



Rijksdienst voor Ondernemend
Nederland

Biojet Fuel- Ana Lopez Contereras

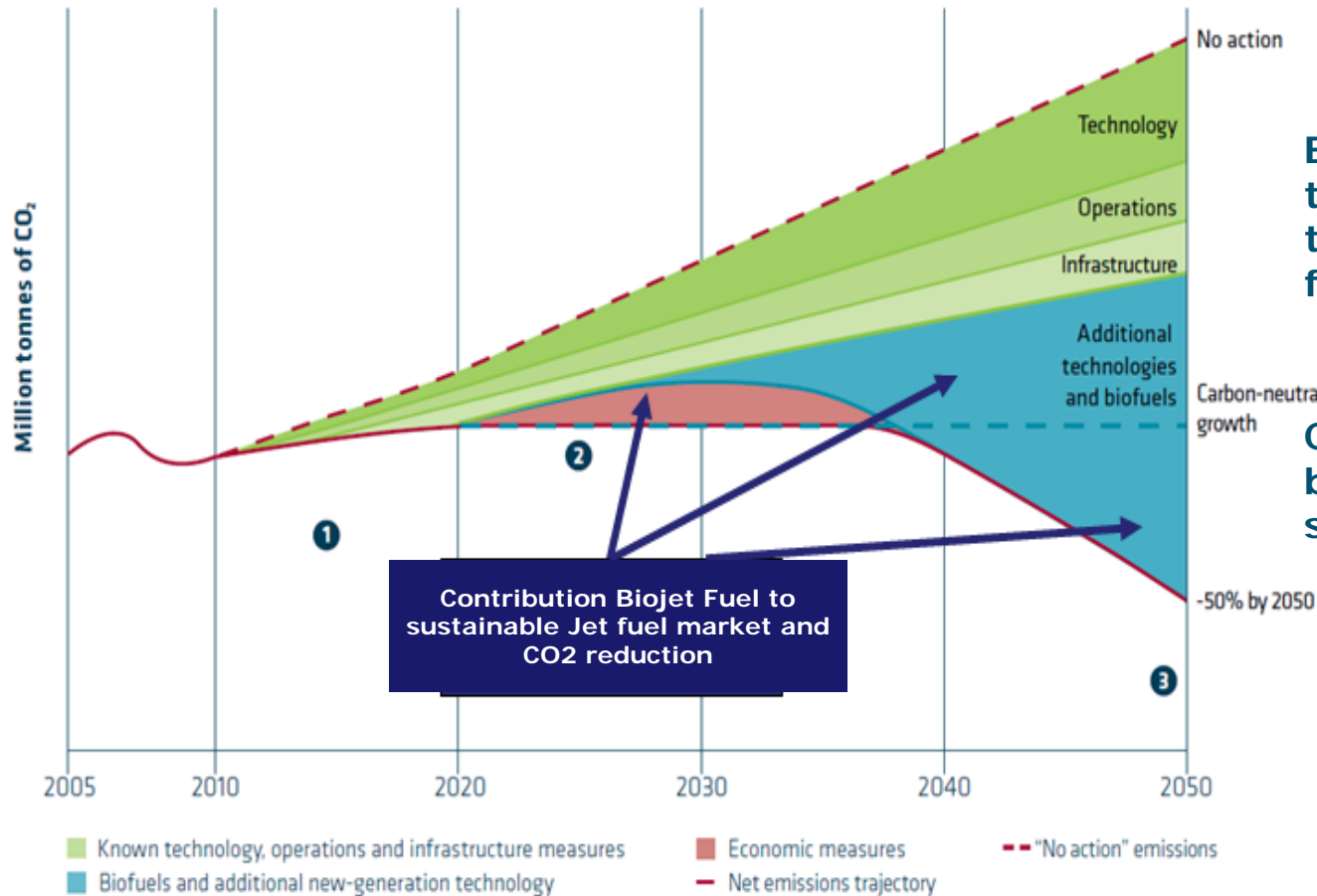
Zie PDF

BioJet Fuel: Innovative value chain from potato waste streams to aviation fuel



Why jet fuel from watery waste streams?

MAPPING OUT THE INDUSTRY COMMITMENTS

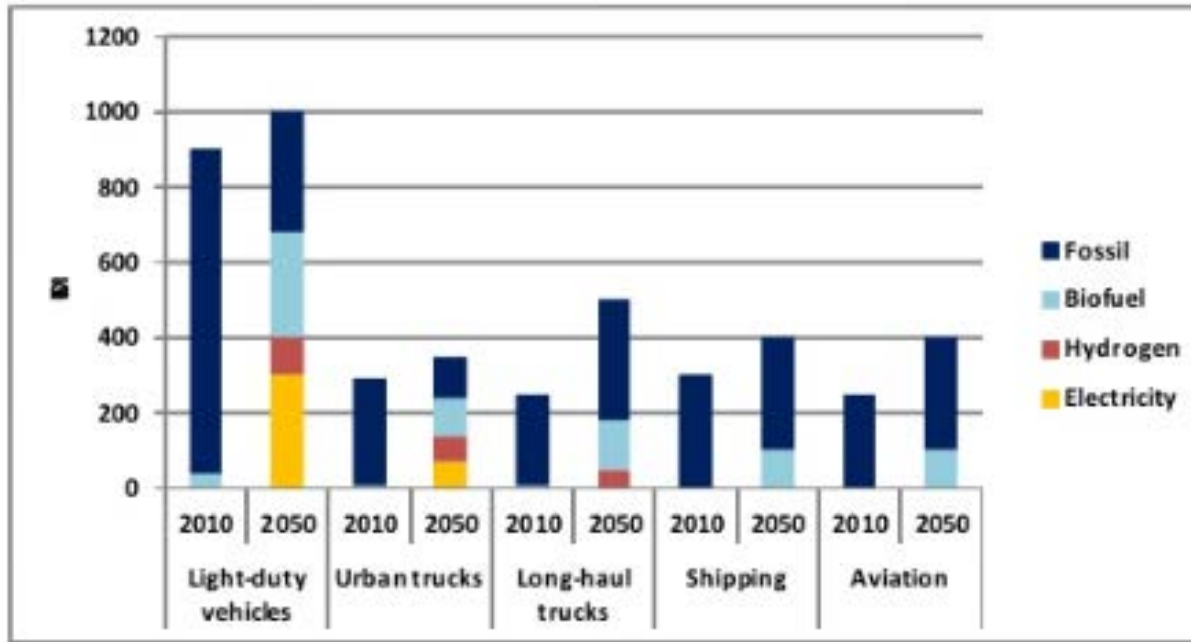


Biofuels are necessary for the sustainable growth of the aviation industry to fulfil commitments

Current processes for biojet fuels are not sufficient



In ETP 2 degree scenario, we have about 700 MTOE of biofuels in 2050 compared to 70 today; can we do this?



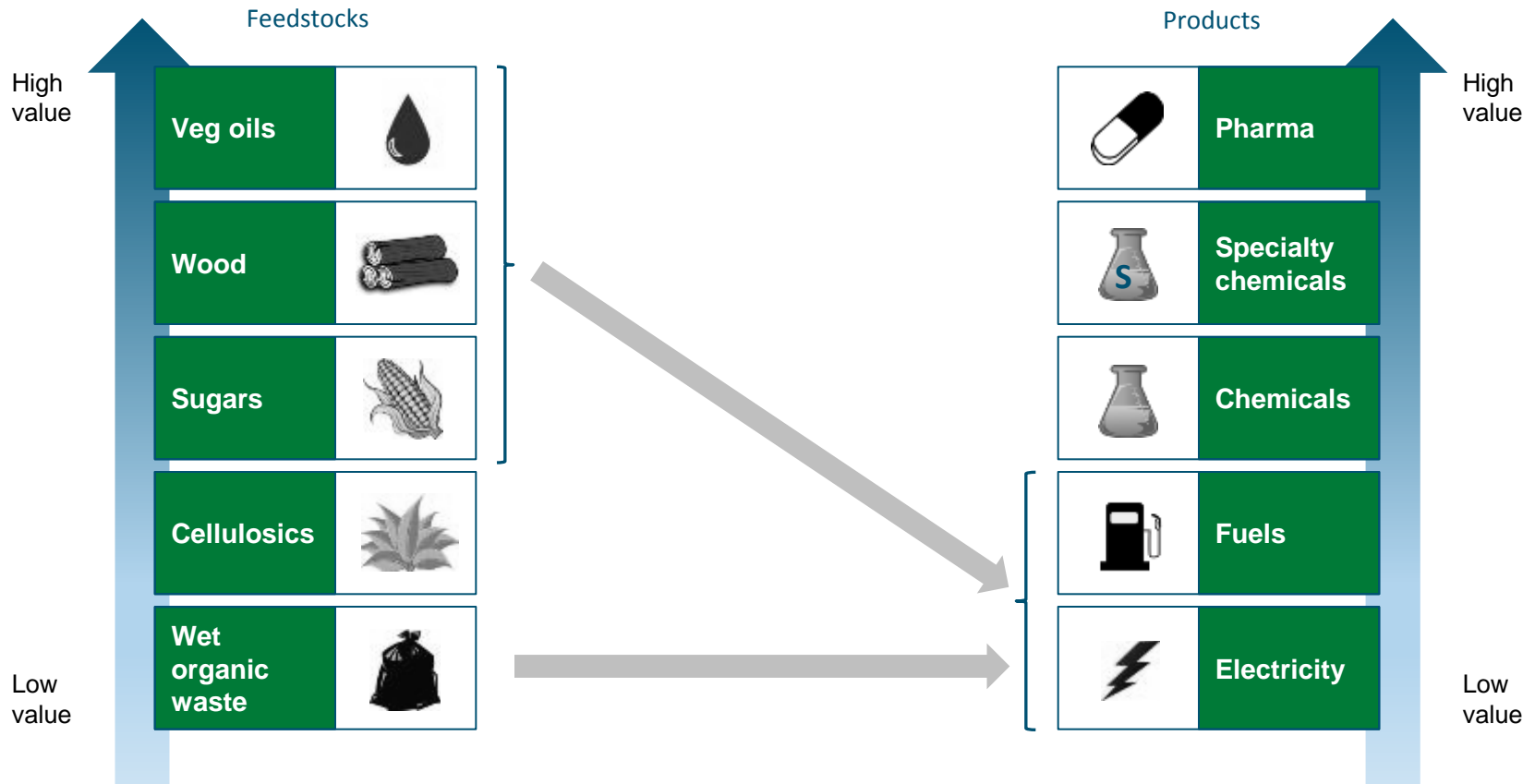
Expected high growth in demand for biofuels

Benefits renewable jet fuel over fossil jet fuel:

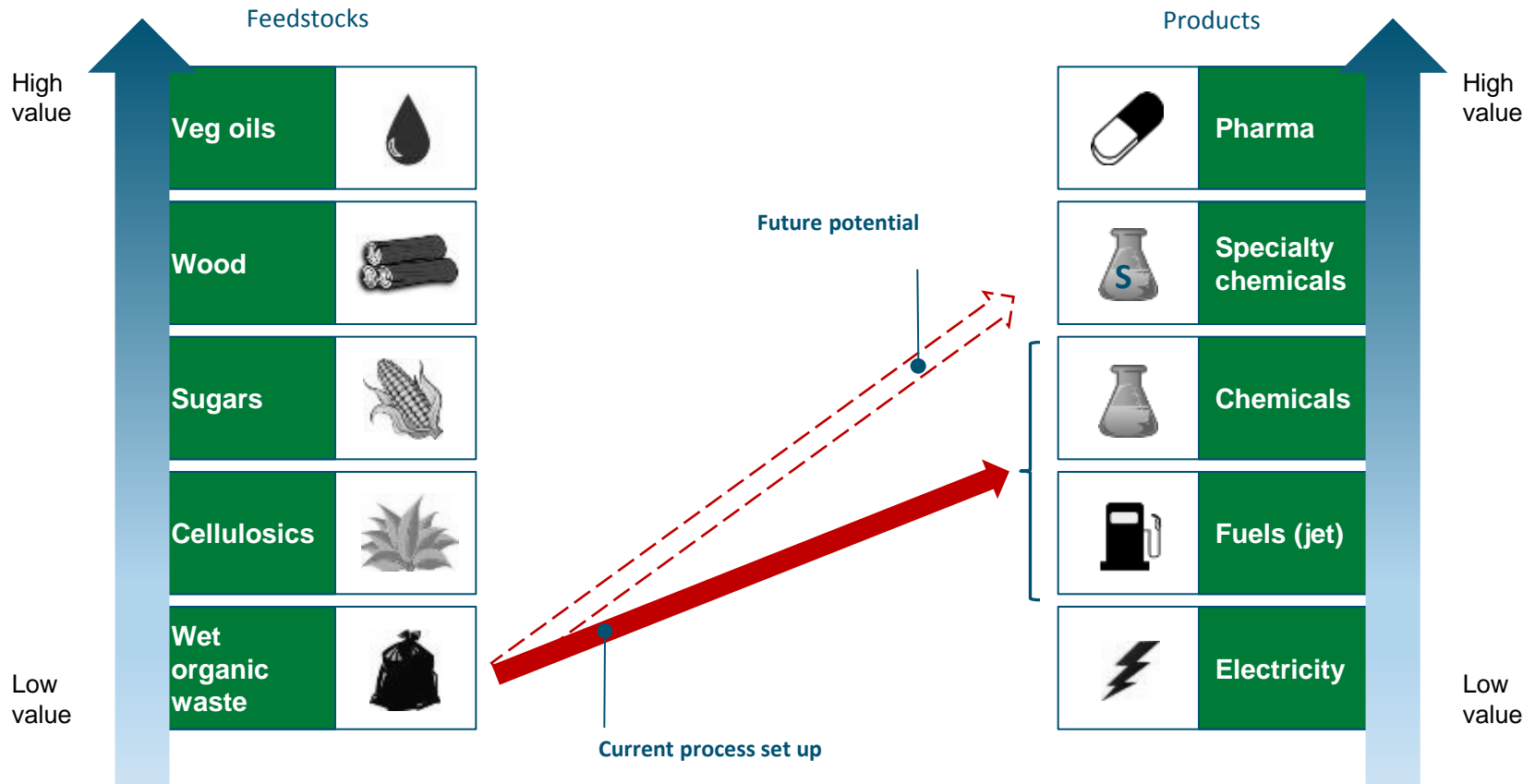
- Significant CO₂ emission reductions (up to 80%)
- 10-fold reduction in fine particles and reduction in Sox
- Regional economic development
- Energy security
- Diversification opportunity for existing industries

The BioJet Fuel proposition

Current mandated bio-energy markets are mostly focused on converting high value feedstocks into lower value (end)products



BioJet Fuel converts (mixed) wet waste streams into a range of higher value end products



Wet organic waste streams from agrifood industry:

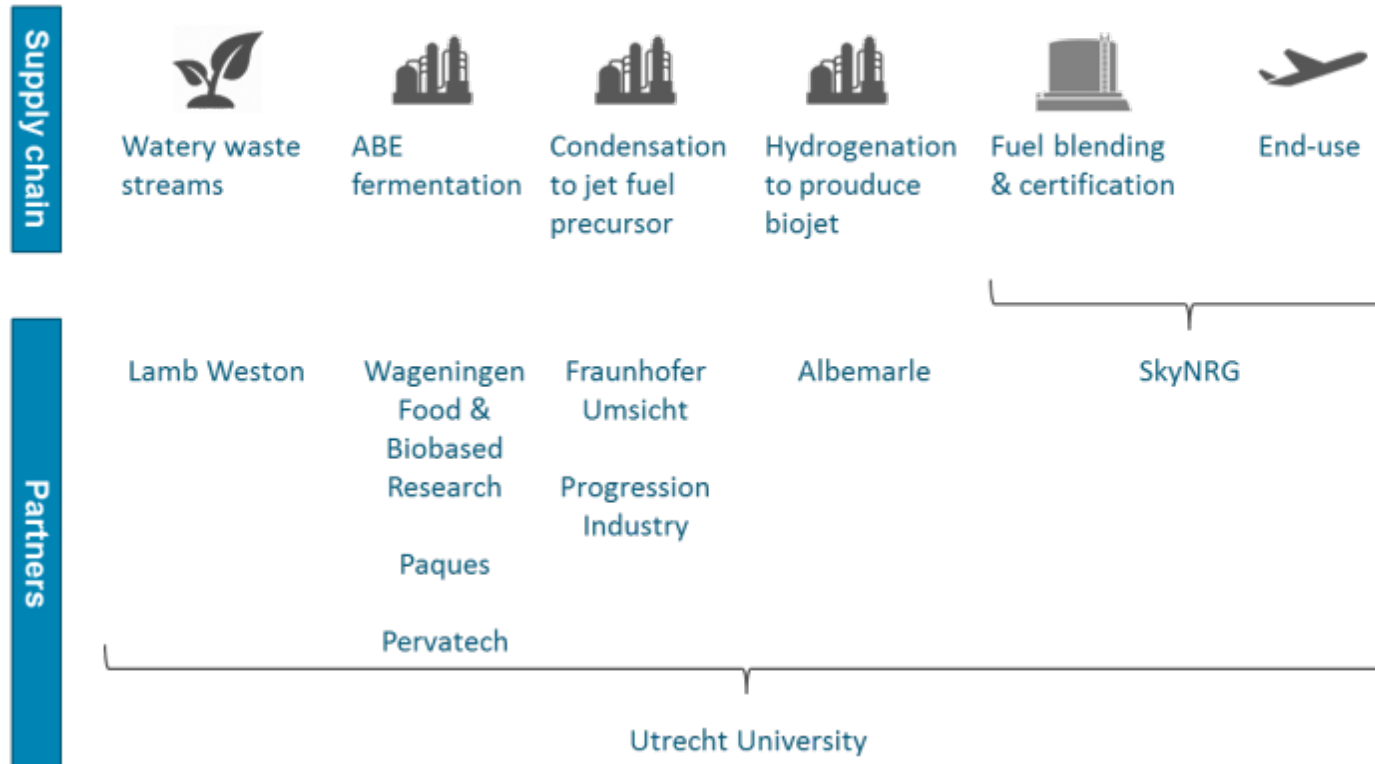
- Low value. Current uses: AD (methane), feed, combustion. Valorisation to jet fuel: from 3 €/GJ to 15-18 €/GJ
- High availability: Estimated 900 Mt/year in Europe¹ (excess)
- No need for extensive pre-treatments
- High carbohydrate content in many cases (foods, crops)
- **Potato waste streams as model biomass:** Steam peels (15 kg/100kg potatoes), wet streams (2.4 kg/100kg potatoes), 3.7 Mtons potatoes produced in NL², 644 Kton residues, estimated production BioJet Fuel is 130Kton

¹ Report: Wasted: Europe's Untapped Resource – An Assessment of Advanced Biofuels from Wastes and Residues; ICCT, IEEP, NNFCC, 2015.

<https://europeanclimate.org/wp-content/uploads/2014/02/WASTED-final.pdf>, ²Fact sheet: Janssens S.R.M. and Smit, A. B., Reststromen

BioJet Fuel supply chain

The consortium consists of leading players from the various steps



Industry-driven supply chain for a new type of jet fuel based on fermentation of wet organic waste biomass to acetone, butanol, ethanol (ABE) mixes, contributing to the sustainability of the aviation sector and the knowledge position of NL



Sustainability and societal advances

- Environmental impact of the Biojet Fuel process will be assessed (LCA, GHG emissions).
- Biorefinery approach: valorization of all streams. High value byproducts will be assessed as well.
- Techno-economical evaluation: comparison with current biojet fuel technologies and ABE/Biobutanol processes

Summary and outlook

- The Biojet Fuel process is an industry driven value chain for production of sustainable jet fuel from low cost and high availability feedstocks in NL and Europe
- Technological advances in fermentation technology, separation and fuel development are expected to result in an economical and sustainable value chain
- The results will serve as basis for follow up activities



Utrecht University

