

Upgraded scenarios FOR integration of biofuel value chains into REFINERY processes

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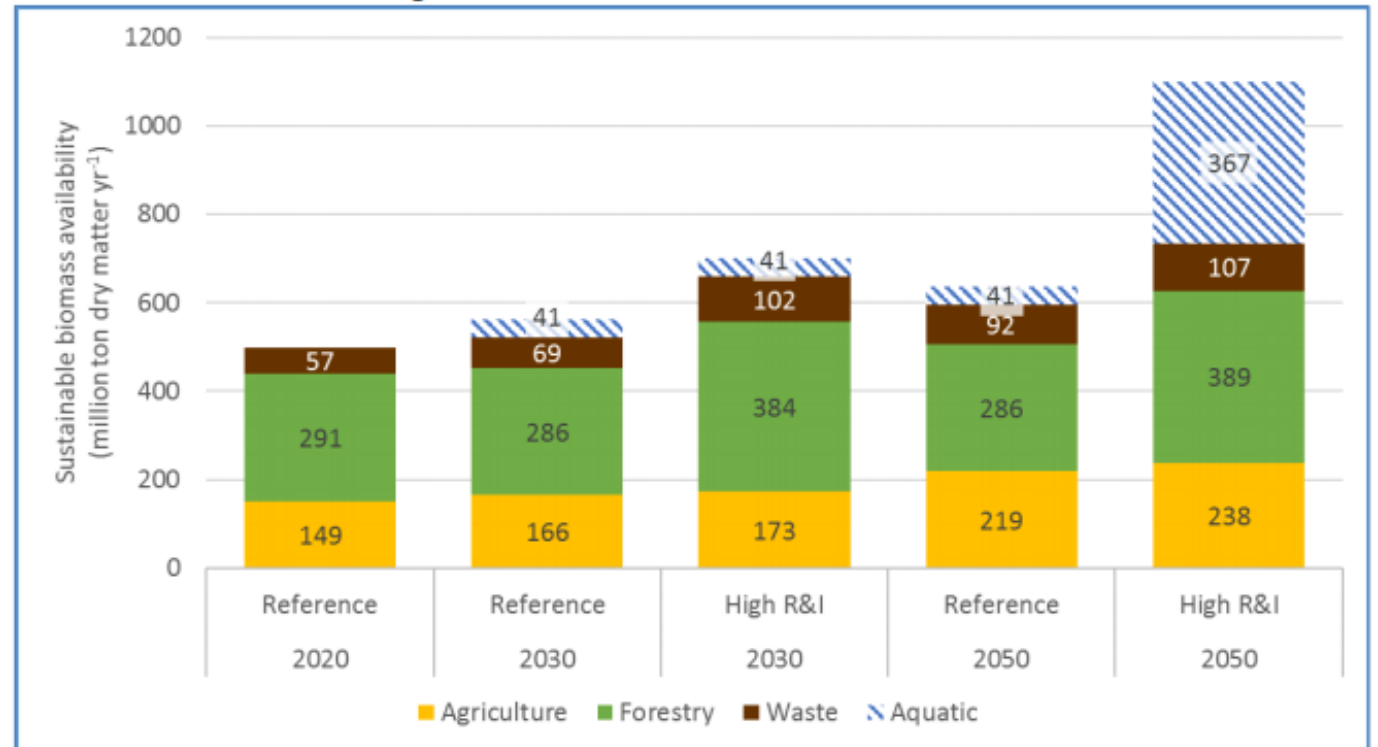


Background

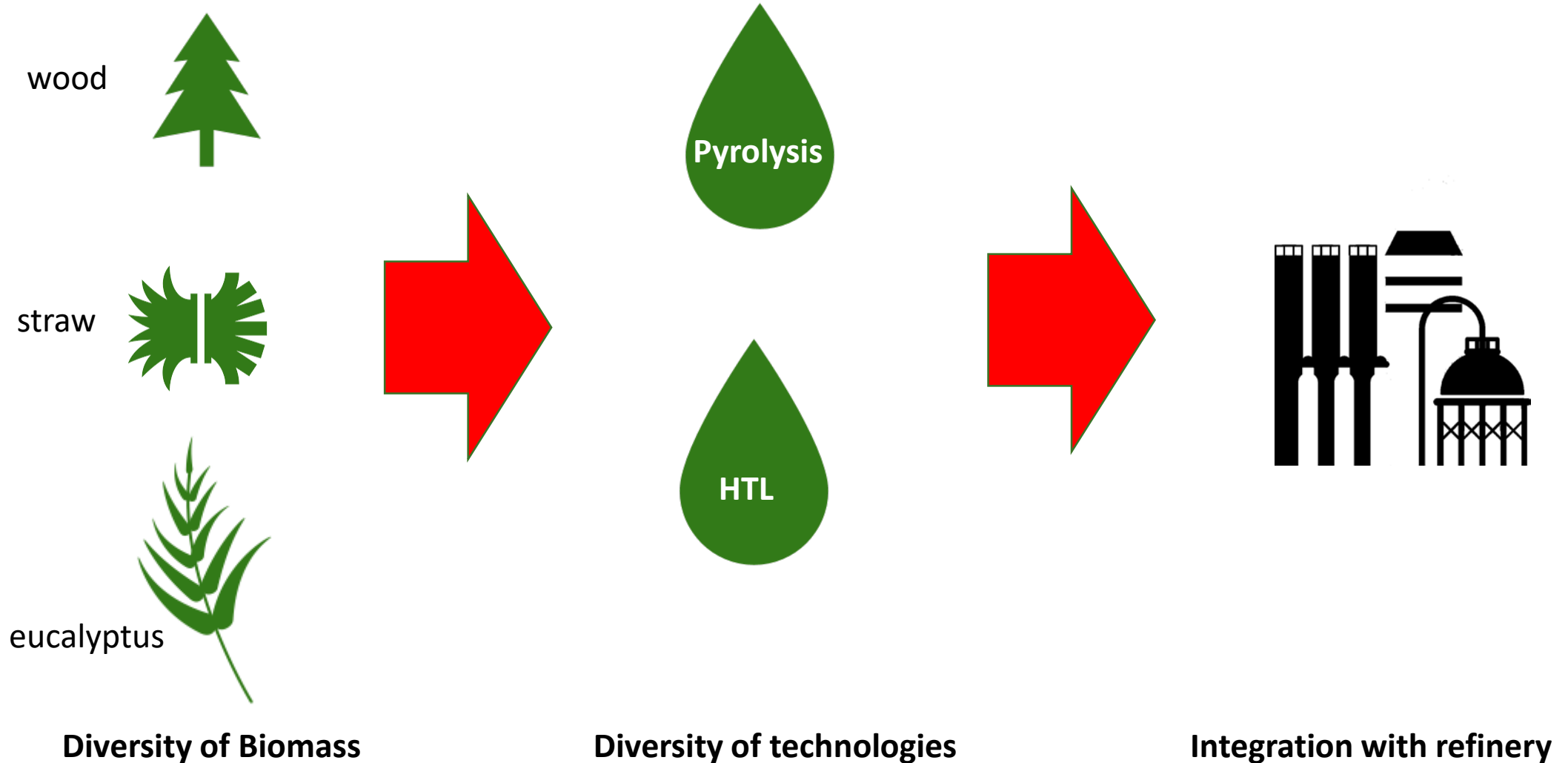
- **RED II proposal: transition from first generation biofuels to advanced biofuels**

- Advanced biofuels have the potential to help achieve the EU climate and energy goals
- Flexibility in feedstock utilization and conversion technology application is an advantage
- To achieve the climate goals, significant investments in advanced biofuels capacity are needed
- R&I can drive down costs, but can also create knock-on effects

Figure 2 Estimated potential: the figure shows the availability of sustainable biomass for energy use in the EU for the reference and high R&I scenario



4Refinery Strategy

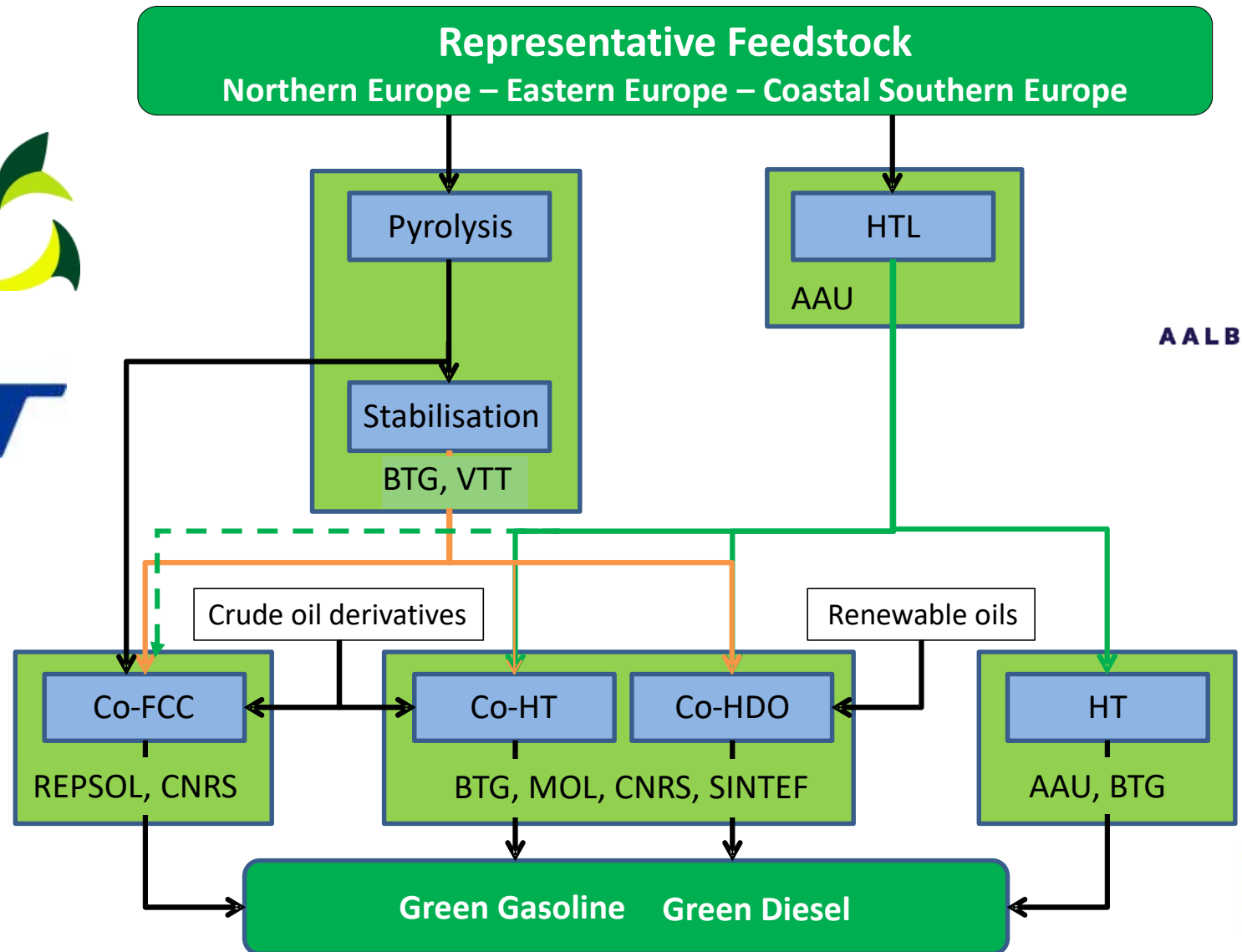


4Refinery Scheme



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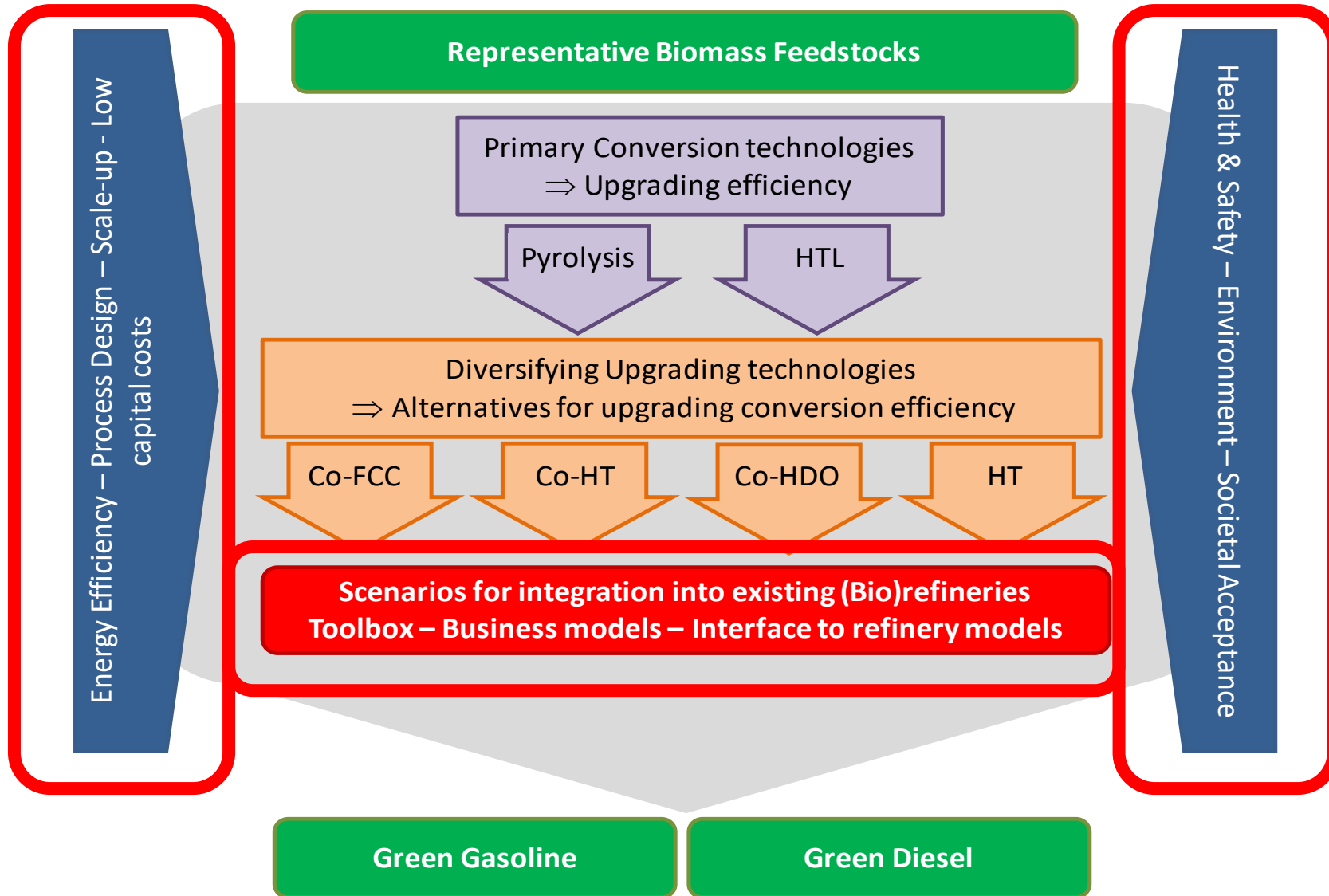


Integration of bio-liquids in refinery

- The approach of 4REFINERY allows to evaluate the viability of integration of upgraded bio-liquids in standard refining conversion processes, technical and economical feasibility: TEA and LCA analysis, impact in yields, process conditions in existing processes, consumption of utilities, catalyst cycle length, etc.
- The integration of bio-liquids in refinery take advantage of:
 - Available throughput in refining units
 - Similar catalysts to conventional processes
 - Similar operating conditions
 - No changes in materials of existing infrastructure
 - Minor modifications and investments in the existing refineries



4Refinery Vision



Business case development

- **TRL assessment** - Aims to systematically assess the maturity of the technologies
- **Supply chain and market assessment** - Aims to characterise a reliable supply chain with a robust route to market for the product(s)
- **Risk assessment and identification of mitigation measures** - Aims to provide insight into project risks, relative importance of each and means of handling risks
- **Identification of outputs and exploitation** - Exploitation plan identifying exploitable results by each partner, type of exploitation and most suitable platform for action



4REFINERY KPIs



> 45 %

Increase overall carbon yield



> 80 %

GHG savings



diesel < 0.9 €/L

gasoline < 1.0 €/L

Minimum Fuel Selling Price



< 0.5 wt%

Residual oxygen content in product





Thank you for your attention!



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