



Leadership in renewables

Transport: the impact of EU R&D funding

Power | Heating & cooling | Transport

OBJECTIVES

A comprehensive study of renewable transport research and development (R&D) support within the EU over the past 20 years

1 Identify the impact of EU R&D support for the renewable transport fuels sector

2 Understand how the renewable transport fuels sector has developed

METHODOLOGY

EFFECTIVE DATA COLLECTION ACTIVITIES USING A RANGE OF METHODS

DATA FROM EXISTING DATABASES

STAKEHOLDER QUESTIONNAIRE

CASE STUDIES

EXPERT INTERVIEWS

LITERATURE REVIEW

KEY FIGURES: EU R&D FUNDING

Number of EU Framework Programme projects

125

projects for renewable transport fuels

Of these, 119 were on biofuels and 6 on multiple renewable energy technologies. These do not include those projects related to biogas production (80+), which are accounted for in the heating & cooling and power sectors

Value of funding for EU Framework Programme projects

€574 m

for renewable transport fuels

This does not include projects related to biogas production (over €150 million). These are accounted for in the heating & cooling and power sectors

EU funding by Framework Programme

More than €40 million/year in Horizon 2020 (H2020) and Framework Programme 7 (FP7) – up from €13 million/year in FP6 and €2 million/year in FP5

IMPACT ON KNOWLEDGE GENERATION



Patents

EU share of global patents in biofuels has declined from 28 % in 2000 to 5 % in 2014



Publications

EU has retained a leading share of global publications for renewable transport fuels

In 2017, EU's share of global publications on biofuels was 21 %

IMPACT ON SECTOR DEVELOPMENT

13 Mtoe

annual biofuels energy production in 2016

Grew from 223 ktOE in 1995

Energy production

7.1 %

of gross final energy consumption from renewable sources in the transport sector in 2016. 5.8 % of this from biofuels

Grew from 1.4 % in 2004



% EU transport

205 000

people employed in the EU biofuels sector in 2016

134 000 new jobs since 2008

Jobs

€13 billion

EU biofuels sector turnover in 2016

Grew by 1.4 billion from 2008

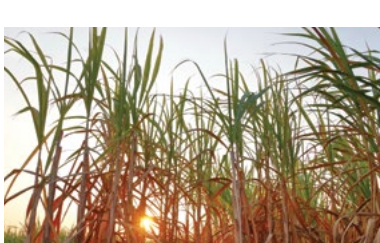
Turnover

EXAMPLES OF IMPACT FROM R&D PROJECTS



Initiative Towards sustainable Kerosene for Aviation (ITAKA)

- The project developed and tested advanced and sustainable biojet fuel from camelina oil at commercial scale, and was a cornerstone for biojet fuel use worldwide
- Developed a value chain for commercial biojet fuel in Europe between feedstock and biofuel producers and distributors, airports and airlines. This increased knowledge for feasibility and scale-up of each process step, so paving the way to commercialisation
- More than 70 % greenhouse gas savings, 30 % improvement of local air quality at airports and 50 % particulate matter emission reduction
- Commercial flights from Oslo have used biojet fuel since the end of 2015. An important patent was also filed



Sunliquid® - large-scale demonstration plant for the production of cellulosic ethanol (Sunliquid)

- The project demonstrated a novel hydrolysis technology, encompassing in-situ production of highly optimised enzymes to yield ethanol
- Considerable reduction in production cost and an increase in ethanol production of almost 50 %
- Almost 95 % greenhouse gas savings compared to fossil fuels
- Licence sold to Enviral in Slovakia enabling the company to build a full-scale commercial plant
- Flagship plant being built in Romania with 50 000 tonnes/year capacity, supported by Lignoflag, an H2020 project