



Hanze
University of Applied Sciences
Groningen



The Biobased Transition in Groningen/Northern Netherlands

André Heeres, Hanze University of Applied Sciences, January 2020

**share your talent.
move the world.**

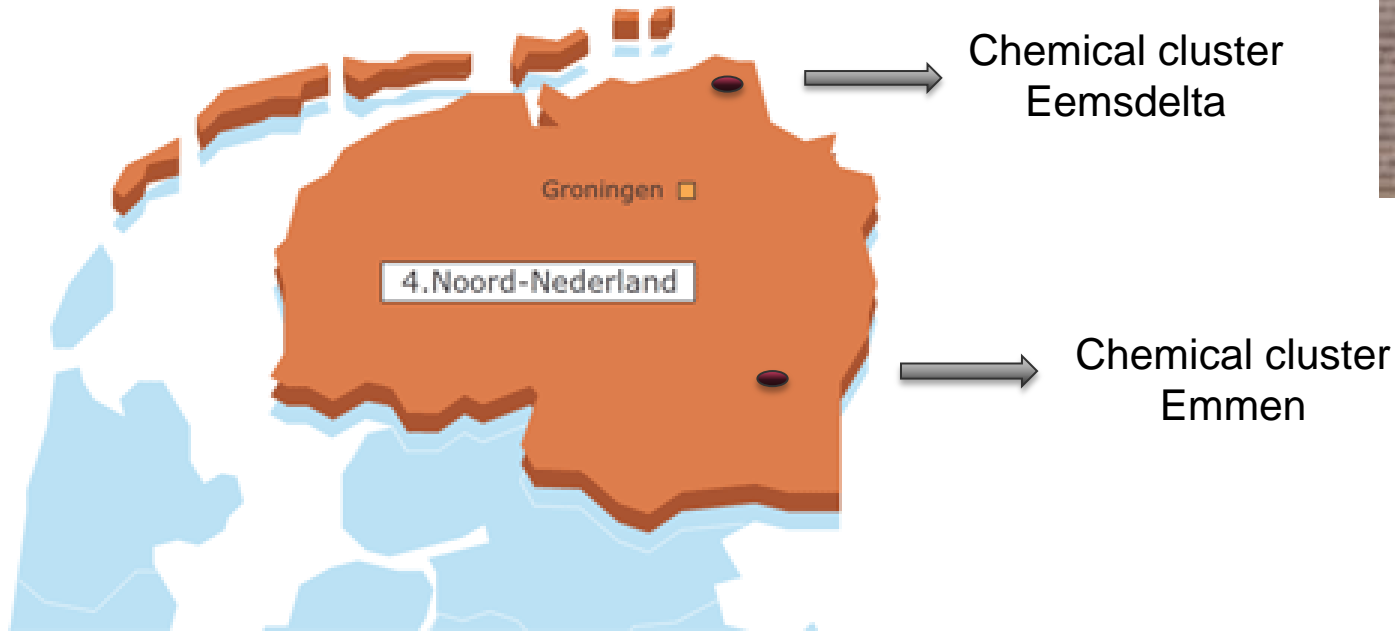
Drivers

- Environmental aspects
 - Growth world population
 - Increasing prosperity (middle class)
- Economic opportunities!



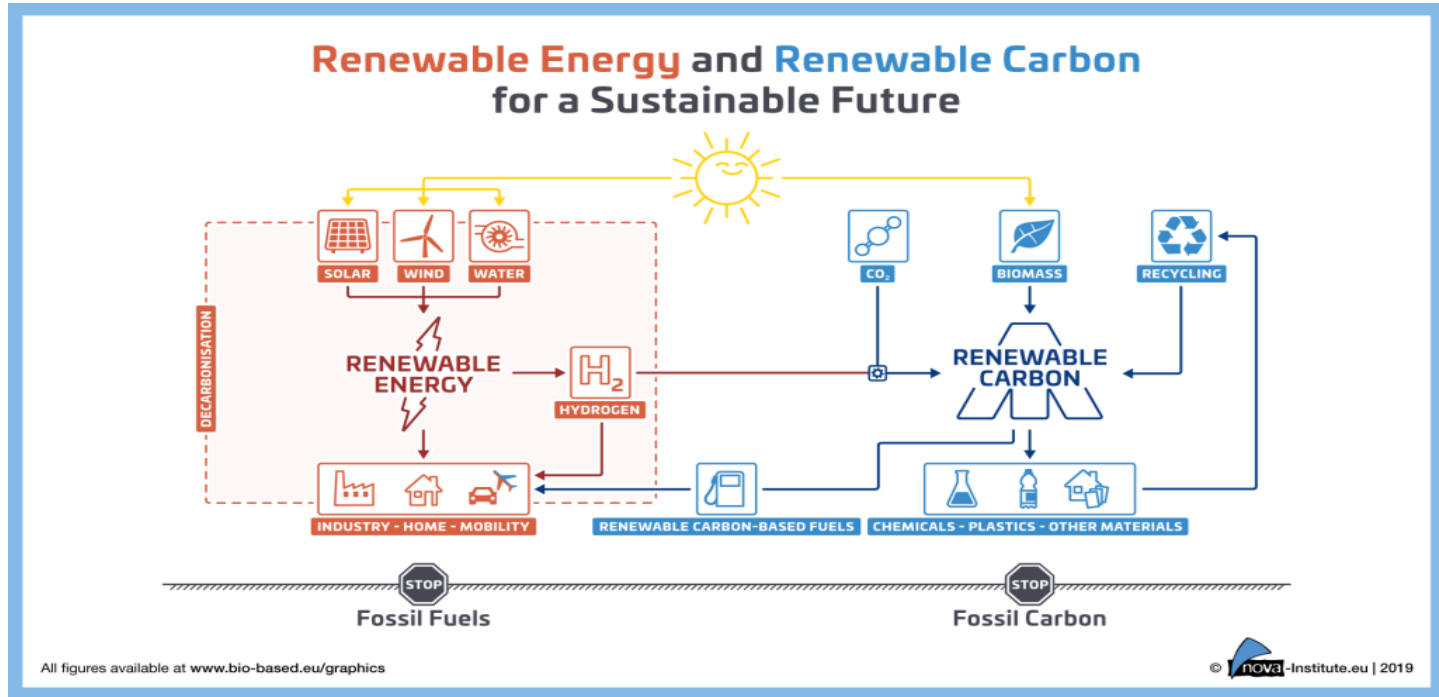
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“Agro/Energy meets Chemistry”



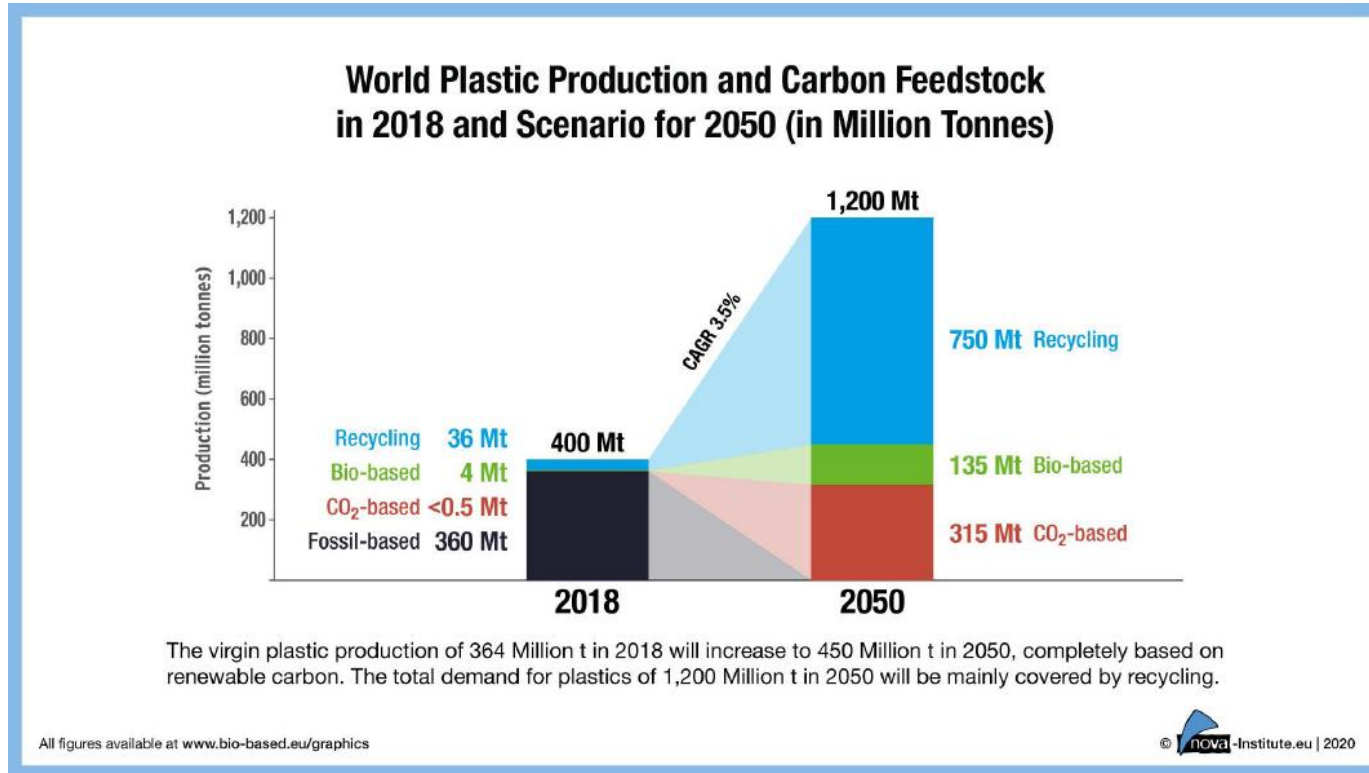
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The ambition.....



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Future scenario

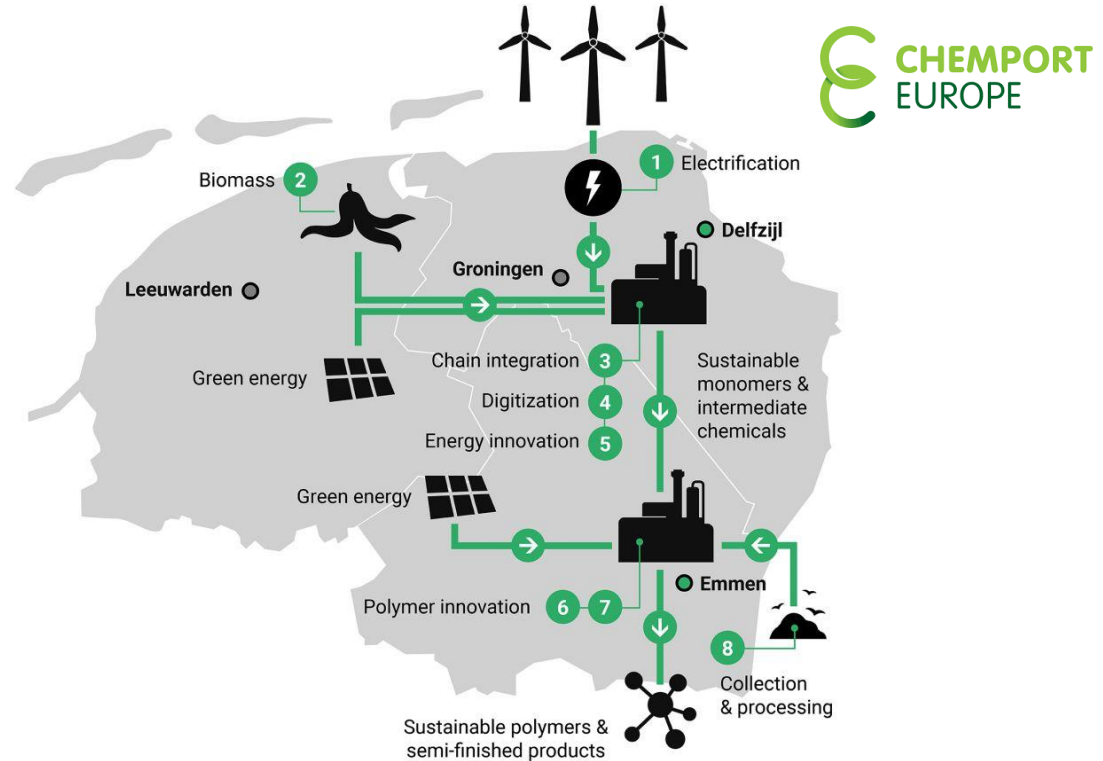


Requirements “agro/energy-chemistry coupling”

- Renewable energy
- Hydrogen
- Biomass (agriculture) (CO_2)
- Agricultural processing
- Biorefinery
- Expertise in chemistry
- Chemical clusters/companies
- Human Capital
- Subsidies, investment funding

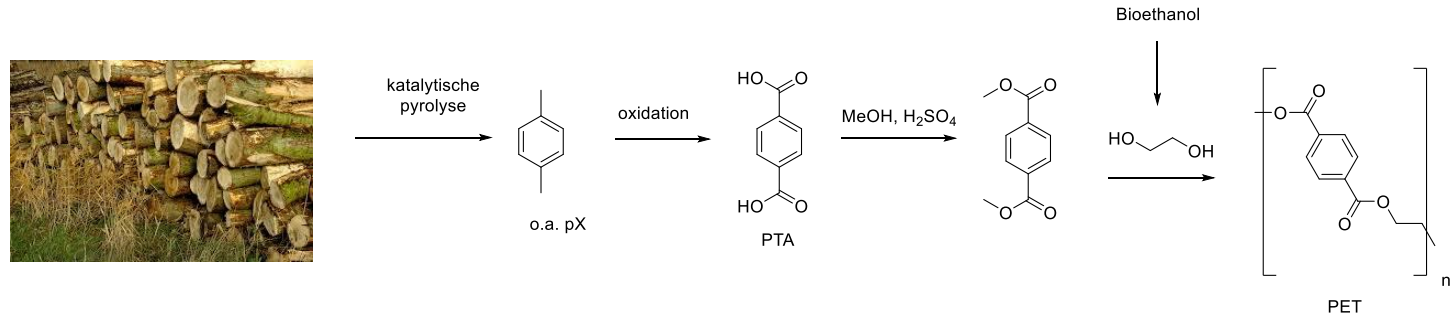
and

- Collaboration between all partners!



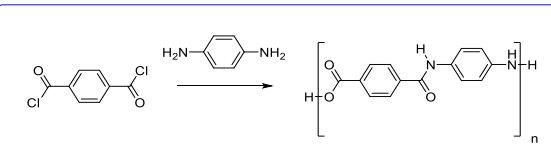
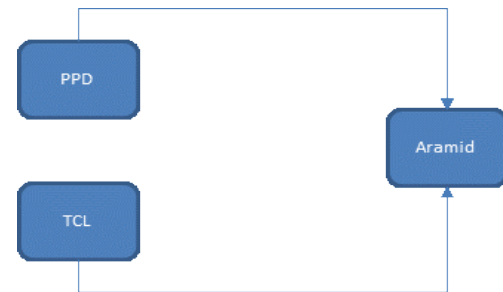
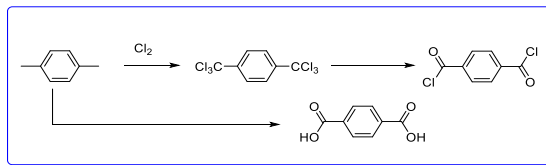
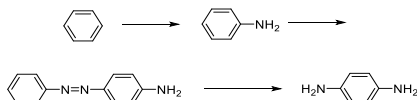
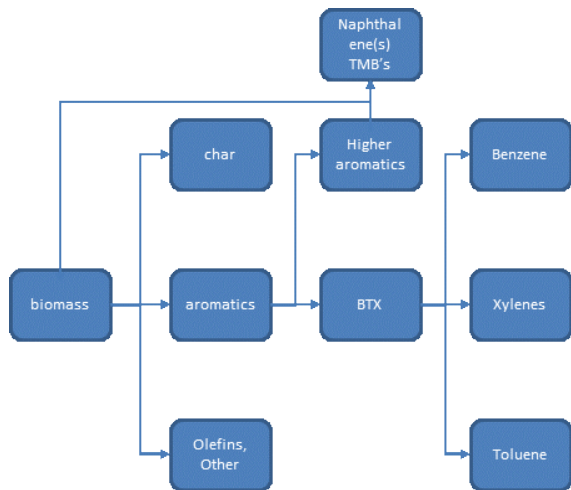
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Downstream towards BioPET100



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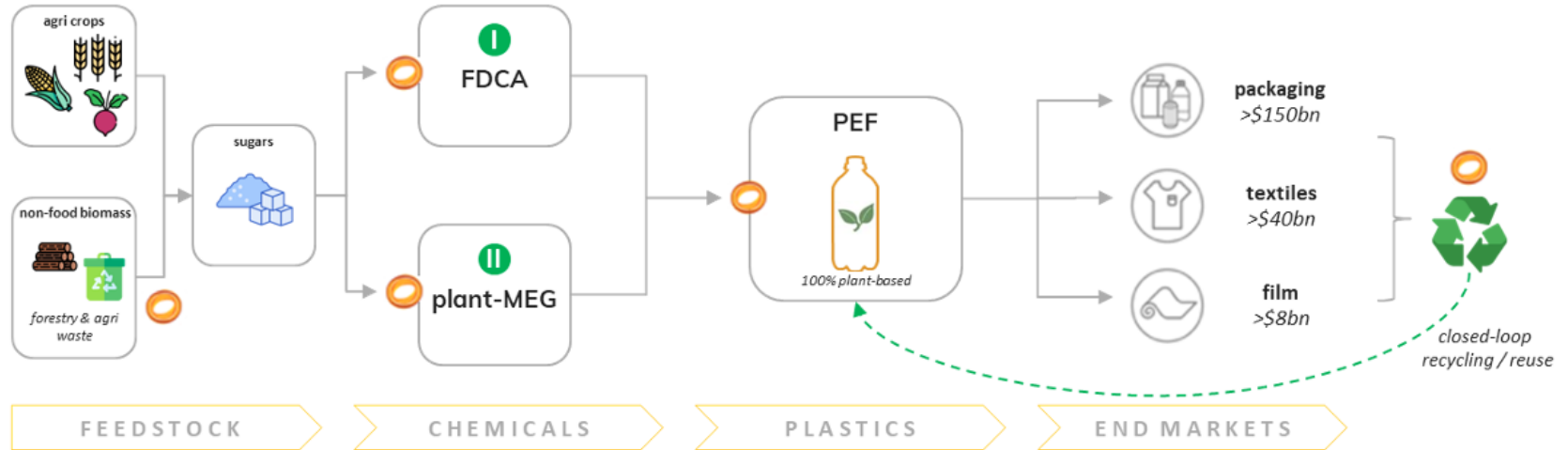
.....and bioaramids (Twaron)



TEIJIN

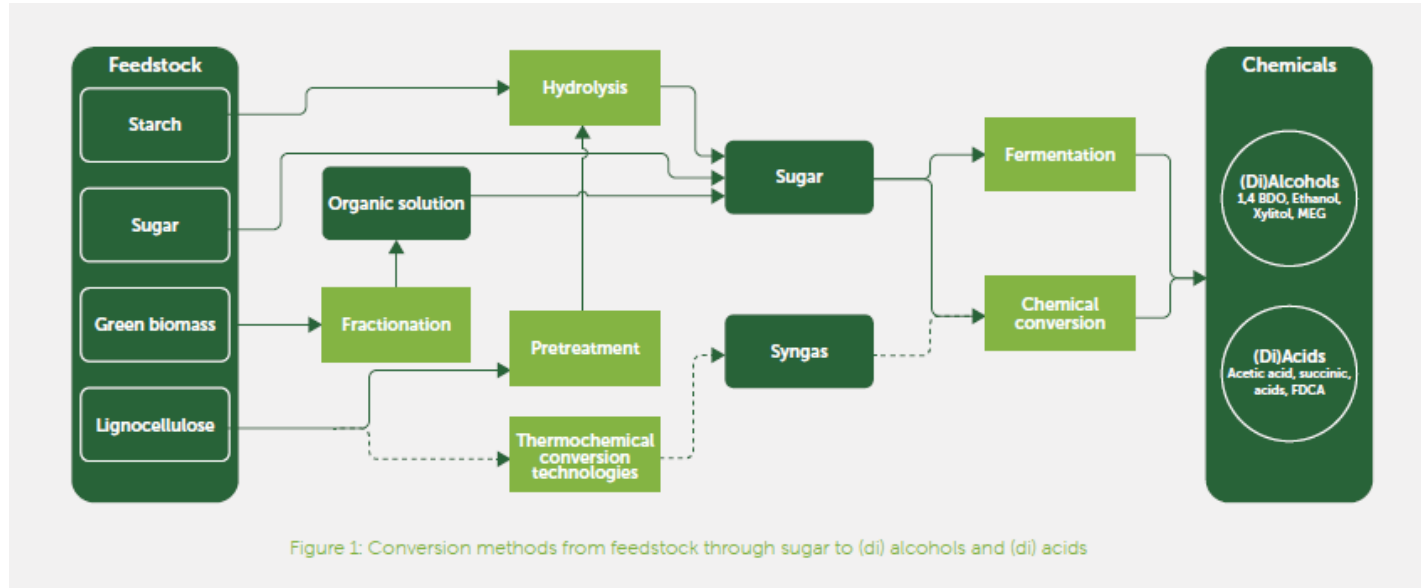
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Biobased PEF



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The Chemport saccharide agenda



Webinar Chemport saccharide agenda: January 28th, 9.30 - 11.00

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Conclusions

- “Greenification” of the chemical industry is essential to reach the climate goals set.
- The Northern Netherlands (Groningen) is perfectly equipped to be a frontrunner in the biobased/circular transition.
- Excellent Public-Private-Partnerships increase the chances of succes!