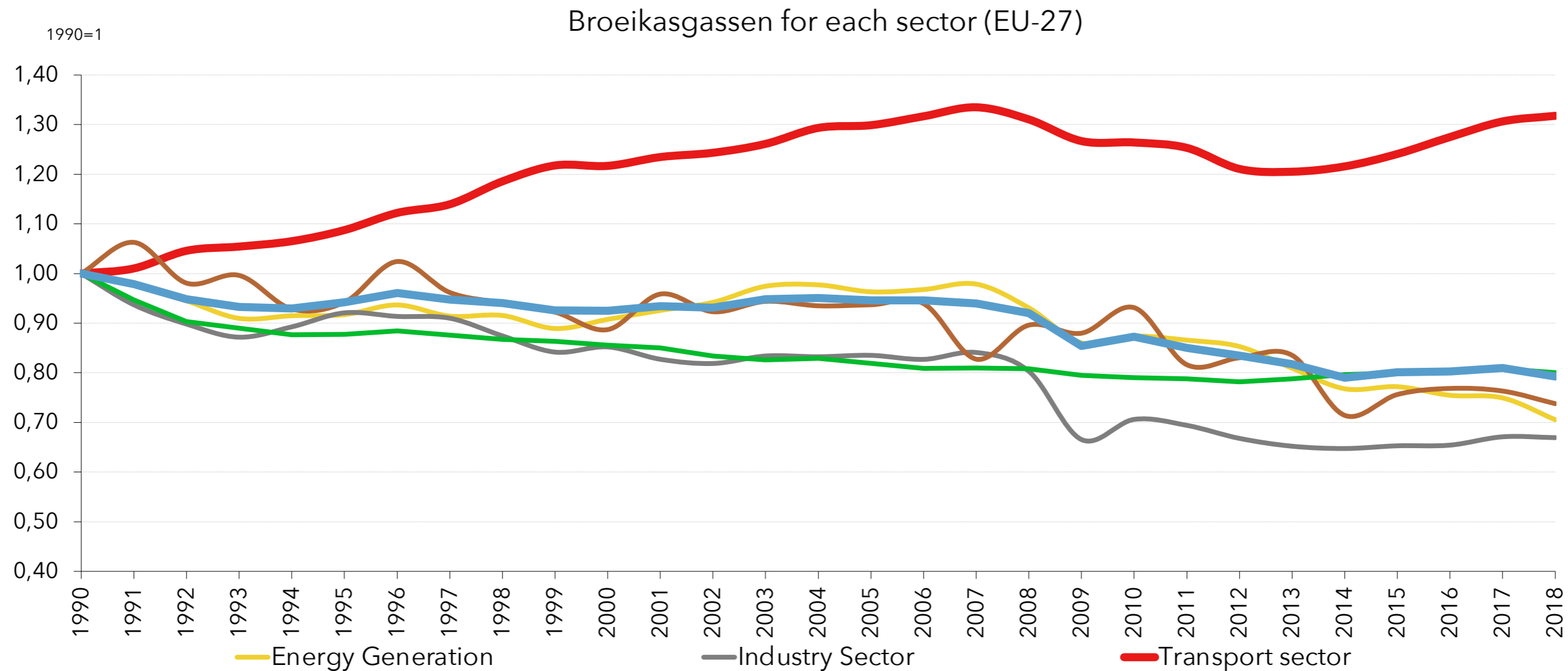
**HIDDEN POTENTIAL?!**

Driven by **Nature.**



# Bio feedstock for advanced fuels in transport sector

- Greenhouse gas emissions from the EU's transport increased in 2018 and 2019 and have not followed the EU's general decreasing emissions trend.





[www.platformduurzamebiobrandstoffen.nl](http://www.platformduurzamebiobrandstoffen.nl)



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