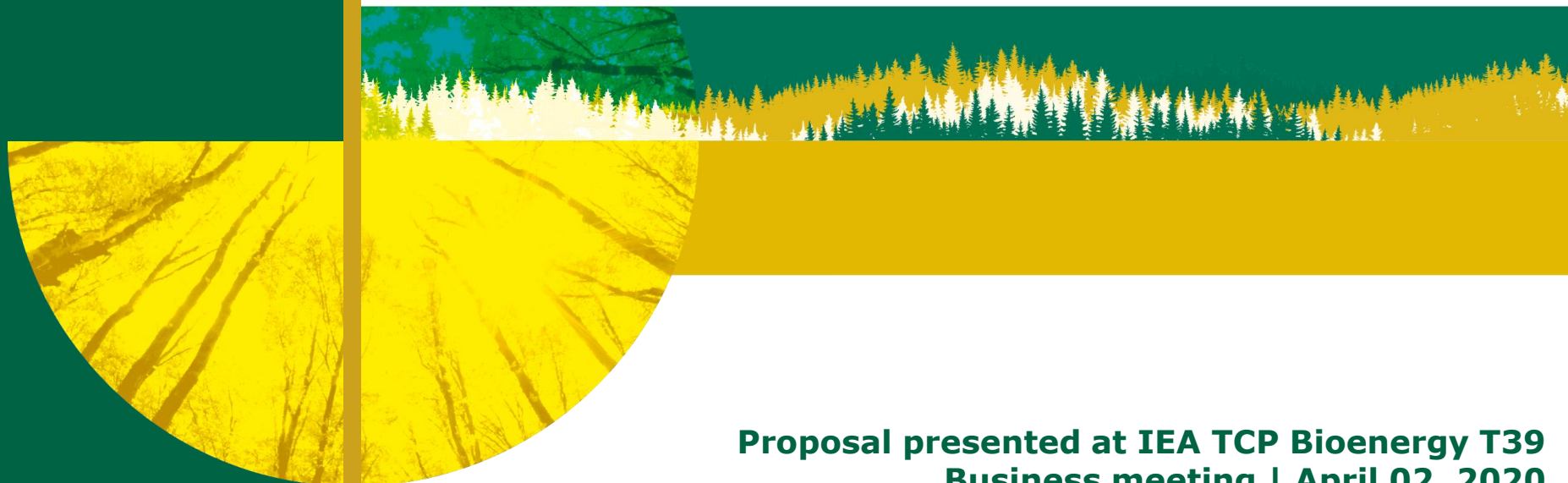


# **Project proposal | Assess successes and lessons learned for conventional / advanced biofuels deployment**



**Proposal presented at IEA TCP Bioenergy T39  
Business meeting | April 02, 2020**

**Franziska Müller-Langer et al.**

# Background

- Major challenges to achieving a CO<sub>2</sub> (GHG emissions) neutral society by 2050 and fulfilling sustainable development goals (SDGs) and IEA's Sustainable Development Scenario (SDS) >> Among others transport is proving to be an extremely difficult sector to decarbonize
- Transport biofuel production is expected to continue growing >> annual rates below 5% in the near future (once pandemic resolved!) versus required sustained levels of 10% until 2030 to get on track with SDS
- Despite billions of dollars of investments, ramped up production of low carbon advanced biofuels remains well below the levels needed
- Stronger policy support and a greater rate of innovation are required to reduce costs of development and scale up of sustainable advanced biofuel production, particularly for aviation, HDV and marine which are especially hard to decarbonize.
- Project seeks to analyze international progress to identify approaches to be most effective for broadly deployment to get transport decarbonization back on track with SDS goals.

# Purpose and objectives

- Evaluation of reasons underlying
  - the past and ongoing booms and busts cycles of biofuel technologies development, demonstration, deployment and replication
  - in order to identify the best policy framework conditions and measures for stimulating increased future markets for production and consumption of sustainable transport biofuels.
- Research question: **“What is required to re-stimulate vigorous biofuels development and scale up?”**

# Activities and expected results

- Review national programs of leading biofuels producer countries (specifically including at least the countries of Brazil, Germany, Sweden and the USA, each of which has substantial biofuels programs; compare and contrast different producer countries framework conditions and policy approaches and levels and rate of growth of biofuels production that these conditions have enabled.
- This assessment will highlight the most important factors that have been incorporated in the more successful national programs and also identify the balance between market-related versus technology-related policy instruments that have proven to be most effective.
- Case studies will also be provided to illustrate examples of successful progress in developing and scaling up conventional/existing and advanced/emerging biofuels production technologies.
- Meta analysis of existing publications on “Lessons learned biofuels” >> evaluation of most common reasons for success to identify measures for biofuel promotion

# Work packages

*„Lessons learned biofuels I“ (Triennium 2019-2021)*

## **WP 1 | Status quo biofuel projects**

T39 (Lead), T45

Overview TRL, capacities of biofuels projects

Wrap up national programs

Existing sustainability / certification schemes

## **WP 2 | Meta-analysis existing studies**

T45 (Lead), T39, T40

Inventory of studies, specifically addressing lessons learned biofuels

Screening with criteria to be defined

## **WP 3 | Case studies technologies**

T39 (Lead)

Success stories for dedicated technologies and regions, (e.g. US, EU, Brazil)

## **WP 4 | Case studies supply chains**

T40 (Lead), T45

Success stories for biomass supply chains

## **WP 5 | Synopsis / synthesis of key issues**

T39 (Lead), T40, T45

Conclusions, guideline „good to know“ for decision makers, identification of required actions for „Lessons learned biofuels II“

*„Lessons learned biofuels II“ (Triennium 2022-2024)*

As T41 intertask project incl. several Bioenergy TCP Tasks, (AMF?)

# Scope

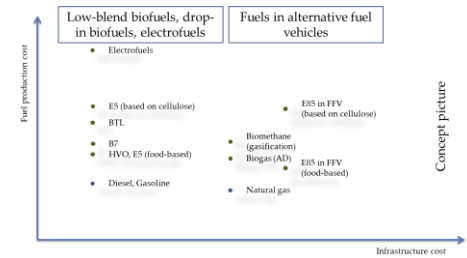
- **Participants:** IEA Bioenergy Tasks
  - T39 (transport biofuels) contributes expertise on technology development and market and policy issues for conventional and advanced transport biofuels.
  - T40 (trade/deployment) contributes expertise in feedstock supply and product distribution supply chains and markets
  - T45 (sustainability) >> contributes expertise on existing and future sustainability metrics being incorporated into biofuel policies, identification of “soft” criteria driving technological innovation
- **Deliverables:** Report and launch webinar, potentially workshop
- **Schedule:** Phase I 06/2020 to 09/2021 (Phase II next triennium)
- **Budget:** \$30k (Task 39) + \$xxk (Task 40) + \$yyk (Task 45) + \$zzk (Task 41 strategic fund) = \$wwk total >> strategic fund for Phase II
- (Project coordinator in T39: Franziska Müller-Langer & Tomas Ekbom)

# New idea for joint work | “Fuels and engines – benefits and costs”

**Idea presented at IEA TCP Bioenergy T39  
Business meeting | April 02, 2020**

**Franziska Müller-Langer, Dina Bacovsky**

# Idea



- **Objectives:** Support decision makers in deciding upon which fuels to push for
  - To provide an overview on fuel options in the near and long-term future
  - To identify low hanging fruits in terms of impact and costs
  - To establish the impact that certain fuels have on GHG emissions, local emissions, and energy efficiency
  - ...also for future engine concepts
  - Relevant aspects: Fuel production costs, Infrastructure build-up costs, Fuel applicability in existing engines, Fuel effect on local pollutant emissions of current and future engine+after-treatment systems, Fuel effect on energy efficiency, Fuel effect on well-to-wheel GHG emissions, Country-specific market situation
- **Participants:** TCP Joint work
  - Combustion TCP >> Gas Engines Task, System Analysis Task
  - IEA Bioenergy TCP Task 39 >> Biofuels, Renewable fuels for transport
  - Advanced Motor Fuels TCP >> Annex 28-2 Fuel Information System, New