# SP3 – Biochemical Processing of Biomass into Advanced Biofuels & Bio-based products

Francisco Gírio (LNEG, Portugal)
SP3 Coordinator

**Collaboration with Eastern European Countries**
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# SET PLAN TARGETS

| Challenge | KPI by 2030 |
|---|---|
| To reduce feedstock costs by increasing yield and technological quality of biomass | • *Target price of biomass on parity with fossil fuel prices* |
| To increase thermo-chemical processing efficiency | • *net process efficiency > 30%.*<br>• *GHG savings > 60%*<br>• *Cost of advanced biofuels < 35 €/MWh.* |
| To increase process efficiency of intermediate bioenergy carriers | • *cost for liquid and gaseous intermediate bioenergy carriers < 10 €/MWh (pyrolysis oil), and < 30 €/MWh (microbial oils)*<br>• *cost for solid intermediate bioenergy carriers < 5 €/MWh.* |
| **To develop cost-effective biochemical technologies and to improve biological efficiency of biofuel production** | • ***net process efficiency > 30% (as 2018 values).***<br>• ***GHG savings > 75%***<br>• ***Cost of advanced biofuels < 35 €/MWh.*** |
| **To increase the efficiency of converting lignin and (hemi)celluloses feedstock into biofuels** | • ***net process efficiency > 75% (GHG emission savings > 60%)*** |
| **To improve biological efficiency for converting hydrogen into advanced biofuels.** | • ***cost for advanced biofuels < 35€/MWh*** |
| **To increase the efficiency of RES-Hybrid systems for producing intermediary bioenergy carriers (e.g. hydrogen, biogas) or biofuels by integrating biochemical biomass conversion pathways into other renewable energies (e.g. CSP, water electrolysis)** | • ***production cost < 4€/Kg*** |

# EERA Bioenergy SRIA 2020 (Nov ´2019)

## SP3: Biochemical processing of biomass into advanced biofuels and bio-based products

**SP 3: BIOCHEMICAL PLATFORM**

Research Areas

| Cell Factories and Enzymes | Feedstock preparation, deconstruction and fractionation | Biochemical and/or chemical conversions into advanced biofuels and bio-based chemicals |
|---|---|---|
| Novel enzymes and enzym performance | Increase the efficiency of current biomass fractionation technologies | Increasing bioprocess officiency for ethanol, higher alcohols, fatty acids, hydrocarbons and hydrogen |
| Increase the efficiency of existing biochemical pathways in microbial and algae cell factories | Develop novel fractionation technologies, including the cleaning and purification of syngas and other gas streams | Improving the efficiency of (bio) catalytic upgrading of biological products into advanced biofuels |
| Develop novel microbial systems by introducing novel pathways, including design of CBP microorganisms and mixed cultures | | Improving carbon conversion efficiency from syngas, $H_2$ and/or $CO_2$ fermentation to biofuels and/or bioenergy carrier production |
| | | Side stream recovery |
| | | Biochemical-based biorefinery integration |

Research Priorities

# SP3 activities – 2020/2021

1. Joint Webinars with other SP´s (Competitive EU calls)
2. SP3 one-day annual Workshop
3. Discussion Groups (one per RA) being established.
4. Participation in EU Bioenergy networks for preparing strategic papers & Seminars – ETIP-Bioenergy, CETP

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# THANK YOU FOR YOUR ATTENTION

francisco.girio@lneg.pt

***SPC Biochemical Platform***