



# Biofuels Research in Austria

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**Energy and Environmental Technologies**

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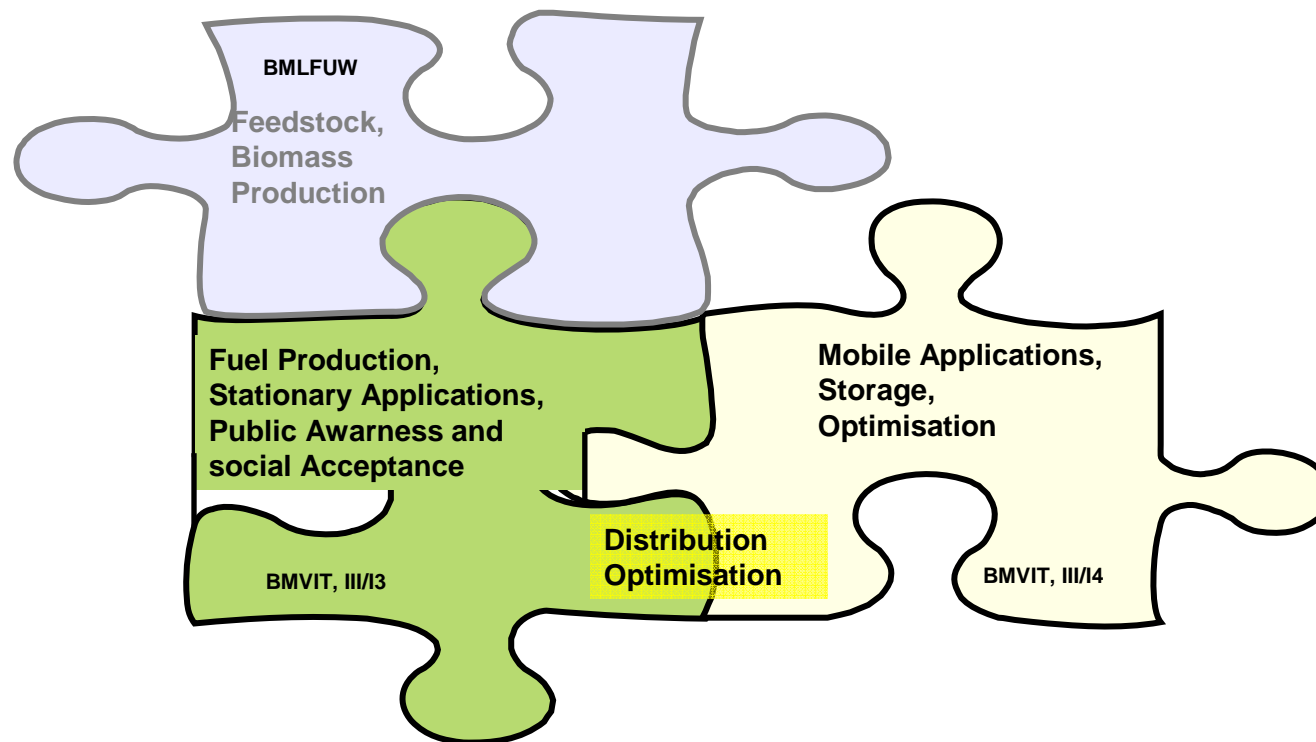


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# Inventory



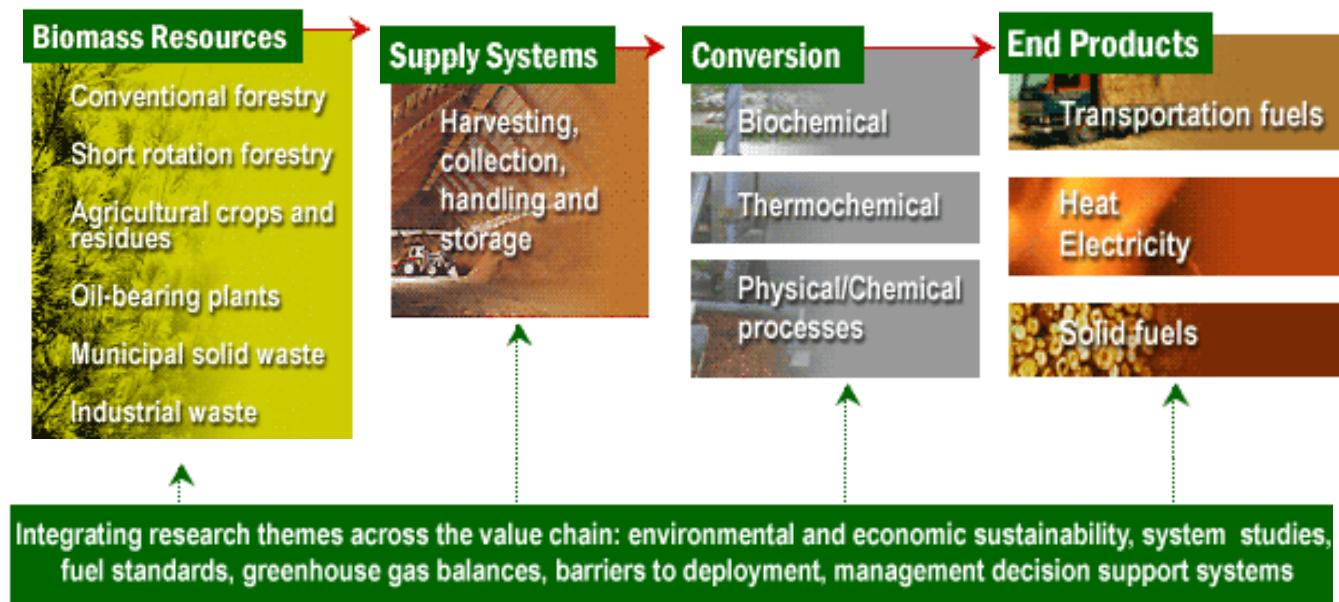
## Cooperation between Energy (III/I3) and Transport (III/I4) and BMLFUW





- Some EU-Projects in the field of Biofuels with austrian participants:
  - **Bio-SNG** – Demonstration of the Production and Utilisation of Synthetic Natural Gas (SNG) from Solid Biofuels (Repotec, TU Wien, Biomasse Kraftwerk Güssing)
  - **CLEANENGINE** – Advanced technologies for highly efficient Clean Engines working with alternative fuels and lubes (AVL List)
  - **ECO-ENGINE** – Energie conversion in Engines (AVL List)
  - **EU-AGRO-BIOGAS** – European Biogas Initiative to improve the yield of agricultural biogas plants (BOKU Wien, GE Jenbacher, RTD Services)
  - **GREEN** – Green Heavy Duty Engine (AVL List)
  - **NICE** – New Integrated Combustion System For Future Passenger Car Engines (AVL List, TU Graz)
  - **ULYSSES** – Future Propulsion as ONE System (AVL List)
  - **RENEW** – Renewable fuels for advanced powertrains (TU Wien, Biomasse Kraftwerk Güssing, Europäisches Zentrum für Erneuerbare Energie, REPOTEC – Renewable Power Technologies)

## IEA-Bioenergy





- **IEA Tasks with austrian participation:**
- **Implementing Agreement -Bioenergy:**
  - Task 29: Socio-Economic Drivers in Implementing Bioenergy Projects
  - Task 32: Biomass Combustion and Co-firing
  - Task 33: Thermal Gasification of Biomass
  - Task 34: Pyrolysis of Biomass
  - Task 37: Energy from Biogas and Landfill Gas
  - Task 38: Greenhouse Gas Balances of Biomass and Bioenergy Systems
  - Task 39: Commercialising 1st and 2nd Generation Liquid Biofuels from Biomass
  - Task 40: Sustainable International Bioenergy Trade – Securing Supply and Demand
  - Task 42: Biorefineries: Co-production of Fuels, Chemicals, Power and Materials from Biomass
- **IEA Implementing Agreement on advanced motor fuels:**
  - Annex XXVIII: Information Service & AMF Website (AMFI)
  - Annex XXXII: Particle Emissions of 2-S Scooters
  - Annex XXXIV: Analysis of Biodiesel Options
  - Annex XXXV: Ethanol as a Fuel of Road Transportation
  - Annex XXXVI: Measurement Technologies for Ethanol

- **Current Situation** (European and austrian framework)
- Biofuelsdirective 2003: to increase the share of biofuels to 5,75% in 2010 (energy equivalent)
  - Austrian target: 5,75% already 2008
- The „new energy police document“ sets a minimum requirement for the share of biofuels in 2020 at 10%.



- **Why Biofuels second generation?**

„Today, biofuel production in europe is significantly limited in volume and is not fully sustainable due to limited availability of raw materials that compete with food and other uses and have high costs.

In the future, biofuels must perform better, in terms of overall environmental sustainability, ...

**... new biomass-conversion pathways have to be developed**

(SRA-EBTP)





## Feedstocks

- Social acceptance of biofuels
- Managing competition for different biomass applications
- Increasing yield per hectare
- Developing energy crops
- Efficient biomass logistic systems

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## Conversion processes

- Improve current processes for different raw materials
- New thermochemical and biochemical processes for lignocellulosic biomass
- Biorefinery concepts
- Conversion of waste into biofuels
- Demonstrate industrial scale reliability of new technologies



## Fuel and Engine Optimisation

- Fuel distribution systems
- Develop vehicle modifications for biofuels
- Generate engine-fleet test data
- Gas engine and vehicles
- Set quality standards for biofuels