

Renewable Fuels for Transport

**#H2020Energy
info days**

*Maria Georgiadou
Senior Expert
EC – DG RTD D1*

Objectives

- Competitiveness of the next generation of biofuels and renewable fuel technologies
- Up-scaling of advanced biofuels for specific transport needs in a cost-effective way
- European leadership in global development of specific disruptive technologies for a complete ultimate replacement of fossil fuels
- Drop-in renewable fuel solutions for fossil-fuel substitutions
- Feedstock diversification





Increase competitiveness of next generation biofuel and renewable fuel technologies in aviation & shipping

TRL 3 to TRL 5

RIA

EUR 3 to 5 million

Reduce costs and improve fuel performance regarding efficiency, environment and society; achieve European leadership

Development of next generation biofuel and alternative renewable fuel technologies for aviation and shipping

- non-food/feed drop-in biofuel and alternative renewable fuel technologies
- improved conversion efficiency, cost and feedstock supply
- liquid jet-like biofuels and alternative renewable fuels from biogenic residues and wastes through chemical, biochemical and thermochemical pathways, or a combination of them
- bunker fuel-like biofuels for shipping uses





Foster disruptive innovation for advanced biofuels and alternative renewable fuels in the transport & heating sectors; contribute to MI IC 4

to TRL 3

RIA

EUR 2 to 5 million

Progress state-of-the-art; strengthen technology base; accelerate development of outperforming renewable fuels

International cooperation with Japan for Research and Innovation on advanced biofuels & alternative renewable fuels

- involve Japanese organizations in the consortia for the development of disruptive catalytic technologies
- novel catalysts and linked lab-scale components/systems
- improved conversion efficiency, and specific marginal cost reduction
- low-cost bioenergy carriers, non-food/feed based advanced biofuels and alternative renewable fuels excluding H₂
- maximize GHG abatement





Overcome cost barriers of feedstock supply or conversion of advanced biofuels and bioenergy; contribute to MI IC 4

TRL 3 to TRL 5

RIA

EUR 3 to 5 million

Progress state-of-the-art; strengthen technology base; accelerate development of sustainable fuels; increase viability of advanced biofuels & bioenergy

International cooperation with Canada on advanced biofuels & bioenergy

Involve Canadian organizations in the consortia for the development of

- the full supply chain of intermediate carriers, advanced biofuel, heat & power
 - sustainable biomass production & collection that facilitate bioenergy production and decrease feedstock supply costs
 - non-food/feed biomass including forestry, agricultural and their residues, organic fractions of municipal & industrial wastes
- thermo-, bio- & chemical biomass processing to advanced biofuels focusing on pre-treatment, conversion & reduction of the marginal cost





Increase renewable fuel competitiveness integrating with unexploited RES and using existing fuel infrastructure

TRL 3-4 to TRL 4-5

RIA

EUR 3 to 5 million

Reduce conversion energy losses & production costs of algal fuels/PtG/PtL, Heat to G/L; improve fuel performance for efficiency, environment and society

Development of next generation renewable fuel technologies from CO₂ and renewable energy (Power and Energy to Renewable Fuels)

- renewable fuels for energy and transport
- improved energy efficiency
- improved cost of conversion of direct renewable energy (e.g., sunlight) or renewable electricity and /or heat to liquid or gaseous renewable fuels from CO₂
- fuels with very low engine-out emissions





Increase reliability of large-scale production of advanced biofuels from seaborne feedstock

TRL 5 to TRL 6-7

IA

EUR 6 to 10 million

Enlarge the feedstock basis; improve the viability of technologies for sustainable fuels and energy production

Demonstration of advanced biofuels production from aquatic biomass

- aquatic advanced biofuel pathways which improve economics of subsequent energy production, including upgrading and co-products valorization
- 100-1000 tons energy-driven integrated biorefinery from seaborne aquatic biomass such as macro-algae and/or fish residues
- demonstrate the full value chain with at least 70% energy output (fuel, heat and power) and environmental sustainability on Life Cycle assessment basis
- consider long-term potential for large scale biofuel production





Increase sustainable land availability for dedicated biofuel production at large scale; contribute to MI IC 4

TRL 3-4 to TRL 4-5

RIA

EUR 2 to 4 million

Bring polluted land back to agricultural production and to low-iLUC risk liquid biofuels from energy crops; contribute to several SDGs

Combined clean biofuel production and phytoremediation solutions from contaminated lands worldwide

- link phytoremediation strategies & clean liquid biofuel production
- optimize energy crops for different classes of known soil pollutants
- integrate in the conversion process to biofuels a strategy to extract pollutants in concentrated form
- optimize overall process in terms of cost and sustainability
- do pilot-scale, small trials for both clean biofuel production and phytoremediation
- establish international cooperation for a global challenge





Thank you!

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Innovation